London Borough of Hammersmith and Fulham

Response to the Examining Authority on 2 December 2013

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Appendices

- 2011 Submission by Local Community Group – Residents against the Thames Sewer in Fulham (RATS)
- Letter from Leader of Hammersmith and Fulham council to Mr Aylard (Thames Water) - March 2011
- Acknowledgement Letter from Thames Water to Leader of Hammersmith and Fulham council - June 2011
- Community response to Phase 2 consultation – February 2012
- Comparative Analysis of Barn Elms as main tunnel drive site and Carnwath Road Riverside.
Introduction

1.1 This document includes responses to issues that are relevant to the London Borough of Hammersmith and Fulham raised at the Examination and responses to the additional documentation submitted by Thames Water Utilities Limited (TWUL) since the Preliminary Meeting in September.

1.2 Hammersmith and Fulham welcomes the additional information that is being provided by Thames Water (TW), however we have found it difficult and time consuming to find information that is relevant to Hammersmith and Fulham (H&F) on the Planning Inspectorate (PINs) website. The improvement to PIN’s website assists in finding some documents, but the titles of documents do not enable interested parties to assess the relevance of documents without opening each document. It would be helpful if there could be a list of all documents submitted by TW since the Preliminary Meeting that lists the title and subject/issue/location of each document. For the errata documents it would be helpful if the changes also could be shown as changes to the original text/figures.

1.3 The council has been encouraged by the questioning and discussions that have taken place so far at the hearings for the Thames Tideway Tunnel. The Examining Authority will be aware that the council attended the first hearing session on 11th November 2013 where the rationale behind the site selection and tunnelling strategy was discussed. During the 11th November hearing the council were keen to hear and understand from the applicants the rationale for the selection of Carnwath Road Riverside as a main drive site. However, despite direct questioning from the Inspectorate on this matter, the applicants failed to give an adequate answer as to how they came to the conclusion that Carnwath Road was a suitable site for a main drive site. The council is concerned that the weight given to consultation responses, site suitability reports and the responses to First Written Questions use the evidence in a selective way in order to justify TW’s selection of Carnwath Road Riverside as the preferred main drive site. H&F has identified some examples in the council’s comments below. There may be other instances where this is also the case but the council has not had the resources to check all the information that is in the public domain or as in the case of consultation responses, only the summary of the responses has been made available.

1.4 In particular, the applicants could not provide the Inspectorate or attendees at the hearings with answers to the following questions:

1. Why was the site at Carnwath Road deemed ‘suitable’ when five out of nine of the criteria used were assessed as ‘less suitable’?

2. What methodology was applied in the assessment of sites during the 2011 workshops which ultimately concluded that Carnwath Road was a suitable site for a main drive?

1.5 The council considers that answers to these questions are fundamental to the decision as to whether Carnwath Road should be used as a main drive site and we would like to take this opportunity to record our concern that a detailed answer and evidence on this matter has not yet been provided in either the application
documentation or as a result of direct questioning by the Inspectorate at the 11\textsuperscript{th} November hearing.

1.6 If the applicants are unable to answer these questions and other issues raised in this submission at a hearing dedicated to this matter, the council question whether an adequate assessment and balanced decision making process took place. In the absence of a thorough assessment by the applicants we would welcome, an independent assessment of Carnwath Road and Barn Elms sites, as requested by the Leader of Hammersmith and Fulham Council at the 20\textsuperscript{th} November Open Floor Hearing. Further, and in light of the elusive and incomplete answers given in the hearing, the council requests that a further hearing on this issue be arranged and that the council’s legal representative be permitted to cross examine the applicants’ witnesses on the site selection process.
2. Questions arising at the Examination Hearings

Housing Numbers

Issue
2.1 The Panel requested clarity about the impact of the Thames Tunnel main drive site at Carnwath Road on housing numbers in South Fulham Riverside.

Response
2.2 The London Plan 2011 in policy 3.3. housing supply requires boroughs “to seek to achieve and exceed the relevant minimum borough housing targets.” Each borough’s housing target consists of three types of supply – conventional supply, non self-contained housing and vacant dwellings returned to use. For H&F the annual monitoring target for conventional supply was 564 dwellings.

2.3 The Mayor of London is currently reviewing the London Plan housing targets as part of the London Plan Review and it is anticipated that the London housing target will increase substantially from the current 32,000 additional dwellings a year. The Mayor’s draft London Housing Strategy 2013, published for consultation in November 2013 is seeking to deliver over 42,000 additional dwellings a year. The Strategy recognises the crucial importance of increasing housing supply for the economy of London and boroughs have been informed that they need to substantially increase housing supply to meet the severe shortage of housing in London.

2.4 H&F’s Core Strategy policy H1: Housing Supply seeks “to exceed the London Plan target of 615 additional dwellings a year in the period up to 2032.” The policy also includes indicative housing targets for each of the main regeneration areas including South Fulham Riverside.

2.5 The Core Strategy table of Indicative Housing Targets estimated that an average of 780 dwellings a year would be provided across the borough in the period 2012 to 2022. In South Fulham Riverside, the indicative target was 1,600 additional dwellings to be completed between 2012 and 2022. This figure was based on the Strategic Housing Land Availability Assessment (SHLAA) (Oct 2010) prepared to identify sites with potential for housing development in accordance with the government guidance at the time


2.6 The SHLAA assessed the housing potential of sites and the likely timescales for completion. Various criteria were used to assess the probability of a site coming forward based on the deliverability of the site. The SHLAA estimated that a minimum of 615 dwellings pa would be completed and there was a potential for over 1,000 dwellings pa to be completed if constraints on delivery could be overcome. In South Fulham Riverside the capacity of sites was estimated to be 2,447 dwellings during the period 2012 to 2022 and a total of 3857 dwellings over the 20 year period 2012 to 2032. However limited transport capacity and other constraints in South Fulham Riverside meant that some sites may be constrained and the more realistic estimate was for about 1600 dwellings for the period 2012 to 2022 and 2,233 dwellings for the
period 2012 to 2032. This was the figure included in the Core Strategy. The higher figure of over 4000 additional dwellings was tested as part of South Fulham Riverside Planning Framework Transport Study and it was concluded that significant transport improvements would be required to enable this quantity of new development.

2.7 Despite the council actively promoting regeneration in a number of locations in Hammersmith and Fulham, housing completions are still not meeting London Plan targets. In 2011/12 H&F’s London Plan housing target for conventional dwellings has been 564 additional dwellings pa. In 2011/12, there were 472 completions and in 2012/13, there were 422 completions. The GLA has indicated that H&F’s housing target is likely to increase significantly in the revised draft London Plan due for consultation in January 2014.

2.8 In order to meet its current housing target and particularly in order to meet the likely revised target the borough needs to ensure that all potential housing sites are brought forward for development.

2.9 Current estimates for completions in South Fulham regeneration area are for 1200 to 1400 dwellings in the period 2012 to 2022 (Written Representation Figure 1). This estimate includes the 489 dwellings on the Chelsea Creek National Grid land being developed by 2017. The development of this site is dependent on the decommissioning of the Gas works on this site.

2.10 In conclusion, there is likely to be a shortfall of at least 200 dwellings in South Fulham in relation to the current London Plan housing target if the main drive site is located at Carnwath Road Riverside.
### 3. Responses to Oral Representation on 11 November

#### Availability of playing pitches in Wandsworth

**Issue**

3.1 It was stated by the London Borough of Wandsworth at the hearing on 11 November that there is a shortage of playing pitches for use by residents in Wandsworth.

**Response**

3.2 This statement is not supported by the Wandsworth Open Space Study 2007 ([http://www.wandsworth.gov.uk/downloads/download/507/open_space_study](http://www.wandsworth.gov.uk/downloads/download/507/open_space_study)). No need was identified for more playing fields or open space in the wards adjacent to Barn Elms. The main issues were related to quality of the open spaces.

3.3 Section 7 of this report looks at playing pitch utilisation in council owned open spaces which included the Barn Elms Sports Centre within LB Richmond. The utilisation of full-size football pitches was 45% compared to a borough average of 57%. For rugby it was 21% compared to a borough average of 22% and for cricket it was 14% compared to a borough average of 19%. There is clearly some spare capacity in playing field provision at the Barn Elms Sports Centre.
4. Issues arising from Thames Water’s documents submitted since the Preliminary Meeting

First Written Question 1: Air Quality and Emissions

4.1 LB Hammersmith and Fulham have the following comments on TW’s response to the Panel’s First Written Questions relating to air quality and emissions.

Question 1.1

4.2 Please refer to our submission in our Local Impact Report section on Ventilation at Carnwath Road in connection with the Air Management Plan.

Question 1.2

4.3 It is welcomed that the local authority will have a role in approving the Air Quality Management Plan (AQMP) but it is not clear who has the final authority on this if there is a disagreement between TW (the employer) and the local authority.

4.4 For the CEMPs, the process outlined in section 2.4 appears to be different from that proposed for AQMPs in that they will be drawn up in consultation with the council but approved by the employer. It is not clear why this process does not mirror that for the AQ Plans which are to be approved by the local authority and the employer. There seems to be an inconsistency without any justification being presented. The CEMPS are more likely to change as the project progresses and therefore the local authority should be part of the approval process.

4.5 Para 2.4.4 explains how TW will manage and assure compliance with the Code of Construction Practice (including the AQ Plans and CEMPs). They say that as non-compliance is a criminal offence, this means they will ensure that contractors understand their commitments in this respect. It is not appropriate for TW to be the only body determining compliance with their environmental responsibilities in this way and that a process independent of TW and their contractors should be established. The local authority should be able to appoint an independent body, such as third party consultants to effectively monitor compliance with the various CoCP requirements and the costs to be covered by TW.

4.6 Thames Water have elected to treat the Air Management Plan on a project rather than a site specific basis. This does not take account of the disproportionate around the clock impact that this would have at this single Carnwath Road location for air extraction.

Question 1.3

4.7 TW’s response to this question does not deal with the key issue of having monitoring in place well before any construction activities start on any of the proposed sites. H&F consider that the 3 sites of concern for this borough are high risk sites which should have 12 months of NO2 and PM10/dust monitoring to
establish background levels. The commitments given in the CoCP (Part A) are quite general in nature with no further information provided in Part B of the CoCP.

4.8 Although TW’s response implies that there will be a consistent approach across London, when site specific information on monitoring across sites in London is compared, it shows that there is not a consistent approach being undertaken even where the same commitments appear to have been given in the supporting documents on pollution monitoring. Some sites seem to have been set up to gather a reasonable amount (12 months) of baseline data on NO2/PM10+dust but others, such as Hammersmith Pumping Station only 6 months of monitoring data.

4.9 LB Hammersmith and Fulham therefore have concerns about TW’s commitment to implementing their management and assurance responsibilities.

**Question 1.4**

4.10 TW’s response to this question does not demonstrate how TW would ensure that best practice is followed by the contractors, H&F consider that a process independent of TW and their contractors should be established as outlined in response to Question 1.2.

**Question 1.5**

4.11 Hammersmith and Fulham are concerned about the lack of commitment to deal with the impact of dust and particulates from construction and transportation on both residential and non-residential properties. Whilst TW outline a range of measures they will implement as an illustration of how they will follow the GLA BPG on controlling emissions and dust, the response seems to assume that there is no prospect of any emissions/dust that could cause significant impacts off-site. Even though emissions will be controlled at source, it is reasonable to assume that minimised emissions could still be significant where the sites are in such close proximity to sensitive sites, such as those in H&F. TW Should provide further information on the mitigation measures they will make available to residents and the wider community if affected by dust and particulates from TW construction sites.

**Question 1.6**

4.12 Although this question is not relevant to H&F, TW’s response outlines the type of measures that could have been included in their response to Question 1.5.

**Question 1.7**

4.13 Hammersmith and Fulham do not consider that TW have adequately addressed the impact of the active ventilation shafts on residents and local amenities (see H&F comment on Question 1.8).

4.14 The height of the ventilation columns at Carnwath Road Riverside and at Acton Storm Tanks are below the height of adjacent residential buildings. The prevailing wind direction, particularly during wet weather periods is westerly and south westerly and the high rise building at both active ventilation sites are downwind of these prevailing winds.
4.15 The response provided by TW repeats what is already in their submission. It does not reflect why the Carnwath Road site has been selected for the sole main tunnel gas extraction site upstream of Abbey Mills and why other CSO sites were not more suitable. (Carnwath Road site operating at 100%, 24/7 and Acton Storm Tanks only 12.5% of the time. The selection of sites for gas extraction has not been part of the consultation process only the strategy as a whole. Nor has it been explained why Carnwath Road, a residential area, has been selected for continuous gas extraction.

4.16 The converse of TW’s summary is that 1% of active ventilation at Carnwath Road would not be treated. Carnwath Road ventilation system is not housed underground, in the same manner proposed for the Acton as extraction site.

Question 1.8

4.17 TW states that the number of hours where odour concentrations will be above the 1.5 is under the permitted number of 175 hours and that the impact from untreated releases will be negligible and less detectable.

4.18 It does not mean that if the levels are below this standard, they will not cause an annoyance to residents. The fact is that the smell will be detectable, as is recognised by TW in paragraph 8.2.5 and regardless of whether it is within the threshold of acceptable levels, it will still have the potential to cause disturbance to affected residents and the wider local community. Prevailing wind will at times make it more concentrated and unpleasant for some residents. Having a variable of between 10-75 hours a year when untreated air may be released is a very big margin and from possibly once a month to over 5 times a month is quite significant.

4.19 TW have stated that the odour from the ventilation shafts will be less than from current CSO outlets. However this is not relevant to residents at Carnwath Road Riverside because there is no CSO outfall at this location and it is not an area currently affected by odour. Also CSO outfalls are below the street level and at Carnwath Road odour from the ventilation shaft will be more directional and at a height where more receptors could be affected, depending on weather conditions.

4.20 Acton Storm Tanks is different as local residents already experience unacceptable odour pollution and the council receive complaints every summer. The high level ventilation shaft may be more directional and there could be an increase in complaints. However, odour could potentially be reduced in this location if the other tanks are taken out of use, but TW have not confirmed what the long term proposals are for the remaining 4 tanks.

4.21 The headings in Table 8.2 are unclear but it does not appear to show the one in 15 year design storm.

Question 1.9

4.22 TW response to this question does not address the issue of the impact of odour being released from 15m ventilation shafts on the adjoining high rise residential buildings with balconies and outdoor space facing the ventilation shaft.
4.23 H&F’s consultants have also expressed concern that the ventilation stack design appears inappropriate as in normal design procedures to ensure adequate air velocity leaving the stack, the top of stack should be narrower than base to provide a high enough exit velocity that will disperse the air with a minimum of downwashing. It is considered that the current design as indicated in available documentation would result in downwash of residual odours on exit of ventilation column (H&F Written Representations Appendix 1 section 6.2.9).

**Question 1.10**

4.24 TW state in paragraph 10.2.13 that Carnwath Road Riverside is the worst site throughout the study area and that the dispersion modelling predicts that the concentration of 1.5ouE/m³ would be exceeded for 75 hours in a typical year. For Acton Storm Tanks the prediction is up to 35 hours a year.

4.25 TW state that untreated air could be released for up to 4 hours at a time and with high rise residential properties, higher than the vent column this will have a negative impact on a significant number of residents. The impact of this release will be worse if it is during the summer period when windows are open and balconies in use and air conditioning units operating.

4.26 The ES Vol 10 makes clear that odour will be detectable for a distance of at least 250m from the ventilation column at Carnwath Road Riverside. Hammersmith and Fulham is therefore extremely concerned that TW’s response to this question does not propose any further mitigation to reduce this unacceptable impact on residents, businesses, schools and users of the local parks.

**Question 1.11**

4.27 TW state that the smells would be no worse than that at a CSO site, but at the worst acknowledged site, namely Carnwath Road, there is no CSO discharge. The council consider that the ventilation strategy should make the existing odour situation better rather than making it worse.

4.28 We would also draw your attention to the answer given to question 1.1 above.

**Question 1.12**

4.29 We would draw your attention to the answer given to question 1.1 above.

**First Written Question 4: Compulsory Acquisition and Related Matters**

4.30 LB Hammersmith and Fulham have the following comments on TW’s response to the Panel’s First Written Questions relating to Compulsory Acquisition matters.

**Question 4.17**

4.31 In light of discussions at the hearing sessions, the council considers that Table 17.1 needs to be revised to take account of noise insulation requirements at additional locations adjacent to the Carnwath Road Riverside site. For example, the Piper Building.
First Written Question 6: Development Consent Order Drafting and Related Matters

4.32 LB Hammersmith and Fulham have the following comments on TW’s response to the Panel’s First Written Questions relating to DCO matters.

Question 6.9

4.33 The council continue to oppose the poorly drafted definition of ‘maintenance’ put forward by the applicant. The reasons for our concern are set out in the council’s written representations, and we repeated orally at the hearing.

Questions 6.9, 6.13, 6.18 and 6.19

4.34 We consider that TW as a statutory undertaker already has powers to undertake street works in order to manage all aspect of works associated with their apparatus within the highway and that no additional powers are necessary or appropriate. Indeed any additional powers that circumvent the existing legislation would undermine the street works legislation and in particular the street authorities statutory duties to co-ordinate street works in order to avoid unnecessary traffic disruption. This is particularly important in areas where other development is likely to come forward during the construction of the Thames Tunnel. Additionally powers used outside the existing street works legislation could potentially put the maintenance of utility company’s apparatus at risk because the street authority may be unable to co-ordinate or prioritise works. The existing legislation already deals with all circumstances, from emergency work through to major work. No further powers are necessary.

Question 6.20

4.35 Stopping up orders should be provided via the traffic authority and such arrangement should allow for emergency access by arrangement with the developer. The stopping up order would give the developer powers to stop up the street but there are frequently instances where access may still be required and hence such stopping up should not be absolute.

Question 6.29

4.36 The Town and Country Planning Association (TCPA) already makes provision for the cutting down, topping, lopping or uprooting of a tree and no additional regulations are required.

Question 6.35

4.37 Please see the council’s written representations in respect of article 10 and 11. Should TW be granted highway authority status as the order implies then this should be accompanied by a requirement to provide a highway inspector employed
by the HA at the developer’s expense. The inspector should be given such powers as are necessary to ensure that the work is completed to the required standards.

**Question 6.83**

4.38 The council questions the applicant’s rationale for making the Carnwath Road site plans indicative rather than illustrative. Their response to the Inspectorate appears to contradict itself. On the one hand the applicant appears to have wanted to keep options open in case the council wanted to engage and then on the other hand TW have now restricted this opportunity by making the plans indicative. It is the council’s view that a lack of pre-application engagement by the Local Authority is all the more reason to keep the site layout proposals illustrative to allow future amendments to be possible. The council considers that this approach by the applicants is very different to other proposed sites and does not appear to have been well justified in response to the Inspector’s question.

4.39 It is not possible at this stage to agree to any landscape plans whilst the impact of ventilation shaft from odour emissions is not subject to adequate mitigation. This will impact on the future use of the land between the TW site and the housing at 81 to 207 Carnwath Road. It is this housing that will be subject to the greatest impact from odour (ES Vol 10 paragraph 4.6.4) and therefore it is unlikely that the remaining part of Whiffin Wharf given the dimensions of the site and its proximity to the ventilation shaft will be capable of residential use.

**First Written Question 14.23: Account taken of Consultation Responses**

4.40 TW state that consultation feedback has been taken into account in determining the preferred main tunnel drive site. It is of concern that the response to this question does not provide more detail on how the consultation responses in relation to both sites were assessed and weighted.

4.41 The comparison of consultation responses on both sites cannot be compared because at Phase 1 TW consulted on a preferred double drive site of 15 ha at Barn Elms. There has been no consultation on the updated assessment of Barn Elms as a main drive site as included in Section 24.4 of this response to the First Written Question 14.24. The significant reduction in the area required for the drive site, the reduced impact on the river and on the Thames Path and the greater distance from sensitive receptors could all affect consultation responses from the local community and from key stakeholders which may have been significantly different from those received at Phase 1.

4.42 Phase 2 consultation should have included both Barn Elms and CRR as options for a main tunnel drive site so that the impacts of a main tunnel drive site could be fairly assessed by all stakeholders.

**Issue: Weight given to consultation responses in relation to Barn Elms and Carnwath Road Riverside**

4.43 TW throughout the site selection process appears to have given more weight to the concerns raised in consultation responses received at Phase 1, in relation to the proposal to locate a double drive site at Barn Elms than to the concerns raised in consultation responses at the Interim Engagement and Phase 2 Consultation on
Carnwath Road Riverside. In relation to the responses received at Phase 1 consultation on Barn Elms, TW state in para.23.3.10 that “weight was placed on the merit of the consultation responses rather than the identity of the respondent or the number of responses”

4.44 In response to the First Written Question 14.23 paragraph 23.3.29 to 23.3.31, TW stated that at the interim engagement (March to August 2011), 89 respondents (all community consultees) and one petition of 4,766 signatories and concluded that the comments received “did not raise any new information that would alter the conclusions of the site selection process, and nor did it identify any new sites that we had not already assessed”. The information that was submitted by the local community in the Residents Against the Thames Sewer in Fulham (RATS) did not identify any new sites as it would not have been for local residents to do this. They did include a comparative and objective assessment of the Barn Elms site as it was consulted on at Phase 1 and the proposed Carnwath Road Riverside site (Copy attached). Detail about the local community, including businesses is significantly more specific and detailed than the socio economic and community section of the Environmental Statement (Doc Ref. 6.2.10).

4.45 TW also state that no local authority objected to the selection of Carnwath Road. This is incorrect as the Cllr Stephen Greenhalgh, Leader of Hammersmith Council wrote to Mr Aylard on 7 March 2011 detailing a range of issues that should have been taken into account in the site selection process. A further letter raising some additional concerns was sent on 23 May 2011. The fact that neither of these letters (copies attached) and the detailed concerns were taken into account in the site selection process is of significant concern.

4.46 At phase 2 consultation, there were 3,136 respondents and two petitions with 291 and 4,766 signatures. Volume 17 of the Consultation Report lists nearly 60 different concerns raised at phase 2 consultation, many of these concerns relate to the adverse impact that a main construction site would have on the local community. However, these comments are dismissed in TW’s response to Inspector’s Question 14.23 paragraph 23.3.48 which states that “Although a high number of objections was received, large proportions of the comments were not specific in nature and tended to oppose the site in general terms.” This is not an accurate summary as the Phase 2 response (response attached) raised a number of specific issues in relation to the impact on the local community which have not been adequately addressed in the DCO application.

4.47 Paragraph 23.3.54 goes on to state that TW acknowledge that there would be noise impacts at Carnwath Road Riverside during construction, but no new information was introduced which affected our assessments. This is a different approach from Barn Elms where impact of recreational river users raised at phase 1 consultation clearly had a significant impact on site selection.

Issue: Impact on the loss of green space, playing pitches and MOL

4.48 TW in their response to the First Written Question 14.23 say that consultation feedback had in part influenced the selection of a brownfield site rather than a greenfield site. The status of Barn Elms as a greenfield site was known before consultation and it is not clear how the consultation response affected this aspect of
site selection. TW have also referred to the planning status of MOL being similar to that of the Green Belt designation. However the NPPF states in paragraph 90 that engineering operations are not inappropriate in Green Belt provided they preserve the openness of the Green Belt and do not conflict with the purposes of including land in Green Belt.

4.49 The temporary use of Barn Elms MOL for a Thames Tunnel main construction site would fall within this NPPF policy guidance.

4.50 TW refer to the feedback from stakeholders in paragraph 23.3.21 that objected to the “significant loss of pitch loss and disruption to the facilities that would be caused during construction and operation at Barn Elms”. This new information caused TW “to re-evaluate the proposed use at this site in light of the disruption caused”.

4.51 The proposed CSO site at Barn Elms requires approximately 0.8ha of open space and that this would only result in the temporary loss of one pitch (Barn Elms Consultation Report Table 13.5 Ref 13.2.19) and noted that there was likely to be some spare capacity in pitch use. TW in the response to First Written Question 14.24 state that for a main drive site at Barn Elms the site area required would be 2.5ha significantly larger than at CRR where only 1.6ha is required. The reason given for needing a larger site is that there would be a single access into the site and therefore a larger area is required for manoeuvring of construction vehicles. However although the CRR site has two vehicle access points, TW’s response to Q14.26, para. 26.3.37 states that the western access at CRR would not be routinely used due to proximity of adjacent properties. This would effectively make CRR also a single access site.

4.52 TW also state that a site area of 2.5 ha would result in an estimated 4 pitches being temporarily unavailable, this seems high when compared to just one pitch for a site area of 0.8ha. And in any event the temporary net loss of pitches for a main drive site would be 3 and not 4 pitches and there would be no permanent loss of pitches for either the main drive site or the CSP site (H&F Written Representations)

Issue: Weight given to local authorities and other stakeholder responses

4.53 TW refer to the substantive reasoning and evidence from other local authorities and key stakeholders including the LBRuT, LBW, PLA and GLA with regard to the identification and use of CRR when compared to BE which reinforced TW decision that CRR should be the preferred main drive site. Whereas the only local authority or key stakeholder responding in relation to CRR is LBHF. This not surprising as the residents, businesses and the wider local community are not represented by any key stakeholders apart from the local authority. The GLA is responding primarily in relation to the impact of the proposals on London Plan policy and the PLA in relation to the impact on the use of the River Thames.

4.54 Since Barn Elms is located within LBRuT and the proposed site is owned by LB Wandsworth it would be expected that both boroughs would submit consultation responses opposing the use of Barn Elms at the Phase 1 consultation.

First Written Question 14.24: Detailed comparison between Barn Elms and Carnwath Road Riverside as main tunnel drive sites
4.55 The response to this question highlights five main issues for the comparative assessment between Barn Elms and Carnwath Road Riverside (a table comparing key criteria and issues for both sites is attached).

a. Vehicular access

4.56 This issue has been addressed in H&F’s written representations (paras. 2.33 to 2.39) but the following points are also relevant.

4.57 TW’s have noted two points in relation to vehicular access; the need to construct a temporary access road to connect to the public highway and the disruption to the Thames Path.

4.58 In relation to the temporary access road, this will be required anyway in order to allow the connection of the CSO to the main tunnel and therefore is not relevant to the comparison between Barn Elms and Carnwath Road Riverside.

4.59 At Phase 1 TW said that the Thames Path would be diverted but this response (paragraph 24.4.66) states that “Access along the Thames Path would be unrestricted for the majority of day to day construction activities” as fully enclosed overhead conveyors will be used to transfer materials to and from barges. It is not clear why there would be a greater risk of conflict between third parties and construction activities (paragraph 24.3.33). At Carnwath Road Riverside the Thames Path is diverted onto Carnwath Road where the risk of conflict between pedestrians, cyclists and other road users is significantly greater than at Barn Elms.

b & c. River transport and Health and Safety

4.60 TW have put significant weight on the greater suitability for river transport of CRR when compared to Barn Elms. However, in the DCO Application there is no firm commitment to the use of river barges to move approximately 90% of excavated material off site by barge and approximately 90% of secondary lining aggregate to be transported to the site by barge. There are statements that it is ‘anticipated’ that river transport would be used and caveats such as ‘where practicable’.

4.61 Although the PLA supports the use of the Thames for the transport of spoil and incoming material, they have highlighted in their written representations (para.2.31) concerns about ambiguities in the Transport Assessment (Doc. 7.09) that suggest the planned use of the River may not be as significant as first appears. They have also stated “that it is not immediately apparent what ties the Transport Strategy to the powers of the Order”.

4.62 Due to this uncertainty TW have also carried out a transport assessment for all excavated materials and construction materials being transported by road. The conclusion of the TA was that this would not affect performance of Wandsworth Bridge Road, Carnwath Road and Townmead Road. H&F Written Representations in paragraphs 2.33 to 2.39 have demonstrated that an ‘all by road’ scenario at Barn Elms would have less impact on the strategic road network than an ‘all by road’ scenario at CRR.
4.63 A decision on site suitability should not be made on the basis of the relative suitability of a site for river transport when there is no firm commitment in the DCO to move 90% of materials by river barge.

4.64 TW have highlighted in the response to the first Written Question 14.24 paragraph 24.3.28 the disadvantages of river transport at Barn Elms.

4.65 Firstly it is noted that CRR has a historic wharf use but there is no usable jetty or campshed at CRR and therefore both sites would require the construction of an appropriate wharf. The impact of this construction has not been fully assessed at either site.

4.66 TW in paragraph 24.5.18 of their response to this question has stated that for CRR “It is anticipated that a total area of approximately 2160m2 of dredging to a maximum of 0.3m would be required” However in TW’s response to First Written Question 4.42 it is clear that this is the dredging required for the jetty option. For the campshed option, which is the option preferred by the PLA and Cory who operate barges to Western Riverside Waste Authority site across the river, the figures are significantly higher. For the campshed option, the calculated depth of dredging is an average of 1.7m, increasing to 2m in higher parts of the foreshore to the west of the site (paragraph 42.4.4). Table 42.1 also states that the dredging extent would be 3672m2. In addition about 250m of the river wall will need to be replaced to enable the campshed option to be implemented.

4.67 In comparison at Barn Elms an area of approximately 1800m2 of dredging for the campshed and to maximum depth of 1.7m would be required (paragraph 24.4.50). There would also be no need for substantial work to the river defences. H&F therefore cannot agree with the conclusions in paragraphs 24.610 that the scale at works at Barn Elms is significantly greater than at Carnwath Road Riverside. This is only true if the jetty option is implemented which is not the PLA or Cory’s preferred option. This assessment also does not take account of the amount of work that will be required to the river wall at Carnwath Road Riverside to both enable either the jetty or campshed option to be implemented but also to enable the construction works to take place at Carnwath Road.

4.68 TW have also raised the issue of only being able to use 350 tonne barges at Barn Elms, due to the limited clearance of the arches at Putney Bridge, which will increase vessel movements on the Thames compared to CRR where 800 tonne barges can be used. Para.24.4.54 states that 10 barge movements would be required per day during the tunnelling process.

4.69 However at Putney Bridge, TW have said (Putney Bridge Foreshore Transport Assessment Section 7, para.7.5.57) that two 350 tonne barges would be hauled by tugs which typically haul two barges at a time where possible and this means that the number of tug movements would be halved. Presumably this would also be the case at Barn Elms which would mean that the number of vessel movements from Barn Elms would be about 5 movements per day compared to 4 movements per day at CRR. This would also reduce the health and safety risks associated with more barge/vessel movements outlined in paragraphs 24.3.31/33

4.70 In relation to the relative costs and benefits of Carnwath Road Riverside and Barn Elms for barge movements, considerable weight has been given by TW to the
adverse impact that barge movements will have on recreational river traffic at Barn Elms. TW have submitted data showing that there are more leisure movements upstream of Putney Bridge than downstream. However there are still significant numbers of both motorised and non-motorised boats downstream of Putney Bridge whose safety will need to be taken into account at either site. TW have not provided any estimate of the number of people using the river for leisure activities who would potentially be impacted at Barn Elms and CRR. However in the ES for Carnwath Road Riverside, TW have stated in para.10.4.28 that “The River Thames is a metropolitan wide recreational asset, and users have access to alternative and comparable stretches in west and central London.” This must also apply to Barn Elms.

4.71 No information has been provided about possible mitigation measures to avoid potential conflict and health and safety risks to leisure users of the Thames. Recreational river users of the Thames will be the main beneficiaries of the Thames Tunnel in that they are the group who most likely to adversely affected by pollution in the Thames. The impact of mitigation measures should be offset against this long term benefit to this community. The relocation of rowing and sailing clubs to upstream of Barn Elms for the period of peak construction river traffic should be investigated. The rowing clubs based at Putney Embankment mostly serve the wider London area and therefore people are already having to travel to Putney to access the river and so a location upstream of Barn Elms may not create significant problems. Dukes Meadows a large area of MOL with a long river frontage, extends from upstream of Chiswick Bridge to downstream of Barnes Railway Bridge. This area has a large number of leisure and recreational uses and some rowing clubs are already based here. This area may have the capacity for additional clubs on a temporary basis.

d. Land use designation

4.72 TW in their response to the Inspector’s Question 14.23 say that consultation feedback had in part influenced the selection of a brownfield site rather than a greenfield site. The status of Barn Elms as a greenfield site was known before consultation and it is not clear how the consultation response affected this aspect of site selection. TW have also referred to the planning status of MOL being similar to that of the Green Belt designation and to the guidance in the NPS in paragraph 4.8.18. However the guidance in the NPS is not wholly consistent with the NPPF which states in paragraph 90 that engineering operations are not inappropriate in Green Belt provided they preserve the openness of the Green Belt and do not conflict with the purposes of including land in Green Belt. TW’s response recognises this in para.24.4.100, but argues that as there is an alternative site the fact that Barn Elms is designated MOL is a serious policy objection.

4.73 The temporary use of Barn Elms MOL for a Thames Tunnel main construction site would fall within this NPPF policy guidance.

4.74 TW refer to the feedback from stakeholders in paragraph 23.3.21 that objected to the “significant pitch loss and disruption to the facilities that would be caused during construction and operation at Barn Elms”. This new information caused TW “to re-evaluate the proposed use at this site in light of the disruption caused”. However in the Barn Elms Consultation Report, Table 13.5, Ref 13.2.19 TW noted that there was likely to be some spare capacity in pitch use at Barn Elms.
4.75 The proposed CSO site at Barn Elms requires approximately 0.8ha of open space and that this would only result in the temporary loss of one pitch. TW in the response to the First Written Question 14.24 state that for a main drive site at Barn Elms the site area required would be 2.5ha, significantly larger than at CRR where only 1.6ha is required. The reason given for needing a larger site is that there would be a single access into the site and therefore a larger area is required for manoeuvring of construction vehicles. However, although the CRR site has two vehicle access points, TW’s response to First Written Question 14.26, para. 26.3.37 states that the western access at CRR would not be routinely used due to proximity of adjacent properties. This would effectively make CRR also a single access site.

4.76 TW also state that a site area of 2.5 ha would result in an estimated 4 pitches being temporarily unavailable, this seems high when compared to just one pitch for a site area of 0.8ha. And in any event the temporary net loss of pitches for a main drive site would be 3 and not 4 pitches as there will be the loss of one pitch for the CSO site. There would be no permanent loss of pitches for either the main drive site or the CSO site (H&F Written Representations).

Impact of noise on sensitive receptors

4.77 TW’s conclusion in relation to noise effects on residential receptors states in paragraph 24.6.26 (First Written Question 14.24) that “it is clear that both Carnwath Road Riverside and Barn Elms may have impacts on sensitive receptors with regard to noise. The updated site layout and noise assessment confirms that there would be significant adverse effects at both Barn Elms and Carnwath Road Riverside. The number of affected receptors would, however, be higher at Carnwath Road Riverside.”

4.78 The assessment of construction noise for a main drive site at Barn Elms (App14.24.02, Table A.5) when compared to the assessment for CRR ES Vol 10 Table 9.5.1) appears to have significant inconsistencies. It is difficult to understand how the “Range of construction noise levels dBLAeq at the nearest noise sensitive properties to Barn Elms can be very similar to those at CRR. The Environmental Statement methodology Vol 2, paragraph 9.5.14 makes clear that “The predicted noise levels at surrounding receptors are calculated by considering the individual source noise levels, the numbers of pieces of plant operating for different periods of the day, the distance to the receptors and any intervening screening.”

4.79 Assuming that the construction noise levels generated by a main drive site would be similar for both sites, in the case of Barn Elms the distance of the nearest residential receptor is approximately 180m whereas at CRR the distance of the nearest residential receptor is 5m and the furthest in H&F is about 60m and about 190m to the Riverside Quarter in LB Wandsworth. Also in the case of Barn Elms there is a line of trees between the possible main drive site and the nearest residential properties.

4.80 The following is just one example; comparing 89-101 Carnwath Road which is about 5m from the proposed construction site and Huntingford House, the nearest residential receptor in Wandsworth which is about 180m from the possible Barn Elms site, nighttime threshold levels are the same for both residential receptors but the range of construction noise for 89-101 Carnwath Road is 37- 44, as compared to 45-50 for Huntingford House. It is of concern that there are a number of apparent
inconsistencies in these two tables that have been used to justify the conclusion that both sites would have significant adverse effects.

4.81 There are similar inconsistencies for the non-residential receptors (App14.24.02, Table A.6 and ES Vol 10, Table 9.5.2). For 50 Carnwath Road, the Piper Building, the total duration above ambient for all works is one month, whereas for the Scout Hut at Barn Elms the total duration of all works is listed at two months for site set up and for all the main tunnel drive.

4.82 There are also inconsistencies in relation to noise from construction river traffic at the two sites. The predicted noise level from barges is 53 at Stockhurst Close, which is over 200m from the nearest barges, this is similar to the noise level predicted at 89 – 101 Carnwath Road stated to be at a distance of 45m from river construction traffic.

4.83 The inconsistencies in the comparative noise assessment must undermine the accuracy of the noise data for sensitive receptors at Carnwath Road Riverside and the weight given to the issue of noise and vibration in the site suitability assessment for Carnwath Road Riverside as a main tunnel drive site.

**First Written Question 14.26: Mitigation Measures**

4.84 In response to Inspector’s Question 14.26 on the details of mitigation measures and how these are to be detailed, monitored and secured, TW refer to the Mitigation Route Map and state in paragraph 26.2.10 that it sets out “the way controls and measure have been, or will be, translated into clear and enforceable controls”. At this stage of the examination it is unacceptable for all the controls and mitigation measures not to be available to participants in the examination at sites where there will be significant impacts on residents and the local community.

4.85 Throughout TW’s response to this question there are phrases such as “it is anticipated that 90% of all shaft and tunnel excavated material would be removed by barge” (para.26.3.2); and “where technically feasible, using low noise/vibration campshed or pile/pier installation techniques” (para.26.3.6).
5. CDM Smith report – update following issues raised on 11th November
Memorandum

To: Gordon Pragnell, Pat Cox, Alizadeh Anvar, David Gawthorpe, Gordon Prangnell - London Borough of Hammersmith and Fulham

From: Mike Gilbert, Amy O’Connell - CDM Smith

Date: November 27 2013

Subject: Thames Tideway Tunnel - Oral Hearing Specific Issues

CDM Smith completed the ‘Thames Tideway Tunnel - Benchmarking and Assessment of Alternative Drive Strategies’ (known hereafter as the ‘Alternatives Report’) (Our Ref: 100759/40/DG03) on behalf of London Borough of Hammersmith and Fulham (LBHF) on November 5 2013. The Alternatives Report was presented at the Thames Tideway Tunnel Planning Inspectorate hearing of November 11 2013. As a result a series of issues have been brought to the attention of CDM Smith for further technical assessment. We draw on the previously prepared report, further research and our experience to provide a response on the majority of issues.

The Alternatives Report assessed the Thames Water proposed scheme ‘preferred scheme’ using two alternative tunnel drive options for the section between Kirtling Street and Acton Storm tanks. All issues that were raised at the Planning Inspectorate hearing relate to Alternative A - a proposal to drive a 11.95km tunnel between Kirtling Street and Acton Storm Tanks instead of the currently proposed 5km tunnel from Kirtling Street to Carnwath Road Riverside, and a further 6.95km tunnel from Carnwath Road Riverside to Acton Storm Tanks. A schematic is shown in Figure 1.

Figure 1: Preferred Scheme versus alternative drive strategy ‘Alternative A’ as presented in the ‘Alternatives Report’
The seven issues raised for further consideration at the Oral Hearing are summarized as follows:

I. **Health and Safety - Construction** - The maximum tunnel drive length of 9km was set by Thames Water in consultation with the Health and Safety Executive (HSE) to ensure a maximum access/egress distance of 4.5km to an access/egress point during construction and maintenance. Thames Water presented some factors behind this decision. CDM Smith has been asked for any further comments.

II. **Health and Safety - Maintenance** - The maximum tunnel drive length of 9km was set by Thames Water in consultation with the Health and Safety Executive (HSE) to ensure a maximum access/egress distance of 4.5km to an access/egress point during construction and maintenance. The Inspectorate raised a query for Thames Water whether the CSO connection tunnels, e.g. Hammersmith Pumping Station could be used for access to the tunnel.

III. **Hydraulic considerations of proposed 6.8mID tunnel from Acton to Kirtling Street** - Whether Alternative A would work hydraulically at 6.8mID and what the hydraulic consequences of 'threading' the tunnel between existing obstructions might be;

IV. **Alternative A vertical alignment relative to existing/proposed tunnel infrastructure** - A separation of minimum 6m is specified for the Thames Tideway Tunnel beneath the (yet to be constructed) National Grid Wimbledon to Kensal Green Cable Tunnel (Thames Tunnel, 2013 (Doc Ref: 9.15.36) and 3.415m at Lee Raw Water Main (Thames Water 2013, (Doc Ref: 9.15.07). This issue relates to the separation achievable for Alternative A.

V. **Secondary Lining as designed could not be replaced with thicker Primary Lining segments** - CDM Smith proposed in the Alternatives Report that a thicker primary lining could replace the requirement for a lengthy secondary lining construction process. Thames Water presented their reasoning for secondary lining as designed including; gaskets sealing segments are unlikely to last 120 years and secondary lining as proposed is required to contain hydraulic pressures when the tunnel is full.

VI. **Alternative A could result in larger Kirtling Street site and longer operation of the site** - Thames Water outlined some concerns about impact at the Kirtling Street site.

VII. **Alternative A could result in increased risk of TBM failure** - Thames Water suggested any failure was most likely to be TBM bearing and the only repair method was to excavate down to the machine from the surface, breakdown most likely to be towards the end of the drive (close to Acton Storm Tanks).
CDM Smith have assessed, where possible with the information available to us, the above seven issues in the below sections.

I - Health and Safety - Construction
The maximum length for evacuation of operatives during construction and operation was considered by Thames Water in consultation with the Health and Safety Executive (HSE) to be 4.5km. As such the maximum tunnel length allowed for this reason is 9km. The decision to adopt 4.5km was based on the following documents:

- Construction (Design and Management) Regulations 2007
- British Tunnelling Society and Association of British Insurers 'The Joint Code of Practice for Risk Management of Tunnel Works in UK' September 2003

The above documents set procedures to reduce risks in tunneling - and there are many available methods to mitigate risks including for example ensuring each new connector tunnel constructed allows access/egress possibility from the main tunnel as the main tunnel drive continues and/or building purpose built access/egress shafts from tunnel areas under land (as opposed to under the Thames Estuary).

It is noted that during all TBM drives longer than 4.5km, the distance to the tunnel drive shaft site exceeds the 4.5km limit. It is suggested that perhaps the limit of 4.5km therefore predominantly applies to maintenance and operations.

II- Health and Safety - Maintenance
The reason posed for the 4.5km limit is the requirement for a maintenance crew to access the tunnel in a special vehicle for ten yearly inspections.

For Alternative A additional mitigation measures were included in the Alternatives Report including the use of remotely controlled robotic cameras for maintenance inspections. These systems are presently available and improving all the time.

In the case that maintenance works are required and crews will be required to enter the tunnels a significant risk mitigation measure would be the installation of small diameter (2m) crew only access shafts at land locations along the alignment. From Acton Tanks to Hammersmith Pumping Station much of the tunnel is under land and as such could be considered for such shafts. The Frogmore CSO shaft on the south side of the river from Carnwath Road could be used for access/egress.

If particular equipment is required, the access hatch and shaft of a purpose built access/egress point would be sized to accommodate the proposed equipment. Access can be with a mechanical lift similar to those used by window washing crews on skyscrapers. No ladder has to be permanently installed – in many cases ladders are not useable due to deterioration over time.
For Alternative A CSO connector tunnels could also be designed to be accessible for man or vehicle entry. For example either Dormay Street or Hammersmith Pumping Station could be designed to allow access or egress. Under Alternative A, if Dormay Street shaft was designed to accommodate access/egress for maintenance crews (in addition to Acton Storm tanks and Kirtling Street), the maximum distance between access/egress points would reduce to 3475m for the Acton Storm Tanks - Kirtling Street section of the Thames Tideway Tunnel.

Table 1 shows summary information for Hammersmith Pumping Station shaft and Dormay Street shaft as currently designed.

<table>
<thead>
<tr>
<th>Access/ Egress Shaft</th>
<th>Acton Storm Tanks</th>
<th>Hammersmith Pumping Station</th>
<th>Dormay Street</th>
<th>Kirtling Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaft ID (m)</td>
<td>15</td>
<td>11</td>
<td>12</td>
<td>30</td>
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<td>Connector Tunnel</td>
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<td>Hammersmith Short Connection Tunnel</td>
<td>Frogmore Connection Tunnel</td>
<td>N/A</td>
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<tr>
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<td>610</td>
<td></td>
</tr>
<tr>
<td>Chainage of Intersection of Connector Tunnel with Main Tunnel</td>
<td>0</td>
<td>3040</td>
<td>6950</td>
<td>11950</td>
</tr>
</tbody>
</table>

Any addition of obstructions in the tunnel may require a hydraulics, pneumatic and transient response assessment.

**III- Hydraulic considerations of proposed 6.8mID tunnel from Acton to Kirtling Street**

The issue presented is two-fold; firstly could a 6.8mID tunnel work with the hydraulic requirements of the system; secondly whether threading an 11.95km tunnel between the National Grid Wimbledon to Kensal Green Cable Tunnel and Lee Valley Water tunnel would function properly hydraulically and pneumatically.

The hydraulic, pneumatic (and transient) functionality of the proposed tunnel size and alignment would require analysis and modelling, potentially through modification of models developed for the tunnel design, to determine if project functionality objectives can be achieved by the proposed alignment. These models are not available to the public and the information published to date regarding system hydraulic, pneumatic and transient design are insufficient to facilitate response to the questions summarized above in the time period available. As such we have not prepared a detailed response to these questions at this time.
However, we expect that it would be possible to evaluate, assess and likely address hydraulic, pneumatic and transient issues resulting from the alignment change at the detailed design stage to meet the functionality goals of the project. For example, we would expect that the tunnel hydraulic conveyance capacity would need to be verified at the proposed tunnel diameter and slope and so a full hydraulic and transient (including pneumatic) analysis will be necessary at the detailed design stage. It is highly unlikely that the Thames Water preferred scheme is the only scheme that will function satisfactorily in this respect; indeed by introducing a step-change at Carnwath Road Riverside shaft in the preferred scheme, the designers introduced potential for hydraulic and pneumatic issues which they have determined are feasible through design mitigation. We would expect other alignments also to be feasible after proper modelling and design analysis.

IV- Alternative A vertical alignment relative to existing/proposed tunnel infrastructure

Alternative A proposes a single drive between Kirtling Street and Acton Storm Tanks. In the preferred scheme the interim shaft Carnwath Road Riverside is used to create a step drop in the vertical alignment. This alignment is shown in Appendix A (top figure) based on the Thames Tideway Tunnel - Application for Development Consent, Book of Plans (Thames Water, 2013 (Doc Ref: 2.01)). The slope between Acton Storm Tanks and Carnwath Road from these drawings is 0.00143 or 1 in 700 whilst the slope between Carnwath Road and Kirtling is more gradual at 0.00127 or 1 in 790.

From a tunneling perspective we propose that a single drive of 6.8mID could be constructed as shown in Appendix A (bottom figure) using varying slopes. The Brightwater Conveyance Tunnel, Kings County Washington USA used varying slopes in the design as shown in Figure 2.

As such from a geotechnical perspective, as noted in the Alternatives Report, it is considered feasible to construct the tunnel in this manner whilst keeping the same invert levels at Acton Storm Tanks and Kirtling Street. The potential hydraulic, pneumatic and transient response impacts of this would have to be assessed. This would lead to a reduced level of separation between the Thames Tunnel and the Lee Valley raw water main of 2.9m instead of the design 3.4m.
The pertinent issue is ground loss. Ground loss is expressed as a percentage of the theoretical volume excavated on a unit basis compared with that replaced in the tunneling process. The volume of ground loss (Vl) is usually estimated at between 0.5% and 2% as a starting point to evaluate need for ground modification to achieve acceptable limits on ground loss and resulting settlement. Within a height above the tunnel equal to about 1 to 5 diameters the ground loss will spread out in a trough that is similar to a Gauss error function curve with the width of the trough base on the soil type (cohesive or cohesionless). With the ability to make tunnel diameters larger the industry has to develop means of better controlling the ground loss. There is a lot more volume of ground loss with a 15m dia tunnel versus a 7m dia and the resulting settlement based on a percentage of 2% of the theoretical volume excavated would not be acceptable. The techniques used to reduce the ground loss for the larger diameter tunnel can also be applied to smaller diameter tunnels. So specifying very tight tolerances (0.25% to 0.5%) is not unusual today.

Six examples of tunnels driven in close proximity to adjacent tunnels are presented here below:

a. Third St Light Rail in San Francisco USA – This is EPB soft ground (Bay mud) tunnel about 6.6 m dia that is less than 2.6 m vertical clearance over existing utility.
b. Channel Tunnel Rail Link (CTRL) in London – EPB 8.1m dia. Approach they used with only 4.3 and 8.0 m clearance at two locations was to prepare tight specifications to minimize ground movement and require very tight tunneling control with the instrumentation. Mitigation was required if ground loss exceeded 1%. Mitigation consisted of compensation grouting.

c. Airside Road Tunnel crosses over the Heathrow Express with 3.5 m clearance for twin 8.1 m ID tunnels with segmental lining in the London Clay. Settlement was estimated at 40mm for 1% ground loss. Measured settlement was 22mm at 11m distance.

d. Sunnydale CSO in California 2.44 m tunnel EPB within 6.1 m of 1.7 m dia sewer and under a gas line with clearance 0.64 m in sand.

e. CDM Smith completed the Ellis Ave tunnel in Fountain City CA with clearance of 76 mm under a box culvert for a 2,450 mm dia tunnel with no movement to the culvert.

f. Within the last month CDM Smith just completed the Tingey St sewer in Washington DC – 2,222 mm OD microtunnel that crossed under a 1900 mm ID brick lined sewer with less than 4mm of movement. The ground around the existing sewer was modified by permeation grouting prior to the tunneling under it.

V - Secondary Lining as designed could not be replaced with thicker Primary Lining segments

The CDM Smith Alternatives Report suggested that the additional programme duration for Alternative A could be mitigated by using a one-pass lining system rather than a two-pass lining system over the Acton Storm Tanks to Kirtling Street section of the tunnel. The preferred scheme uses a primary precast concrete segment (0.35m thick) followed by a secondary cast in-situ reinforced concrete lining (0.3m thick).

At the Oral Hearing, Thames Water presented reasons why a one-pass system could not be used:

1) The design life of the tunnel is 120 years and the gaskets sealing precast segments are not known to last that long

2) Thames Water consider that when the tunnel is full the tunnel would be in tension which would be an unacceptable structural condition given the tunnel needs to be low permeability.

In relation to the issue 1 we note that any tunnel lining scheme will require an effective inspection and maintenance programme. In the case of a one use system failing gaskets should be identified during inspections and means of mitigation to control leakage implemented. With regards to internal pressures causing unacceptable displacement of segments allowing an increase in leakage a possible mitigation approach is to design precast segments with cables between them which can be post-tensioned after a ring is assembled.
In relation to issue 2 if we assume that in the worst case scenario the tunnel has backfilled fully from Abbey Mills to Acton Storm Tanks. The top of shaft level is 107m Tunnel Datum (TD). The invert level at Kirtling Street is 57m TD. As such the pressure in the tunnel on the lining would be from 50m of standing water or 490 KPa which is at the upper limits of tensile loading that concrete can accept. In addition external hydrostatic pressure will be acting on the outside of the tunnel counteracting the internal pressure. The lining can be designed for the net load when accounting for the lowest groundwater level acting on the lining. As such we expect that it would be possible to evaluate, assess and likely address the issues caused by a one-pass lining.

**VI - Alternative A could result in larger Kirtling Street site and longer operation of the site**

As a result of Alternative A construction works at Kirtling Street would last longer as the 11.95km would take longer to construct. Thames Water suggested that a larger site would be required as two contractors would be required to work at the same site. CDM Smith suggest that two tunnel drives would necessitate two shafts at the Kirtling Street shaft regardless of whether there are one or two contractors working at the site and the tunneling rates in either drive are not expected to increase. With two contractors at the same site both will need their own area therefore potentially more space however, as with all issues, mitigation approaches can be considered if the land area is limited.

Alternatively Kirtling Street could be used as both a drive and a reception site to avoid two contractors operating at this site simultaneously.

**VII - Alternative A could results in increased risk of TBM failure**

At the Oral Hearing Thames Water suggested that the longer tunnel drive would increase the risk of TBM failure. The *Alternatives Report* agrees with this statement, as a TBM ages the probability of issues increase. This risk was factored into the cost analysis by increasing maintenance and inspection interventions. The most positive means of reducing this risk is frequent inspections and careful detail to soil conditioners used to reduce wear. All tunneling projects carrying risks, and whilst the risk of TBM failure increases with a longer tunnel drive it can be mitigated - and a shorter tunnel drive does not remove the risk.

Thames Water stated that the TBM bearing is usually the part to fail and that such a breakdown would result in excavation being required from the surface. TBM bearing is always a risk but can be mitigated with experienced TBM drivers and regular inspections. To CDM Smiths knowledge TBM bearing failures can be repaired from within the tunnel - however would cause a delay to programme.
Conclusion

From a geotechnical perspective it is our conclusion that Alternative A can be constructed. From a tunnel design perspective there are different risks to the preferred scheme that could be mitigated through design or construction techniques as further developed in the Alternatives Report and in this memo. The potential hydraulic, pneumatic and transient response impacts of Alternative A would have to be assessed.
References


Appendix A: Sketch of Possible Tunnel Alignment Preferred Scheme versus Alternative A
Thames Tunnel Consultation

Carnwath Road Riverside, SW6

Preliminary Submission & Site Analysis
On behalf of Residents Against the Thames Sewer in Fulham

July 2011
Summary & Introduction

This preliminary submission document should be read along with our covering letter to Thames Water’s CEO of 31st July 2001 (a copy of which can be found in Appendix A). This does not constitute our formal response as the consultation process has not yet begun. This information should be examined in weighing up the decision of Carnwath Road vs. Barn Elms as the preferred site.

We have structured our response explicitly against Thames Water’s own published site selection criteria moreover our site assessment also takes the form of a comparative appraisal against Thames Water’s preferred main West London site at Barn Elms. Our letter explains the reasons for this approach.

Our letter and submission show that Carnwath Road Riverside site (CRR) is far less suitable for construction than the Barn Elms (BE) site. The financial cost (to Thames Water and its customers) and the human cost (to the local residential community affected) of using CRR are both far greater than for BE.

We are aware that the marginal cost of using the Chambers Wharf location over King Stairs Gardens is £80 to £100m. In CRR, the development opportunity is larger (400 apartments) plus there is a major voluntary compensation liability, possible land contamination and 2 CPOs involved. We cannot calculate yet the total cost implied but would expect it to be in the order of £200m more expensive than using Barn Elms.

The exception to the above is on the issue of urban green space. This issue accounts for only 2 of the site selection indicators (landscape/open space designations and amenity) out of Thames Water’s 24 indicators. Green space has a (notional) value but to assign it a disproportionately or overridingly high value over all other site selection indicators would have no legislative legitimacy.

Any notional value assigned to green space must be set against the value of the daily, permanent quality of life reduction for up to ten years of a significant-sized local residential community. The lives of all residents next to CRR, of whom there are at least 1,200 within 175 metres, would be blighted in several ways for many years by needless noise and vibration, residential disruption, construction dust, or traffic congestion and pollution. The impact of these would be particularly serious for those in the several social or sheltered housing blocks bordering the CRR site. These blocks have many disabled, infirm or special needs residents. More generally, the proportion of adults with a significant health condition in the immediate 175 metre impact zone is at least 16% whilst, for example, there is a community housing children’s playground within 40 metres and a junior school for 320 pupils within 90 metres.

Thames Water must place due weight on the number of and demonstrable concerns of those people whose daily domestic lives, or livelihoods, would be most badly and consistently affected. Our Appendix M contains signed letters from the large number of residents in all the key streets and housing blocks directly within the significant impact zone. But we believe that any conclusions drawn from the respective comparative results of mere general publicity campaigns should be discounted on a number of grounds (see our letter) – including that BE has built its support based on false assertions both about CRR and its own site (See Appendix L for examples).
## Preliminary Submission and Site Analysis – Carnwath Road Riverside

### Summary cont’d.

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<td>CR is 8,000m² without the Business Park. BE is larger &amp; provides more flexibility and operations efficiency.</td>
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<td>Site Features</td>
<td>Contaminated land</td>
<td>![Green]</td>
<td>Contaminated land under the sealed surface at CR raises unknown economic &amp; health parameters.</td>
</tr>
<tr>
<td>Site efficiency</td>
<td></td>
<td>![Green]</td>
<td>The site efficiency at BE is greater. It would be convenient to have a single site at BE but a longer tunnel to intercept the CSO would provide the best compromise.</td>
</tr>
<tr>
<td>Tunneling and system engineering requirements</td>
<td></td>
<td>![Green]</td>
<td></td>
</tr>
<tr>
<td>Planning &amp; Environment</td>
<td>Planning applications/permissions</td>
<td>![Green]</td>
<td>The CR site is at the heart of a regeneration effort and major planning approvals are expected.</td>
</tr>
<tr>
<td></td>
<td>London Plan/DBP/LDF allocation or special policy areas</td>
<td>![Green]</td>
<td>Hurlingham Wharf is a protected wharf until mid-2012.</td>
</tr>
<tr>
<td></td>
<td>Heritage designations</td>
<td>![Red]</td>
<td>The Sand End conservation area is not a major obstacle but it does create some constraints on the final construction.</td>
</tr>
<tr>
<td></td>
<td>Landscape/Open Space designations</td>
<td>![Red]</td>
<td>There are no open space designations at CR. Using green space is an emotive issue.</td>
</tr>
<tr>
<td></td>
<td>Ecological designation</td>
<td>![Red]</td>
<td>The distance to the Wetland Centre is enough to not disturb it but an access road may be needed alongside the wetland Centre.</td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td>![Green]</td>
<td></td>
</tr>
<tr>
<td>Amenity</td>
<td>Proximity to sensitive receptors</td>
<td>![Green]</td>
<td>No sensitive receptors at all at BE. Local Schools &amp; PC World adjacent to CR site.</td>
</tr>
<tr>
<td></td>
<td>Tenant on site</td>
<td>![Red]</td>
<td>No tenants at BE.</td>
</tr>
<tr>
<td></td>
<td>Estimated acquisition cost</td>
<td>![Green]</td>
<td>We expect the acquisition cost at CR to be far higher.</td>
</tr>
<tr>
<td>Property</td>
<td>Ownership of site</td>
<td>![Green]</td>
<td>Single negotiation with no private sector compulsory purchase necessary.</td>
</tr>
<tr>
<td></td>
<td>Tenant on site</td>
<td>![Red]</td>
<td>No tenants at BE.</td>
</tr>
<tr>
<td></td>
<td>Estimated acquisition cost</td>
<td>![Green]</td>
<td>We expect the acquisition cost at CR to be far higher.</td>
</tr>
<tr>
<td></td>
<td>Crown Land and Special Land</td>
<td>![Green]</td>
<td></td>
</tr>
<tr>
<td>Community</td>
<td>Proximity to sensitive receptors</td>
<td>![Green]</td>
<td>No sensitive receptors at all at BE. Local Schools &amp; PC World adjacent to CR site.</td>
</tr>
<tr>
<td></td>
<td>Social considerations</td>
<td>![Red]</td>
<td>Massive social impact at CR.</td>
</tr>
<tr>
<td></td>
<td>Economic considerations</td>
<td>![Red]</td>
<td>Massive local economic impact at CR. None at BE.</td>
</tr>
<tr>
<td></td>
<td>Health considerations</td>
<td>![Green]</td>
<td>Large numbers of infirm, disabled and immobile residents adjacent to CR site</td>
</tr>
<tr>
<td></td>
<td>Equality considerations</td>
<td>![Green]</td>
<td>Many immobile residents adjacent to CR. The able bodied Barn Elms users can walk away from the works.</td>
</tr>
</tbody>
</table>
### Thames Water Criteria

#### Engineering

<table>
<thead>
<tr>
<th>Site Size</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• main shaft or intermediate shaft</td>
<td>Main shaft. The un-built site is circa 8,000m². With a CPO of a neighbouring business park the site could be 15-16,000m². Long and thin site with a large frontage on the river. The site is approximately 48 to 75m wide not including the Thames Path, although most of the site is at the lower widths of this range.</td>
<td>180,000m² of space available within a green area of 1.17m m². A site of any shape can therefore be created. The current site is situated to the east of the Barn Elms site and a short distance from the CSO outlet. This minimizes the cost of CSO interception but places the site nearer residences. We suggest a site more central to the BE facility (See Appendix B). This revised location is still on the tunnel route and is far from residences. It will need a longer interception tunnel with the CSO.</td>
</tr>
<tr>
<td>• general dimensions - i.e. square, rectangle.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance and route to river</th>
<th>Waterfront</th>
<th>Waterfront</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Jetty/wharfage facilities</th>
<th>Hurlingham Wharf is a wharf designated for the trans-shipment of aggregates. No loading facilities exist.</th>
<th>Concrete slipway used for launching boats in-situ. The slipway can be used as the foundation for a conveyor barge-loading gantry.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Facilities available &amp; can be created</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Means of road/rail access</th>
<th>No rail access.</th>
<th>No rail access. River adjacent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Availability of rail connection/practicability of accessing rail connection</td>
<td>River adjacent.</td>
<td>Road links adaptable at cost.</td>
</tr>
<tr>
<td>• Suitability of road links to site and river</td>
<td>Road links adaptable at cost. Very high congestion of nearby roads. TW will need to CPO a portion of a PC World car park in order to facilitate access.</td>
<td>Moderate rush hour queues on local roads.</td>
</tr>
<tr>
<td>• Availability of any other means of access</td>
<td>Site 20 minutes walk from Parsons Green Tube and Wandsworth Town Station</td>
<td>Site 20 minutes walk from Barnes Station.</td>
</tr>
<tr>
<td>• Worker transport considerations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site Features</th>
<th>Hurlingham Wharf has an &quot;Engineered&quot;, sealed surface because most of the site under consideration was used as a waste dump in the early part of the last century. The extent or depth or precise toxicity of the waste is not known and records have been lost from the LBH&amp;F. If 15,000 m² of soil to a depth of 10m need to be removed, this amounts to a cost up to £22m. (Going on current commercial rates of £150/m³ of contaminated soil removed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Above and below ground conditions (including 3rd party assets)</td>
<td>The river wall has undergone subsidence near some of the riverside housing adjacent to the site. This will need to be underpinned before work starts.</td>
</tr>
<tr>
<td>• Geology</td>
<td></td>
</tr>
<tr>
<td>• Site levels</td>
<td></td>
</tr>
<tr>
<td>• Other considerations</td>
<td></td>
</tr>
</tbody>
</table>
### Thames Water Criteria

#### Site efficiency

- Ability to accommodate all requirements on one site and if not describe how facilities can be achieved via a combination of sites.

<table>
<thead>
<tr>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>The CPO enabled site is 15-16,000 m² depending on whether the Thames Walkway is acquired.</td>
<td>It is possible to construct an “ideally” shaped site leading to maximum efficiency.</td>
</tr>
<tr>
<td>As the site is between 47 and 70 metres, this constrains the ability to store spoil. If as expected some of the spoil is contaminated as expected, more frequent/smaller barge services will be needed, nullifying any advantage gained from having this site accessible by larger barges. The constrained site size will also have some, albeit hard to quantify, impact on overall site efficiency.</td>
<td>Due to the distance from residents of a centrally situated site, it could operate 24/7 for the full duration of the project.</td>
</tr>
<tr>
<td>Due to the immediate adjacency of residences to the east and west of the site, access roads cannot be placed at either end of the site. In addition, as these buildings have windows overlooking the site, a warehouse wall cannot be built depriving the residents of light. This constrains the use of the site at either end and makes the site up to 500m² smaller than envisaged.</td>
<td></td>
</tr>
<tr>
<td>Due to the immediate proximity of residents to the site, opportunities for 24/7 constructions will be very limited despite warehousing of the site.</td>
<td></td>
</tr>
<tr>
<td>The option to build out into the river is limited due to both traffic and the need for the container barges to rotate mid-river.</td>
<td></td>
</tr>
</tbody>
</table>

#### Tunneling and system engineering requirements

- Ability to be compatible with likely system & tunneling requirements in site vicinity

<table>
<thead>
<tr>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBD</td>
<td>Should the site be positioned in our suggested location a longer interception tunnel will be needed for the Barn Elms CSO.</td>
</tr>
</tbody>
</table>
### Thames Water Criteria

#### Planning & Environment

<table>
<thead>
<tr>
<th>Planning applications/permissions</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Application expected</td>
<td>The wharves under consideration to house the proposed site are at the heart of a proposed regeneration of the Fulham Riverside. Use of the site would delay the regeneration of the area by up to 10 years. This will result in the loss of public amenities and transport improvements. Whilst regeneration can continue in other parts of the riverside it is unlikely that any residences would be sellable within a reasonable proximity of the site noise zone. This jeopardises the development viability of the area. This also increases the compensation liability for Thames Water.</td>
<td>No pending plans for development. LBW is examining an upgrade to the playing fields.</td>
</tr>
<tr>
<td>• Awaiting determination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Unimplemented</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>London Plan/ UDP/LDF allocation or special policy areas</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Specific land use specific planning objective</td>
<td>A riverbank, the development of the area needs to be in accordance with Blue Ribbon network principles. Hurlingham Wharf is protected for wharf usage until 2012.</td>
<td>A riverbank (see left)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heritage designations</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Archaeology priority areas</td>
<td>The full site lies within the Sands End Conservation Area (see Appendix I). Any final constructions or ventilation facilities will have to be in accordance with the Conservation Area’s Principles.</td>
<td>None</td>
</tr>
<tr>
<td>• Scheduled Ancient Monuments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Historic Parks and Gardens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Conservation Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Listed Buildings</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Landscape/Open Space designations</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Public Open Space</td>
<td>No landscape designations.</td>
<td>The site in question is Metropolitan open land</td>
</tr>
<tr>
<td>• Metropolitan Land (MOL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Other landscape/open space designations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Informal/undesignated open space</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecological designation</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• SSSI</td>
<td>No ecological designation. 4 small trees to be removed. Permission to remove these trees is needed under the Conservation Area principles.</td>
<td>It is possible that several trees along the waterfront may need to be removed although this can be largely avoided. These are not protected trees. See below for the issue re the Wetland Centre.</td>
</tr>
<tr>
<td>• Nature conservation / reserve designations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Tree Preservation Orders</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Rights of Way</td>
<td>Due to road constrictions in the other direction, the only road access to the site is from Wandsworth Bridge. To make this junction viable, a portion of PC World’s car park would need to be acquired. See Acquisition costs</td>
<td>Thames Water’s suggested route to the side of the Wetland Centre is optimal for a central site and keeps the truck movements away from residents.</td>
</tr>
<tr>
<td>• Other key transport routes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Thames Water Criteria**

**Planning & Environ. (Cont’d)**

<table>
<thead>
<tr>
<th>Amenity</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighbouring land use:</td>
<td>This site mostly surrounded by social housing and in particular housing for the disabled and infirm.</td>
<td>Neighbouring Land Use: The Barn Elms site is at the heart of 1.17million m² of green space.</td>
</tr>
<tr>
<td>Adjacent to the west of the site is a block of 66 social housing apartments many of which have been built for the disabled. Some of these apartments are touching the proposed site. These apartments have no air conditioning and inadequate sound insulation. (See Appendix F, J &amp; K)</td>
<td>Some concern has been raised about the proximity of the Wetland Centre. According to initial site drawings with a south-easterly site, the site is 480m from the Wetland Centre. Even if the site is moved optimally away from residents it can still be at least 240m from the Wetland Centre. See Appendix B.</td>
<td></td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>Adjacent to the site to the north west is Philpott Square. (see Appendix F, J &amp; K) This council-owned development of 54 apartments is a mixture of Council-owned and previously council-owned flats. 3 people with severe asthma and 18 other disabled or infirm residents live in this block. Many of these flats have balconies that open up directly onto the CR site.</td>
<td>If positioned south-east, the corner of the site would be 40m from the nearest apartment block. This is misleading in the site plans as the plans do not take into account the strand of trees. The trees would force a slight repositioning of the site.</td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>Within Philpott Square in addition to the above are 26 (+10 in a adjacent block) sheltered housing units occupied by the very infirm and mostly immobile. Some of these properties have balconies that open up onto the CR site.</td>
<td>There is a thick strand of trees between apartments to the south-east of the proposed site and the Barn Elms grounds. This provides a visual and pollution break.</td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>Within Philpott Square there is a youth centre and a children’s Playground/Nursery. This is within 46m of the site.</td>
<td>Amenity: The site is occupied by popular playing fields but Richmond Council’s head of Sport &amp; Fitness confirmed in March 2011 that he did not believe the supersewer site was a concern and that it “would not affect what we are doing and would not go across playing fields.”</td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>88m from the site perimeter is a block of 10 purpose-built housing units with support for the elderly and disabled. (See Appendix F, J &amp; K)</td>
<td>If the site were positioned more centrally in order to eliminate any residential impact, only the Boat Hut would need to be relocated. If the site were positioned more centrally in order to eliminate any residential impact, only the Boat Hut would need to be relocated. The cost of doing either of these would be insignificant in the context of the cost of the overall site. These are the only two amenities potentially impacted by the Barn Elms site.</td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>In the sheltered housing of Philpott Square and this adjacent block are 37 very infirm and disabled residents, many of whom have near zero mobility.</td>
<td>125 metres of Thames walkway lost under South easterly site design. Only 108 metres of walkway lost with a central riverside site.</td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>Adjacent to the north of the site is a large apartment building with 73 apartments (173 residents) and 13 commercial tenants. The sound proofing in this building is not adequate and there is no air conditioning in the bulk of the apartment block. Windows therefore need to remain open and the full facade of the main wing faces the site directly. (See Appendix H)</td>
<td>127 metres of Thames Walkway lost.</td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>Adjacent (a few feet) to the east of the site is a large profitable PC World/Curry’s store. This is one of the premier stores in the chain and sells sensitive computing, audio-visual, white and brown goods. They expect their warehouse operations to be severely hampered by both the traffic flows to the site and the dust and noise created. These two and other commercial locations can be seen shaded in green in Appendix J.</td>
<td>The site itself is a thriving Business park employing 145 people. This park would be destroyed</td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>Amenity: The site is within 15 metres of a local health &amp; fitness club with 1000 members. This is an Energie Fitness franchise owned and operated by two entrepreneurs. The club has only just begun to break even after 6 years and cannot survive even a minor drop in membership numbers. The facility is on the ground floor and were a warehouse structure to be constructed, it would be in complete shadow for 6 months of the year. The owners have already polled their membership and do not expect to be able to continue business if the site is chosen. This will lead to the loss of 10 jobs, a valued local amenity and the financial devastation of the owners, who have used their own homes as collateral for the business.</td>
<td>127 metres of Thames Walkway lost.</td>
</tr>
<tr>
<td>Neighbouring land use:</td>
<td>The site itself is a thriving Business park employing 145 people. This park would be destroyed</td>
<td>The site itself is a thriving Business park employing 145 people. This park would be destroyed 127 metres of Thames Walkway lost.</td>
</tr>
</tbody>
</table>
### Thames Water Criteria

<table>
<thead>
<tr>
<th>Property</th>
<th>Carnwath Road Riverside</th>
<th>Barn Elms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ownership of site</strong></td>
<td>Comer Homes (Hurlingham &amp; Whiffen Wharves) London Borough of Hammersmith &amp; Fulham (Thames walk, the access road and the Business Park) The Business Park has been leased to IBM Pension Fund and sub-let.</td>
<td>London Borough of Wandsworth</td>
</tr>
<tr>
<td><strong>Tenant on site</strong></td>
<td>There are 6 active business on the site employing at least 135 staff. • Chartwell Business Services, • Reed Harris Tiles • Topps Tiles • Vaughan Lighting • Howden’s Joinery • Phase Eight (Fashion &amp; design) Ltd</td>
<td>London Youth Rowing operate the Barn Elms Boat Club as one of its affiliated centres. No staff are employed full time by the location. A few occupy the unit a busy times. An opportunity exists to move the boathouse an appropriate distance from the site during the construction phase. Following construction, the Boat House can be left at the temporary location or moved back to the original site. The same applies to the scout hut if impacted by a south-easterly site.</td>
</tr>
<tr>
<td><strong>Estimated acquisition cost</strong></td>
<td>Likely to be very high. The site will demand the use of a compulsory purchase order of a business park called Carnwath Industrial Estate. Access to the site demands the acquisition of a portion of the PC World Car Park. This is their most profitable store in the UK (see economic considerations) The site will need to be forcibly acquired from Comer Homes. Comer expect to develop the site to have 400 apartments including the industrial park if it is redeveloped). At £500K per property, this is a £200 million development. The planning permission will be sought in the spring of 2012, before the planning permission for the Tunnel Site is submitted.</td>
<td>Low. The metropolitan open land in question will only be used for the construction.</td>
</tr>
<tr>
<td><strong>Crown Land and Special Land</strong></td>
<td>No issues</td>
<td>No issues</td>
</tr>
<tr>
<td><strong>Access and Material Transfer Rights</strong></td>
<td>River access. Possible to use larger barges as east of Putney bridge.</td>
<td>River Access. Smaller barges may be needed.</td>
</tr>
</tbody>
</table>
The definition of mostly sensitive receptor is made within Environmental documentation for councils who implement environmental control. The receptors vary by disturbance – Noise, Dust, odour, air particulates, vibration et al.

This site produces all of these, in greater or lesser amounts therefore the widest possible definition of sensitive receptor is used. See Appendix M for sample definitions of Sensitive Receptor.

There are two nursery schools nearby and a child's playground. (see Appendix G and Appendix J for precise locations.

Disabled residents are regarded as the most important of sensitive receptors especially when they have no ability to escape the various forms of disturbance. This site has purpose built sheltered housing abutting the proposed site. There are a high number of people with asthma and other serious conditions in these locations. LBH&F has already confirmed that there is no alternative housing available. See Appendix K and please immediately read “Health Considerations” for further details.

The aged and infirm are also sensitive receptors. This site is surrounded by sheltered housing for the aged and infirm including a drop in centre for these residents. (See Appendices F, J & K for details)

Schools are regarded as a sensitive receptor. A local school, Thomas's (an independent day school for 4 -11 year old children with 324 pupils) is 90m from the site in clear view (i.e., no dust or sound breaks. (See Appendix G). Hurlingham & Chelsea School (a community school for 11-16 year old children with 528 pupils) is 224m from the site. (See Appendix G)

Residential Housing is a sensitive receptor: The site in question is surrounded by residential housing our fully outlined in “Social Considerations” and illustrated in Appendix F.

Sensitive equipment is also regarded as a sensitive receptor. The site is adjacent to PC World, a major vendor of electronic equipment. This equipment is indoors but some is sensitive to low level vibration. The door to the storage area is left open and this would need to be shielded from dust ingress during the construction. (see Appendix H)

See also “Amenity…Sensitivity”
Social considerations

More than 1200 people live within 175 metres of the site. (This is about 540 homes of which 463 or 86% have been surveyed.) This survey shows that 1 in 5 residents is aged under 15 (21%); 67% are aged 15-60; 13% are aged over 60.

There are two blocks **one metre or less** from the proposed site. The first contains 16 apartments (8 in the main block and 8 further in an adjacent area). It is not possible to shield the main block with a barrier at the perimeter of the site as this would deprive the residents of light. Setting back any warehouse wall significantly could address this problem but would reduce still further the available site. Obviously the site cannot be reconfigured to use this space alongside the housing block as an access road because the traffic noise will be most intense one metre from a residential block.

The second block **one metre from the site** is a housing association development built specifically for disabled residents. The Carnwath Road Housing Association has 66 flats and is directly adjacent to the site to the west. This block contains 61 disabled and infirm residents who will be essentially trapped for the duration of the works.

Within 90m of the site and within unobstructed sight there are 36 sheltered housing units (on Peterborough Road in and alongside Philpot Square) with 37 vulnerable residents. Most of these residents have limited mobility and will not be able to escape the dust, noise and traffic. They will be effectively trapped for the duration of the main works.

A local gymnasiu with 1000 members is within 15m of the perimeter of the site. The gym is on the ground floor and whilst it can be visually shielded from the site, any perimeter high enough to shield the gym from noise and dust would, as the gym has a partly south facing façade, place the gym in permanent shadow for 6 months of the year. (See Appendix J)

See “Sensitive Receptors” and “Health Considerations” for further details.

The Barn Elms playing fields are popular with locals and occasional users. A site of 18,000m² would take up 1.5% of the contiguous green area of Barn Elms. (See Appendix C) This does not include the Wetland Centre.

If the site is centrally sited as we suggest, then no residents are within 150m of the site.

If the site size were minimized to the scale of that of the proposed site at Carnwath Road and shaped as per Appendix C, no residents would be within 250m. A comparable boundary for the Carnwath Road site is shown in Appendix D.
### Economic considerations

The following companies within Carnwath Industrial Estate (the business park ON the site) would be forced to close: Vaughan Lighting; Topps Tiles; Reed Harris Tiles; Phase Eight (Fashion & Design) Ltd; Howdens Joinery Ltd. All of these proprietors may be seeking legal redress. 135 jobs will be lost as a direct result of CPO of Carnwath Industrial Estate. All of these employees may be seeking legal redress. (The balance of 10 jobs work on Whiffen Wharf) Energie Fitness Club, a club with 1000 members is adjacent to the site. They have polled their members and expect to lose enough members to become non-viable as a direct consequence of the selection of Carnwath Road as a site. The 10 employees would also be made unemployed. The owners may seek legal redress for the loss of their business, and loss of income as the two owners are both employed in the club.

Adjacent to the site are the 77 apartments of the Piper Building. The south wing of the building is 10-15m from the site. These are private dwellings whose owners will all be seeking redress under the voluntary compensation schemes and will seek group legal redress should the voluntary compensation scheme not be adequate.

The owners of the Piper Building may seek legal redress if they are unable to lease out their Commercial units due to the tunnel development. (Several commercial tenants e.g., Assael Architects have said that they will not renew their leases if the Carnwath Road site is chosen.)

### Health considerations

16% of all residents within 175m – (184 adults and children) - have a health condition that would be adversely affected by the sewer construction. This was based on a survey of 86% of the local community and is not an extrapolated number.

In detail, there are 77 people with asthma, at least 6 wheelchair users, 15 people with a serious heart condition, and 86 people with other conditions - including adults and children with epilepsy, lung problems, walking difficulties (in addition to the wheelchair users), muscular dystrophy, Downs syndrome, autism and Asperger’s syndrome and many other conditions. See Appendix K for more detail.

Because the soil under some of the wharf is contaminated, there is an extra risk of clearing contaminated soil. This factor also increases the toxicity of any dust raised during either clearing of the site or from drilling of treated soil. Special attention needs to be drawn to those residents within the 100m dust radius where the dust is not 100% contained.

We understand that the site can be warehoused to mitigate this risk however both nearby schools are on Peterborough Road. Peterborough Road today can suffer from standing traffic several times a week due to congestion on Carnwath Road. This standing traffic has proven to be VERY harmful for the health of school children. [http://www.sciencedaily.com/releases/2007/01/070125185843.htm](http://www.sciencedaily.com/releases/2007/01/070125185843.htm)

As this is knock on traffic, the use of low pollution vehicles for the site will not mitigate the pollution. See also “Sensitive Receptors” for more details.
### Preliminary Submission and Site Analysis

#### Carnwath Road Riverside

**Community (Cont’d)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>The Carnwath Road Site is at the heart of a residential area where people have no choice but to suffer the consequences of the site.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This site is a particularly poor choice because it is adjacent to several blocks built specifically for the disabled and infirm. Many of the residents surrounding the site have limited mobility. (See Appendix K)</td>
</tr>
<tr>
<td></td>
<td>The council has confirmed that there is no available disabled and sheltered housing in the borough to which they can move such residents.</td>
</tr>
<tr>
<td></td>
<td>Thus no matter what level of site impact mitigation Thames Water would be able to provide, all these most vulnerable, special needs or infirm residents would not only be &quot;trapped&quot; right next to a construction site which would significantly reduce their quality of life and which would deprive them for up to 10 years of their opportunity to see their immediate environment transformed and enhanced by the planned regeneration of their riverside community.</td>
</tr>
<tr>
<td></td>
<td>We expect to see a full equality assessment made by Thames water in site consideration.</td>
</tr>
</tbody>
</table>

### Barn Elms

**The Barn Elms site is within a free access recreational zone. This is an important facility for West London. A very small proportion of the whole of the recreational area (less than 2%) and of the playing fields (circa 6%) will be taken up by the site.**

As opposed to Carnwath Road the people walking their dogs in the fields and using the playing fields are the able bodied. They have a choice as to whether or not to use Barn Elms. The disabled living in Carnwath Road have no choice.
Appendices

Appendix A  Letter to Martin Baggs, accompanying preliminary site analysis
Appendix B  Barn Elms – A centrally-positioned site option
Appendix C  Barn Elms – 1.17m m2 contiguous green space
Appendix D  Barn Elms Optimal Site 250m Perimeter
Appendix E  Carnwath Road: 250m Perimeter
Appendix F  Carnwath Road: Residential Surroundings
Appendix G  Carnwath Road: Local Schools Impacted
Appendix H  Carnwath Road: Commercial Properties
Appendix I  Carnwath Road: Sands End Conservation Area
Appendix J  Carnwath Road: Local Portrait
Appendix K  Carnwath Road: House to house survey of 125-175m perimeter
Appendix L  Evidence of misleading claims within the Barn Elms vamapign
Appendix M  Sensitive Receptor Definitions
Addendum   Social Impact Dossier: (To be submitted separately) consisting of letters for residents in the main streets and blocks within the impact zone, key individual letters, comments and case histories.
Appendix A: Letter to Martin Baggs accompanying Preliminary Site Analysis

Residents Against the Sewer in Fulham
c/o S8 The Piers Building, Battersea Road, London SW6 3EF
Email: raf@morrens.net

Mr Baggs

Carnwath Road Riverside (CRR) as proposed Thames Tunnel construction site – preliminary detailed response from Residents Against the Sewer in Fulham

Please find enclosed our preliminary submission for Thames Water’s consideration before Stage 2 of the Thames Tunnel site consultation process. This submission is on behalf of those who are opposed to the nomination of this site. These include 4,000 people who have signed our petition (in just 10 weeks); a further 3,700 people who have signed the London Borough of Hammersmith & Fulham’s petition; the hundreds of people living in those streets immediately surrounding the site from whom we enclose letters; and all those who have written direct to your company to object. This level of concern and objection has arisen in just the few months since CRR was identified as a possible alternative site to Barn Elms. Were CRR to be included in Stage 2, especially if as a preferred site, you could be assured that community outrage would escalate rapidly.

1 Format and structure of submission
To make our case in the most businesslike and helpful way, we have structured our response against Thames Water’s published site selection criteria. Where we do not have the specific knowledge of figures and costs required to be definitive we have made reasonable, well-grounded assumptions.

Our site assessment is structured in a ‘comparative’ format; we felt we had no option but to compare CRR directly against your current preferred site, Barn Elms. Firstly we were given no opportunity to object during the first stage of your consultation as you had not identified CRR as a possible site at that time. We are now in the untenable position of having to play catch-up and make a preliminary submission in between the consultation stages. We would note that this in no way levels the playing field between CRR and those sites that were identified at an earlier stage and have had longer to build their case. Secondly, from the time that Thames Water belatedly identified CRR as an alternative site the Barn Elms lobby has run a misleading publicity campaign to try to get the construction moved here. It is one thing to campaign against the selection of one’s own area, it is quite another to do so by deliberately trying to harm another community. We have consciously avoided any ‘fit-for-tar’ campaign and expect Thames Water to censure any lobby group that deliberately misleads.

This submission is accompanied by supporting documents that provide further information on the strong opposition to Thames Water’s nomination of CRR as a potential site, as well as evidence of the detrimental impact that selection of the CRR as a preferred site would have on a large number of people and local businesses.

2 Anti-site protest publicity campaigns
We expect that Thames Water’s decision process for Phase 2 will be based on an objective assessment of each site against the site selection criteria. It should in no way be determined by comparison of the size or ‘noise’ of respective publicity campaigns. This would be unjust on the following grounds:

i) Barn Elms has had almost a year to generate support. Fulham residents have had just four months.

ii) Claims (unfortunately often repeated by Thames Water) that CRR is brownfield / industrial / derelict are misleading:
   - ‘brownfield’ implies disuse. However the CRR site is home to a thriving commercial business park with 145 jobs and companies.1
   - the immediately surrounding locality simply is not a brownfield area. The CRR site, only 70 metres at its widest point, is squeezed in the middle of a densely populated residential area. It is closely bounded by mixed housing, some of the closest of which is sheltered or social housing.

iii) Barn Elms campaigners have made disingenuous comparative claims about our own site and theirs. A recent ‘comparison’ chart they produced is one such example (see Appendices to this submission.)

iv) The tendentious ‘greenfield vs brownfield’ argument has garnered Barn Elms the support of several celebrities. However, this celebrity support should in no way influence Thames Water in its site selection decision. In CRR, many of those who will be most adversely impacted are socially disadvantaged and / or disabled; and while they may not have the media appeal of the Barn Elms celebrities, the impact of this project on their daily lives is far greater.

v) Thames Water has not provided a “level playing field” in at least one respect. In Thames Water’s initial site assessment brochure and website, you indicated (including through diagrammatic maps) that the whole of the Barn Elms riverside playing field area might be required for the construction, rather than a very small part of it - only 5.5% if using roughly 18,000m2. You amended this at the end of the Stage 1 consultation; however, Barn Elms campaigners have perpetuated this misconception that the whole of the playing fields or even Barn Elms itself are under threat¹. Neither would be under threat from the main construction - a statement from Richmond Council confirming that Barn Elms playing fields would not be materially affected and this is attached in the Appendices.

vi) due to the late selection of CRR as a candidate site, local campaigners were given no opportunity to make formal submission to the Government’s Waste Water NPS consultation, in contrast to Barn Elms who were able to respond and thereby increase awareness of their campaign.

3 Influence of political support or opposition to the sites or to the Thames Tunnel
The two MPs involved in Barn Elms, Justin Grenning and Zac Goldsmith, have been vociferous supporters of the Thames Tunnel (though equally vociferous opponents of its being sited in Barn Elms). However, the Fulham MP Greg Hands has expressed doubts about

¹ Although the name of the business park at CRR is Carnwath Road Industrial Park it is in fact a retail
² For example, endorsing its campaigns ‘Save Our Playing Fields’ or more recently ‘Save Barn Elms’.
Appendix A: Letter to Martin Baggs accompanying Preliminary Site Analysis (Cont’d)

the whole scheme as has LBHF Council. Clearly the support or opposition of an MP or council to the whole Thames Tunnel scheme should in no way influence the choice of site and any evidence to the contrary would suggest an abuse of the consultation process.

4 Additional potential West London CPO sites
CRR is simply not viable as a site without two Compulsory Purchase Orders (CPOs). It is essential that Thames Water provides evidence of due diligence in investigating and appraising all other potential sites which could be eligible via CPOs (and which may well be in areas where construction would not result in as detrimental social impact as at CRR). In addition, we expect Thames Water to provide evidence as to the justification for ruling out such sites as more costly/less suitable than CRR.

5 Cost
Thames Water must conduct its site assessment in a transparent manner and demonstrate that the final selection provides best value for money for Thames Water customers (who will after all be paying for the tunnel in perpetuity). Our assessment of CRR against Thames Water’s own site selection criteria demonstrates that this is an unnecessarily expensive site for the construction, both on site operation and economic cost grounds (including voluntary compensation liabilities).

It is also more expensive a site for Thames Water than Barn Elms. We have heard that the marginal cost of using the Chambers Wharf location over King Stairs Gardens could be £80m-£100m. For CRR, the cost differential with Barn Elms would be greater because Thames Water would incur proportionally higher costs as a result of a significant voluntary compensation liability, land decontamination and two CPOs. We expect the total additional cost to be in the order of £200m more expensive than using Barn Elms.

6 Social Impact and Equality Impact Assessments
Thames Water’s site selection criteria have regard to the social impact of the project, both during the construction phase and longer term. Our submission provides evidence of the serious detrimental impact that the project will have on a large number of local residents – at least 1,200 within 170 metres of the proposed site perimeter. You will see from our submission that social and sheltered housing is closest to the perimeter; and that within 170 metres of the perimeter five at least 204 residents who are infirm and/or disabled. As such, we demand that you explicitly state the weighting placed on the “equality considerations” criterion.

Conclusion
We believe our site assessment submission provides all the evidence and information sufficient for Thames Water to rule out entirely Carnwath Road Riverside for Stage 2 of the consultation process. We urge you to take this opportunity.

We recognise that there are considerations which also weigh against the selection of Barn Elms. It could be argued that neither site is suitable. However, of the two, CRR is far less suitable. Green space is obviously important in urban areas but in the case of Barn Elms the area under threat is a very small proportion of the recreational space. The proposed Barn Elms site is screened from nearly all nearby local housing, and the visual impact while construction is underway and thereafter could be further mitigated via green landscaping and tree planting. What is more, we have been able to illustrate in our submission how Thames Water could re-position its proposed site at Barn Elms so that not a single household in the area would be significantly impacted.

If, despite all the evidence we have provided, you select the CRR site over Barn Elms for Stage 2, your decision will be perceived as political – effectively placing a higher value on what is in fact a very small area of green space than on the quality of life of at least 1,200 people. In addition, given that the cost of using the CRR site would be far higher than for Barn Elms, you could also be accused of having no regard for the situation of your customers, who are already subject to significant bill increases and will be required to pay for the construction in perpetuity.

We should be pleased to discuss this further and look forward to written confirmation of receipt of our submission.

Yours sincerely,

Peter Merrons
for Residents Against the Sewer In Fulham

* Should Thames Water wish for evidence we can provide the signatures of more than 4,000 people who have already signed our petition. As our campaign is ongoing, we shall be delivering a larger dossier within the next few weeks which also will include additional information, case studies and direct representative comments from the residents living adjacent to the site who would be badly affected.

cc:-
Greg Hands MP
Councillor Stephen Greenhalgh, Leader of the Council, LBHF
Sir Peter Mason KBE, Chairman, Thames Water
Trevor Phillips, Chair, Equality and Human Rights Commission
Mike Smith, Commissioner, Equality and Human Rights Commission
Appendix B: Barn Elms - A centrally positioned site option

Thames Water could position an 18,000m² site in such a way as to be at least 150m from any residents. This particular position also efficiently uses the concrete boat launching area as the foundation for jetty operations. It also allows positioning of the shaft on the preferred route and reduces the length of the access road from the north. It saves the Scout Hut but the Boat House would have to be re-sited.
The red outline encloses a conservatively measured 1.17 million m² of green space at Barn Elms. An 18,000m² site would take up 1.5% of the available green space. Note that this does not include the further 400,000m² of the Wetland Centre. The site is also 6.7% of the joined playing fields areas. This measurement has been done using Google Earth Professional Edition.
Thames Water could design a 15,000m² site, with a major river frontage where there are no residents within 250m of the site. The preferred tunnel runs through this location. Like the Appendix B central site a longer intercept would be needed for the CSO. The 250m perimeter does touch on a very few apartments on the opposite bank but these appear shielded by trees. In inset image shows its applicability to the preferred tunnel path.
Appendix E: Carnwath Road 250m Perimeter

A comparable boundary from the Carnwath Road encloses a thriving community. See Appendices E-J for further details of health & social impact.
Appendix F: Adjacent Residential Surroundings

The site is surrounded by residences, private, co-operative, housing association and council owned. The nearest are within inches of the site. The major area indicated is about to be developed into housing but currently is commercial. This work will start before the site but the construction will be simultaneous causing chaos in the local roads and creating a cumulative construction pollution impact.
There are 7 schools within the vicinity but 2 in particular who will be affected. Both will be impacted by the increased pollution from traffic jams along Peterborough Road. Thomas’ School is close enough to the site to be impacted by both noise and dust. The dust issue is key due to the contaminated nature of the soil in parts of the Carnwath Road site.
Carnwath Industrial Estate is NOT industrial. It is a Business Park. PC World is a potential “Sensitive Receptor”. Energie Gym is an amenity with 1000 members which will not survive the construction. Tenants will also quit the Piper Commercial units. This means 145 absolutely lost jobs & 25 more lost to the area.
Appendix I: Sands End Conservation Area
Appendix J: Local Portrait

90 Metres from the site.
Thomas School is a thriving private primary school for 4-11s with 324 pupils and is 90m from the proposed site. The teachers and owners are frightened that "if the news goes out of the Sewer site next door, they will lose pupils and the school will not be viable." They know that if the site goes ahead, there will be major standing traffic in the two streets adjacent to the school.

10 of the 36 Sheltered housing units can be seen in front of the school. The lower small block (nearest the site) to the right of the sheltered housing is a day centre for the elderly and infirm.

This is not an unused “brownfield” site
Carnwath Industrial Estate is not a brownfield site in the sense understood by most who think of waste land and ploughed over ground, it is a thriving Business Park. This site holds 7 companies providing local employment. The proprietors of these businesses are now unable to see a future for their businesses as they rely on local trade and there are no comparable facilities nearby. The Business Park itself may not be developed in the face of strong objection from some local groups. If this is the case, the site no longer is a Brownfield Site under any definition.

On the left of the image, the redbrick building with the pale blue edged roof is a block of 16 Housing Scheme homes. TW will not CPO residences, especially social housing so the site will be less than 1m from this building which has windows facing the site.

46 metres from the site
The nursery and playground within Philpott Square Gardens.
Appendix J: Local Portrait Continued

0 metres from the site boundary. (This pathway is to be incorporated).
Carnwath Road Housing Association has 66 apartments with many specifically for the disabled and infirm.

Of the 165 residents in the block, 61 are disabled with 28 people with asthma, 6 wheelchair users, 11 with serious heart conditions and 16 others infirm. It is not appropriate to site the works this close to housing of this nature. Note the window overlooking the site.

15 metres from the site boundary
North of the site is the Piper Building, a predominantly residential (approx. 173 Residents) building with 13 commercial units. (In yellow in the picture). The blue gate one can see is actually the entrance to the Carnwath Road site. Many of the commercial tenants have said that they will not renew their leases if the site goes ahead.

15 metres from the site boundary
Philpott Square can be seen here. Just to the right of the brown and white building is the site. The building contains 26 sheltered apartments and 56 other apartments. In this building are 45 elderly and infirm residents who do not have the ability or facilities to escape from the area for respite.
## Appendix K: House to house survey of 175m radius

<table>
<thead>
<tr>
<th>No. flats/houses</th>
<th>No. captured</th>
<th>Total No. Residents</th>
<th>By Age</th>
<th>Health Condition</th>
<th>Metres from site</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>&gt;15</td>
<td>15-60</td>
<td>60+</td>
</tr>
<tr>
<td>Carnwath Road Housing Association</td>
<td>66</td>
<td>50</td>
<td>180</td>
<td>55</td>
<td>17</td>
</tr>
<tr>
<td>5 Carnwath Road (Rosie’s Building)</td>
<td>8</td>
<td>8</td>
<td>22</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>1 &amp; 3 Carnwath Road</td>
<td>8</td>
<td>8</td>
<td>23</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>John Dwight House</td>
<td>8</td>
<td>7</td>
<td>49</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Philpott Square</td>
<td>54</td>
<td>44</td>
<td>96</td>
<td>8</td>
<td>70</td>
</tr>
<tr>
<td>Piper Building</td>
<td>73</td>
<td>73</td>
<td>174</td>
<td>44</td>
<td>126</td>
</tr>
<tr>
<td>Sheltered Housing @ Philpott Sq</td>
<td>36</td>
<td>36</td>
<td>37</td>
<td></td>
<td>37</td>
</tr>
<tr>
<td>Dymock Street</td>
<td>68</td>
<td>52</td>
<td>133</td>
<td>28</td>
<td>91</td>
</tr>
<tr>
<td>Broomhouse Dock</td>
<td>22</td>
<td>22</td>
<td>31</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>Breer Street</td>
<td>51</td>
<td>23</td>
<td>68</td>
<td>15</td>
<td>44</td>
</tr>
<tr>
<td>Carnwath House</td>
<td>27</td>
<td>24</td>
<td>63</td>
<td>15</td>
<td>38</td>
</tr>
<tr>
<td>Hugon Road</td>
<td>82</td>
<td>68</td>
<td>143</td>
<td>15</td>
<td>117</td>
</tr>
<tr>
<td>Hurlingham Square</td>
<td>50</td>
<td>50</td>
<td>127</td>
<td>27</td>
<td>80</td>
</tr>
<tr>
<td>Sullivan Road</td>
<td>25</td>
<td>21</td>
<td>67</td>
<td>13</td>
<td>39</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>578</td>
<td>486</td>
<td>1213</td>
<td>237</td>
<td>803</td>
</tr>
</tbody>
</table>

**Percentage of total**

- 84%  
- 20%  
- 66%  
- 14%  
- 1%  
- 6%  
- 1%  
- 9%  
- 17%

Survey directed and compiled by: Dr. Tamara Dragadze and Frances Holloway. Dr. Dragadze is a published researcher & academic specialising in Political Anthropology.
Appendix K Cont’d: Key to Residences

- John Dwight House (8 Residences)
- Hugon Road (82 Residences)
- Hurlingham Square (50 Residences)
- Sullivan Road (25 Residences)
- Carnwath House (27 Residences)
- Breer Street (51 Residences)
- Dimmock Street (68 Residents)
- Philpott Sheltered Housing (36 Res.)
- Philpott Square (54 Residences)
- Piper Building (77 Residences)
- 5 Carnwath Road (16 Residents)
- 1 & 3 Carnwath Road (8 Residences)
- Broomhouse Dock (22 Residences)
- Carnwath Rd Housing Association (68 Res.)
Appendix L: Evidence of Misleading Claims Within the Barn Elms Campaign
Tendentious claims on the web site

STOPtheSHAFT-Putney&Barnes
SAVE BARN ELMS PLAYING FIELDS

Thames Water announce potential alternative to Barn Elms

Thames Water have confirmed that they are reconsidering the Carnwath Road Riverside area (Whitgift Wharf, Hurfingham Wharf and Carnwath Business Park) as an alternative site for the major construction site initially proposed for Barn Elms. Thames Water admit that Carnwath Road has the following advantages over Barn Elms:

1. It is a brownsfield site, already designated for regeneration and/or industrial use.
2. It is not important for recreation (Barn Elms playing fields and the adjacent tow path are used for football, athletics, tennis, archery, running, cycling etc).
3. It would not require tree felling (let alone protected tree felling).
4. The site has an existing Jetty unlike Barn Elms.
5. The river is wider at this point allowing fewer larger barge to be used to removes spoil.

STOPtheSHAFT have listed below further benefits:

4 trees will need to be felled at CRR. This is not permitted in the Conservation Area.

This ignores the tree break at Barn Elms and has no basis in fact.

This is an entirely spurious claim that is tendentious and may be illegal.

This tendentious statement is designed to froth up support. There are NO businesses affected at Barn Elms and CRR has far more residents in the impact zone.
Appendix L Cont’d: Evidence of Misleading Claims Within the Barn Elms Campaign

Misleading literature

**ROWERS**

**FANCY TAKING A 7 YEAR BREAK FROM YOUR PASSION?**

STOPtheSHAFT Putney&Barnes
Residents say NO! to Barn Elms Main Shaft Site

email: Tunnel.Putney@Gmail.com
Facebook: STOPtheSHAFT Putney&Barnes

This literature is not available on the website or even referred to there – hence the grainy photocopies. It is widely handed out to passersby to garner signatures and whip up support.

The Rowing Club is not even affected by the current Thames Water Proposal.

**DAD**

**WHY CAN'T WE PLAY FOOTBALL HERE ANYMORE?**

STOPtheSHAFT Putney&Barnes
Residents Say NO! to Barn Elms Main Shaft Site

email: Tunnel.Putney@Gmail.com
Facebook: STOPtheSHAFT Putney&Barnes

A highly misleading claim in that only 6.7% of the playing field space will be used for the construction and the council have themselves confirmed that the playing fields would not be materially impacted. See main document for quote.
## Appendix L Cont’d: Evidence of Misleading Claims Within the Barn Elms Campaign

### False claims in Barn Elms Literature

<table>
<thead>
<tr>
<th>Save Barn Elms</th>
<th>Greenfield vs Brownfield</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preliminary Submission and Site Analysis</strong> – Carnwath Road Riverside</td>
<td></td>
</tr>
<tr>
<td><strong>Ancient greenfield site that has never been built on</strong></td>
<td>Dropped brownfield site</td>
</tr>
<tr>
<td><strong>Playing fields and boathouse used by 21 schools, 40 clubs and countless individuals from 10 London boroughs and three counties</strong></td>
<td>Dropped brownfield site</td>
</tr>
<tr>
<td><strong>Sports facilities used by adults and children including those with disabilities (para-athletics) and special needs</strong></td>
<td>Dropped brownfield site</td>
</tr>
<tr>
<td><strong>Thousands of individuals from all over London use the tow path each week for promenade and exercise</strong></td>
<td>Dropped brownfield site</td>
</tr>
<tr>
<td><strong>Boat house is used 43,000 times a year by rowers and other boat users; this stretch of the river even more so</strong></td>
<td>Hurlingham Wharf is a “safeguarded” industrial wharf</td>
</tr>
<tr>
<td><strong>A large jetty would have to be constructed for use by industrial barges – endangering other river users</strong></td>
<td>River it is wider and deeper – suitable for removing spoil by large industrial barges</td>
</tr>
<tr>
<td><strong>Main sporting hub of South West London – will support the Olympic legacy if not destroyed by Thames Water</strong></td>
<td>Dropped brownfield site</td>
</tr>
<tr>
<td><strong>c. 260 homes within 130m of the proposed site</strong></td>
<td>c. 130 homes within 130m of the proposed site</td>
</tr>
<tr>
<td><strong>The best multi-discipline facility in South West London supporting: football, rugby, cricket, netball, hockey, tennis, archery, boating, fishing, tramp running, jumping, cycling, walking, field throwing and jumping</strong></td>
<td>Dropped brownfield site</td>
</tr>
<tr>
<td><strong>Opposite Fulham Palace</strong></td>
<td>Opposite dump</td>
</tr>
<tr>
<td><strong>Flight corridor for seven species of bats, including two very rare varieties that will be endangered by the 24 hr works</strong></td>
<td>A barren dropped brownfield site</td>
</tr>
<tr>
<td><strong>Rare and ancient trees would have to be felled</strong></td>
<td>A barren dropped brownfield site</td>
</tr>
<tr>
<td><strong>Rare birds and water voles reside in the neighbouring Wetland Centre. These are likely to be frightened away by the 24 hr works</strong></td>
<td>A barren dropped brownfield site</td>
</tr>
<tr>
<td><strong>Road infrastructure unsuitable for removal of spoil due to weight restrictions and narrow congested roads</strong></td>
<td>Adjacent to the A217 which leads onto the dual carriageway of the A24 with no weight restrictions</td>
</tr>
<tr>
<td><strong>Sustained cycling route. The safety of this route will be lost because of the 24 daily 20-30 tonne lorries to remove spoil</strong></td>
<td>Dropped brownfield site</td>
</tr>
<tr>
<td><strong>A large amount of Barn Elms will be totally unusable during the seven years of construction. Works will leave behind very large buildings forever including a tail ventilation shaft in this Metropolitan Open Land</strong></td>
<td>Now derelict, but when work is complete the area can be regenerated incorporating the permanent structures into the design with other buildings or landscaping that would leave behind a green area with trees and tow path.</td>
</tr>
<tr>
<td><strong>Over £2 million has just been raised by the local community to enhance the sporting facilities, due for completion in 2013</strong></td>
<td>Dropped for decades, this brownfield site could be regenerated when work completed. Thames Water could leave site in a state that would facilitate this</td>
</tr>
<tr>
<td><strong>Designated Metropolitan Open Land</strong></td>
<td>Designated a working wharf for industrial use and regeneration</td>
</tr>
</tbody>
</table>

- **Low level / fisheye photography to exaggerate the size of the area aimed away from the housing for the disabled.**
- **Even the wharves were in use in 1997. 15 not 25 years ago. Plus they are in active use today by Chartwell as a recycling centre and car park.**
- **The business park on 50% of the site is in active use so the “disused” is fallacious.**
- **The empirical data shows more than 400 homes within 130m.**
- **Not true**
- **The site is not “barren”, “derelict” or “disused”.**
- **The site is NOT adjacent.**
- **No mention of South Fulham Riverside Regeneration Plans.**
Appendix L Cont’d: Evidence of Misleading Claims Within the Barn Elms Campaign
The site is not only “opposite a dump”
Appendix M: Sensitive Receptor Definitions

5.1 Determination of Sensitive Receptor

For the purpose of determining compliance with the HPCL, any domestic premises, hotel, hostel, hospital, clinic, nursery, temporary housing accommodation, school, educational institution, office, factory, shop, shopping centre, place of public worship, library, court of law, sports stadium or performing arts centre shall be considered to be a sensitive receptor.

Any other premises or place which, in terms of duration or number of people affected, has a similar sensitivity to the air pollutants listed in Table 1 as the aforesaid premises and places shall also be considered to be a sensitive receptor.

2.5 Receptors Sensitive to Contamination

The receptors identified in Circular 02/2000 as being potentially sensitive to contamination are summarised below. Table A of the Circular is reproduced in Appendix 1.

- Human beings;
- Any ecological system, or living organism forming part of such a system, within certain protected areas;
- Property in the form of buildings;
- Property in the form of crops, owned or domestic animals etc.

In addition, the pollution of controlled water needs to be taken into account.

2.3 Potential Odour Sensitive Receptors

Potential odour sensitive receptors within 1km of the site are listed in Table 2-1 and shown in Figure 10.1 with the supporting statement for the planning application of the land surrounding the site is predominately agricultural with open fields. A small number of residential properties and farms are located within 1km of the site.

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Name</th>
<th>Receptor Type</th>
<th>OS Grid Coordinates</th>
<th>Distance &amp; Direction from Nearest Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Lockwell House Farm</td>
<td>Residential</td>
<td>403210 359100</td>
<td>200m, 35°4'</td>
</tr>
<tr>
<td>R2</td>
<td>Lockwell Hill Activity Centre</td>
<td>Recreational</td>
<td>402732 359100</td>
<td>260m, 103°</td>
</tr>
<tr>
<td>R3</td>
<td>Cottage Farm</td>
<td>Residential</td>
<td>403000 359000</td>
<td>610m, 183°</td>
</tr>
<tr>
<td>R4</td>
<td>Lockwell Hill Farm</td>
<td>Recreational</td>
<td>402732 359000</td>
<td>708m, 182°</td>
</tr>
<tr>
<td>R5</td>
<td>Fringford</td>
<td>Industrial</td>
<td>402974 359000</td>
<td>21m, 031°</td>
</tr>
<tr>
<td>R6</td>
<td>Woodland</td>
<td>Residential</td>
<td>403000 359100</td>
<td>416m, 320°</td>
</tr>
<tr>
<td>R7</td>
<td>Bridgwater</td>
<td>Recreational</td>
<td>402970 359000</td>
<td>224m, 78°</td>
</tr>
</tbody>
</table>

Distances are to the nearest practical boundary. In reality, distances to competing are greater. For example, the distance from Fringford pumping station to the maturation area is 260m with the final product storage shed being 30m from the Fringford boundary.
Mr Richard Aylard
Thames Water Utilities
Clearwater Court
2nd Floor East
Vastern Road
Reading
RG1 8DB

LDR/SG/AL

Dear Richard,

Thames Tunnel Site Proposal Response – 2nd March 2011

The Council is extremely concerned that Thames Water is even contemplating a late decision change which would possibly involve consideration of Hurlingham, Whifflin, the Camwath Road Business Park and Albert, Swedish and Comelys Wharves as possible Thames Tideway Tunnel sites. This would result in an huge level of objection from the Council and would lead to Members, residents, landowners and other stakeholders rising up in united opposition.

These four sites, collectively and individually, are all prominent sites in the soon to be adopted South Fulham Riverside Supplementary Planning Document (SPD). South Fulham Riverside is one of main regeneration areas within the Borough and West London with amongst other aspects its unique and long south-facing riverside setting. The area is already receiving millions of pounds of private sector investment with current schemes such as Imperial Wharf and further investment due very soon at sites including Sainsbury’s at Fulham Wharf and St. James at the former Baltic Sawmills site. A Thames Tideway Tunnel site at any of the four proposed locations would reverse this investment together with its wider regeneration benefits and blight the whole area for over a decade.

Furthermore, as a matter of procedure and fairness these sites were not included as potential sites in the recent consultation exercise and therefore should not be revisited. It clearly prejudices all interested parties if they are not able to comment on proposed sites at the first stage of consultation.

South Fulham Riverside Regeneration and Major Investment

As detailed in the Council’s Submission Core Strategy – January 2011 and the draft South Fulham Riverside SPD, soon to be adopted, this area is destined to receive significant investment and undergo major regeneration over the next ten years and will move away from its industrial past and become a new vibrant residential mixed use area integrated with employment, community and leisure uses. Some of this is already happening and we cannot and will not back track now on the Thames Tideway Tunnel consultation and take a different tack, knowing that this will significantly delay regeneration and cause dismay to residents, businesses and developers alike in this Borough.
The Core Strategy clearly states that most development sites should be developed for predominantly residential purposes, the riverside should be opened up to public use with open space and leisure uses and a high standard of urban design achieved. The comprehensive re-development of these sites (Whiffin, Hurlingham and Carnwath Road Business Park) are essential to delivering this vision and will provide much needed homes in the Borough and London as a whole.

Other priorities that will be delayed indefinitely if sites in South Fulham are used are the completion of the Thames Path that provides the general public with access to and along the river and the provision of much needed open space.

Following positive discussions with the GLA we have amended our Core Strategy to now support the consolidation of safeguarded wharves at Comleys and Swedish (and possibly Albert) Wharves to further facilitate the redevelopment of Hurlingham Wharf for new housing.

Delivering the vision

Comleys, Whiffen and Hurlingham Wharves along with Carnwath Road Business Park are already well advanced in redevelopment proposals. There are advanced and detailed pre-application discussions currently taking place with the landowner of Whiffen and Hurlingham Wharves and a planning application for a high quality residential led mixed-use schemes across both sites is targeted for this summer. It is envisaged that construction works will start in the next year and once finished many hundreds of new homes will be delivered. There is a current application lodged with LBHF for an upgraded aggregates facility at Comleys Wharf which will go to planning applications committee in May. The proposed schemes are in line with the emerging Core Strategy and the vision set out in the SPD and inclusion of any of the sites to support the Thames Tunnel Tideway will render it impossible to deliver the comprehensive regeneration proposed to transform the area.

Regeneration projects that will be threatened or lost include:

- An imminent planning application for a residential led mixed-use development of approx. 400 new homes including cafes, retail and a new public square with possible community facilities. The river will be opened up and connected to the wider hinterland and river-related uses are being sought along with an improvement and extension of the Thames Path on Whiffin Wharf, Hurlingham Wharf, and 17-31 Carnwath Road.

- A consolidated aggregates facility centred on Albert, Swedish and Comleys Wharves that will be vital source of river transported aggregates for the regeneration sites and Opportunity Areas within this borough.

- An imminent planning application for a residential led mixed-use development of ca 200 new homes, with commercial floorspace at ground floor, at Baltic Sawmills on the north side of Carnwath Road opposite Whiffin and Hurlingham Wharves.

The regeneration benefits achieved through these schemes are vitally important to the borough and will act as an essential catalyst for future investment along the riverside and the regeneration of the wider area. Any Thames Tunnel Tideway proposal will hold back many millions of pounds of investment for wider regeneration benefits, and blight the area for at least a decade to the significant detriment of the locality and the West London region.
Inclusion of any of the four proposed sites to support the Thames Tideway Tunnel will severely damage the local community and its environment, along with the economic, physical and social fabric of the area. It will have severe implications for the Council’s Regeneration Area strategy which is now embodied in the Core Strategy. The local residents and Members will react in an extremely hostile fashion to any backtracking by Thames Water and will most certainly lobby Parliament and the EU over this matter.

Local Involvement and Support for Regeneration

In the preparation of the draft South Fulham Riverside SPD we have involved the local community in a series of high profile workshops co-ordinated by The Prince’s Foundation for The Built Environment. Local stakeholders were able to put forward their views on the future regeneration of the area. There was overwhelming support for the vision to transform South Fulham Riverside including the desire to provide better access to the Thames River Path, high quality urban design and a renewed focus on the river.

Local residents and community groups have invested considerable time and effort into shaping the future regeneration proposals for the area and will strongly oppose the derailment of the proposals at this late stage.

Impact on existing local residents

Thames Water have outlined that the excavation works will require approximately 4 acres of land and will take seven years to complete. The identified sites in South Fulham Riverside are all in sensitive proximity to existing residential occupiers. It is an absolute certainty that the noise and disturbance during the excavation works will have a major adverse impact on these residents for a seven year period. The Council will utilise all means necessary to protect its residents from such a serious threat to their amenity.

Impact on developer and investor confidence

The South Fulham Riverside Regeneration Area is beginning to attract investment from high profile developers from across the world that see its tremendous potential. From our discussions it is likely that developers and their investors would not be prepared to take the risk of building valuable new homes within the Regeneration Area if this major excavation site were to be located within it. The location of a main Tunnel drive shaft on any of the four sites in this important strategic location would result in ten more years of blight for the whole of South Fulham Riverside. The Council will simply not accept this outcome.

Transport Implications

As part of the evidence base to support the South Fulham Riverside SPD the Council commissioned an Independent Transport Study which was carried out in 2010 to identify key transport infrastructure required to support the anticipated growth in the area over the next 10-20 years. This demonstrates the Council’s commitment to the regeneration strategy.

Highway capacity in the regeneration area is limited and key junctions already operate close to, or at capacity. The conclusion of the Transport Study is that significant increases to highway capacity are required to support the growth trips created by new homes and jobs in the area. This is alongside traffic restraint policies such as limited off street parking, improved bus and train services and excellent walking and cycling facilities.
The greatest need for additional highway capacity is at the junction of Townmead Road/Camwath Road/Wandsworth Bridge Road which requires additional carriageway width to operate within acceptable parameters. The other key intervention involves a new link road through the National Grid site on Imperial Road to reduce rat running, improve access to the Kings Road and reduce congestion and delay at the junction of Harwood Road.

It will be a careful balance to ensure that as growth in new homes and jobs is realised that the necessary improvements to the highway network are delivered. The improvements to the Townmead Road/Camwath Road/Wandsworth Bridge Road junction will involve acquiring land possibly through CPO from at least four sites.

The Council has commissioned a Development Infrastructure Funding (DIF) study to consider in more detail the phasing of sites linked to the phasing of highway improvements, supported by Section 106 contributions or a local Community Infrastructure Levy.

There are grave concerns that if any of the proposed sites were used to support the Thames Tunnel construction that this would have an extremely negative impact on the existing and future highway network and the capacity for essential and very substantial developer-funded improvements.

As it stands the local highway network often operates close to, or at its capacity. The additional vehicle trips associated with the use of any of these sites for Thames Tunnel construction would not be able to be accommodated by the existing network. The congestion and delay created by these trips would be strategic and felt across West London given the nature of the local road network and the strategic importance of the river crossing at Wandsworth Bridge.

The implications of the use of any of these sites for Thames Tunnel construction will limit the potential growth in the regeneration area and as such limit the potential to fund the required transport interventions needed to manage future trips. Should development not transpire to an appropriate density the uplift in land values may not be sufficient to deliver the significant increases to the capacity of the local highway network to support trip patterns in West London given the development aspirations in the London Plan. This would have a catastrophic impact on the West London highway network.

Barn Elms

The Council considers the Barn Elms Playing Fields (52 acres), on the boundary of the London Boroughs of Richmond and Wandsworth, to be the only suitable and logical option in the wider area for the main drive shaft's location. This opinion is based on the following reasons:

- It is a relatively isolated location far away from existing residential occupiers, unlike the four sites in South Fulham which are all in proximity to existing residential occupiers;
- It is not a site that is scheduled for vitally important regeneration that would provide thousands of much needed new homes;
- The noise and disturbance to local residents directly adjoining each site identified in South Fulham Riverside is unacceptable. The excavation works would have an unbearable impact on their amenity for a seven year period. The Barn Elms location has a much greater separation distance to adjoining residents by far;
- The noise and smell of a large, permanent ventilation tower would have a significant negative impact on the adjoining residential occupiers at South Fulham Riverside and would compromise the future residential development potential of the area;
• It should be relatively easy for Thames Water to design an excavation system or conveyor belt for the Barn Elms drive shaft that forms a bridge over the Thames Tow Path to ensure the Path’s users are not impacted upon.

Draft South Fulham Riverside SPD

It is envisaged that the regenerated South Fulham Riverside area will have moved away from its industrial past and become a new residential mixed use area integrated with employment, community and leisure uses that adopt a waterfront character. The area will have a riverside focus that embraces the river offering leisure, recreational and sporting facilities linked to the river. The soon to be adopted SPD crucially outlines that development sites should deliver predominantly residential uses and contribute to the South Fulham Riverside target of a minimum of 2,200 additional dwellings up to a maximum of 4,000 homes. A map of the regeneration area is below.

Conclusion

Thames Water should be clear from the information in this note that the Council and its Members, residents and landowners would strongly oppose any revisiting of sites in the South Fulham Riverside which is now a major regeneration area. The area is experiencing major investment with much more to follow in the near future including on the three wharves named by Thames Water. This investment will bring about wider benefits to the local community and London as a whole. It is a unique area of regeneration land in London and it should not be blighted by any backtracking exercises by Thames Water.

Yours sincerely,

[Signature]

Councillor Stephen Greenhalgh
LEADER OF THE COUNCIL
Ref: Thames Tunnel

Dear Stephen,

Thank you for your letter dated 23 May 2011. I have noted all of your points and appreciate the time you and your officers have taken to collate them in this helpful manner.

Phil Stride’s team are continuing to refine and develop a proposal that delivers the long-term environmental benefits of this project cost effectively and with minimal disruption. As you are only too aware, this is not an easy task and we remain keen to work with you to try and find a viable way through the objections that you and others in the borough have raised.

Everyone responsible for designing and delivering the Thames Tunnel is acutely conscious of the impact that our proposals may have on those who live and work adjacent to our proposed sites. We are also undertaking a huge range of studies to ensure that we adhere to the wide ranging regulations that control the development of major infrastructure projects. The findings from these studies will be critical in developing our future proposals and mitigation options.

Recurring themes from both your response and from other letters we receive reflect the local desire to regenerate South Fulham. We would like to know more about the transport and phasing proposals and key issues that you have identified and discuss how we could work together to deliver both your objectives and ours, both of which will provide a valuable future asset for Londoners.

Thank you for identifying the questions as a separate item. We have addressed these in the attached sheet which I trust you will find helpful. On reviewing your letter further I have also taken the opportunity to review other comments and provide responses to these points too.

Site Selection

Consideration of the Carnwath Road Riverside site has resulted from our reevaluation of our contracting and tunnelling strategy. Based on our review of procurement of the main tunnel contract and feedback from the construction market, we have been able to plan a double drive site in Battersea, rather than a
single drive site as originally envisaged. We have also reviewed the required site area for a main tunnel drive site where we will tunnel through London Clay, including the opportunity for a smaller diameter tunnel if the main tunnel were driven to Acton Storm Tanks. This in turn has allowed us to reduce our site requirements for the main tunnel drive site in West London, where we now only need a site large enough to support a single reduced diameter tunnel drive. The minimum size of site required for such a site is now 15,000m². The Carnwath Road Riverside site is approximately 16,000m² and is therefore adequate for our revised needs.

If we do use Carnwath Road Riverside for a main drive site, then we are unlikely to require any further land off-site for ancillary work.

The details of the Thames Tunnel construction programme are at an early stage because, as you are aware, our sites have not been finalised. It is worth highlighting however, that although we anticipate a main shaft site would be needed for approximately seven years, the level of activity would vary within this period. We believe that any identified potential significant impacts on residents can be adequately mitigated during construction using a range of tried-and-tested and possibly enhanced techniques that we would be happy to discuss with you over the coming weeks prior to Phase 2 public consultation.

As you may know we have made formal comments on the South Fulham Riverside Supplementary Planning Document (SPD). We are aware that the status of the draft SPD and its policy support is dependent on the success of the Core Strategy, the binding Planning Inspector’s Report being imminently expected, and that the Greater London Authority (GLA) are objecting to aspects of its proposals.

The South Fulham Riverside area is a large area stretching from the Hurlingham Club in the west along the waterfront up to the Imperial Wharf area to the north (including the Gas Works area). We understand from your officers that sites near to Carnwath Road Riverside, namely the Baltic Sawmills and Fulham Wharf sites, are shortly to submit schemes within planning applications and that this is indicative of positive developer and investor confidence.

We understand the concerns regarding traffic congestion and confirm that we would potentially need to carry out improvement works to the local road network ahead of the main construction works. This would help to reduce the impact of our construction works on local traffic congestion. The ongoing Environmental Impact Assessment (EIA) work that we are currently carrying out includes transport assessments, which include baseline data collection surveys, impact assessments and improvements / mitigation works.

This work is in its early stages and so we cannot yet be definitive about our proposals. However, we understand that the junction between Carnwath Road and Wandsworth Bridge Road is particularly busy and we may need to improve the junction to help traffic flow better. Improvement works to the junction may require part of Carnwath Road and/or Wandsworth Bridge Road to be widened close to the junction and so we could not rule out having to acquire a strip of the PC World car park to carry out this work if it were required.
If we do use Carnwath Road Riverside then it is likely that a short diversion of the Thames Path might be necessary where it runs behind the Carnwath Road Industrial Estate. Any such diversion and the relationship of the Thames Path to any construction site would be carefully reviewed to comply with all required health and safety considerations.

Residents Concerns

Thank you for outlining the key concerns you have received from residents. They correspond closely with the issues reported to us from the local community. I have responded to the individual points as highlighted in your letter for ease of reference;

- As with other large infrastructure projects, we are undertaking an EIA which will involve a number of studies including noise and vibration, air quality (including dust emissions), odour and light, traffic (including road users and pedestrians) terrestrial and aquatic ecology, historic environment, water and land quality impacts on the local environment and local residents during the construction and operational phases of the tunnel. We are also in the process of undertaking studies to assess the potential impact of the project on human health and wellbeing, and the distribution of those effects within the population. The outcome of our work will mean that, where appropriate, we can incorporate mitigation measures in the design and the methods by which the tunnel is constructed.

As part of our design and assessment process we are also working with Environmental Health and other local authority officers across the whole project to develop a Code of Construction Practice (CoCP). At the next phase of public consultation in September, we will be publishing a Preliminary Environmental Information Report, which will set out our progress and initial findings from our studies.

- In developing the CoCP we will take the local community concerns into account. From information obtained so far, there do not appear to be any schools or nurseries located near to the likely construction traffic routes and those in the area are a sufficient distance from the site. It would be helpful if your officers could identify specifically the 94 properties that you consider will be impacted as this will provide us with a better understanding of your views and assist our assessment process, ensuring we are working with the same information.

- The purpose of the Transport Assessment currently being undertaken for the Thames Tunnel, which includes surveys of the local roads and indications of potential significant impacts and recommendations for any required mitigation, is to specifically identify any congestion, the effects of our works and if mitigation can adequately address these matters. Preliminary results of this work will be available during our Phase 2 public consultation in September 2011.

- Should your South Fulham Riverside proposals be given the go ahead, it is our understanding that the businesses within the Carnwath Road Industrial
• Estate would need to be relocated. This is also true of our proposed works and in this regard we are prepared to assist the Council in the process of relocation and would be happy to have further discussions about this matter.

• I want to reiterate our public statement that we do not anticipate any odours from this or other Thames Tunnel sites. We will accomplish a high level of air quality released from the ventilation columns by treating 99.9% of the air, with the only exception during very extreme rainfall events when the tunnel system fills very rapidly. To put this exception in context it will be during infrequent and major storm events such as raining at a rate of over one inch per hour everywhere in London: in such circumstances detection of any odours would be very unlikely. We cannot say that there will never be any detectable odour release but what we have proposed for managing air movement and design of air treatment facilities gives a high level of assurance that the community would not be able to detect any odours or receive any impact from gases emitted from the shaft.

We have also reviewed the 22 objections listed in Appendix 1 of your draft report and have grouped them under several headings for ease of understanding and can provide you with the attached preliminary responses. We have not provided a response to Objections 15, 19, 20 or 21, since we believe these to be either recommendations or statements.

As we continue to investigate the suitability of Carnwath Road Riverside we are taking into account the views raised by local communities and those interested in the proposals. It remains our priority to ensure that everyone has their say and we will be presenting the outcome of this work as part of our next consultation due to start in September 2011. This will provide an opportunity for the public to comment formally on the detail of our updated plans for the whole project. At this stage I can confirm that no final decisions have been made.

I welcome the opportunity to meet and discuss the issues you raise in your letter and in recent meetings. If you would find a meeting helpful, please do contact me and we can confirm arrangements at your convenience.

We are more than willing to attend any future public meetings so we can continue to engage with the local community and to hear their views as well as update them on our proposals.
As a final point, you have previously expressed interest in the modelling which underpins the case for the Thames Tunnel. If you would like to suggest a time when you could come to our offices in Paddington, we would be happy to show you the detail of the models. We did this recently for Justine Greening MP and she commented that it helped her understanding of the situation.

Yours sincerely

[Signature]

Richard Aylard CVO
External Affairs and Sustainability Director
Summary of Objections

We have reviewed the list of objections as submitted and have grouped them into key areas. Although some of the responses are already addressed in the preceding letter we thought it would be helpful to review and highlight them separately below.

Object to the scheme in principle because of the cost

In the Ministerial Statement of 7 September 2010, the Minister said "a Thames Tunnel continues to offer (by far) the lowest cost solution to the problem [and] we with Ofwat will continue to ensure that the costs are scrutinised and reviewed so that I can be assured before Thames Water signs a construction contract that the final proposal represents proper value for money." Scrutiny from Ofwat will ensure that we will continue to look for cost savings

The initial costs did not include allowances for risk, contingency and project management. These costs are now included.

Impact on Regeneration, Redevelopment Proposals and Developer and Investment Confidence and LBHF’s SPD (Objections 2, 3, 4, 8, 9, 10 and 11)

We note your comments about the status of the proposals within your South Fulham Riverside SPD and have submitted formal comments. This included noting that the status of the draft SPD and its policy support is dependent on the success of the Core Strategy, the binding Planning Inspector’s Report being imminently expected, and that the GLA are objecting to aspects of its proposals. Furthermore, the South Fulham Riverside area is a large area stretching from the Hurlingham Club in the west along the waterfront up to the Imperial Wharf area to the north (including the Gas Works area). It clearly has a number of opportunities for development and we understand from your officers that sites near to Carnwath Road Riverside, namely the Baltic Sawmills and Fulham Wharf sites, are shortly to submit schemes within planning applications. This suggests positive developer and investor confidence.

We do not believe that our proposals, if we do use Carnwath Road Riverside site, will impact on your current proposals to the degree you set out in your draft report, as our proposals only affect a small part of the South Fulham Riverside area in the west. Nevertheless, we are happy to have further discussions with you and your officers to examine how the two proposals could be better integrated and how we can assist you in the facilitation of your regeneration proposals.

Impact on Local Residents (Objections 6 and 12)

These impacts are being carefully assessed as part of our Environmental Impact Assessment. Preliminary results will be presented as part of our Preliminary Environmental Information Report (PEIR) that will be issued with our Phase 2 public consultation. If potential significant impacts and effects are identified, we would be happy to discuss appropriate and possible enhanced mitigation measures with you and your officers to reduce such impacts. We would be grateful to understand in more detail which residents you believe are impacted by our current proposals and the nature of such impacts and to explain our potential
proposals in more detail, especially the changing nature of the construction activities over the seven year period.

Impact on Local Economy, Businesses and Employment (Objections 5 and 14)

If we do use Carnwath Road Riverside site, we do not believe we will jeopardise the transport improvements necessary for the regeneration of the area, since it is anticipated that junction improvements potentially necessary for our proposals may also be sufficient for future regeneration. We do understand your concerns about the potential impact on the existing businesses within the Carnwath Road Industrial Estate and the need to relocate them either to enable our proposals or in order to facilitate the regeneration of the area. We also note your comment that development of the Carnwath Road Industrial Estate would only be acceptable in the context of the wider regeneration of the area. Clearly, improvements to the River Thames would assist in such aims by offering a cleaner, healthier river for riparian development. Consequently, we are prepared to work with you to select suitable alternative locations and facilitate their relocation at an appropriate time.

Highway Impacts and Congestion (Objections 7 and 13)

We understand that there may be insufficient capacity within the immediate highway network to accommodate either the Thames Tunnel proposals or indeed the South Fulham Riverside regeneration proposals and note that Carnwath Road is used by a mixture of residential, industrial and community traffic. Also, as you know we are undertaking a Transport Assessment for the Thames Tunnel, which will include surveys of the local roads and indications of potential significant impacts and recommendations for any required mitigation. This may result in the need for junction improvements to key junctions, such as at the Carnwath Road / Wandsworth Bridge Road. It may be that any required junction improvements considered necessary for the Thames Tunnel, if this site is selected as our Preferred Site, will assist the proposed development of South Fulham Riverside’s regeneration. As you state in your draft report, it may be that some of the transport improvements needed for regeneration would need to be implemented at an early stage.

We note the detailed comments in Section 2.4.1 of your draft report and will forward this information to our transport specialists to assist them in preparing the Transport Assessment and if you are able to provide us with a copy of your independent Transport Study that would greatly assist us and be much appreciated.

Effect on the Thames Path (Objection 16)

If we do use Carnwath Road Riverside then it is likely that a short diversion of the Thames Path might be necessary where it runs behind the Carnwath Road Industrial Estate. Any such diversion and the relationship of the Thames Path to any construction site would be carefully reviewed to comply with all required health and safety considerations.
We do share your safety concerns about the interface between the potential route to divert the Thames Path and the operation of the construction site. We would work with you and your officers to develop a safe and satisfactory solution, if we do use Carnwath Road Riverside site.

**Site Size and Need for Ancillary Facilities (Objection 17 and 18)**

Consideration of the Carnwath Road Riverside site has resulted from our re-evaluation of our contracting and tunnelling strategy. Based on our review of procurement of the main tunnel contract and feedback from the construction market, we have been able to plan a double drive site in Battersea, rather than a single drive site as originally envisaged. We have also reviewed the required site area for a main tunnel drive site where we will tunnel through London Clay, including the opportunity for a smaller diameter tunnel if the main tunnel were driven to Acton Storm Tanks. This in turn has allowed us to reduce our site requirements for the main tunnel drive site in West London, where we now only need a site large enough to support a single reduced diameter tunnel drive. The minimum size of site required for such a site is now 15,000m². The Carnwath Road Riverside site is approximately 16,000m² and is therefore adequate for our revised needs.

If we do use Carnwath Road Riverside for a main drive site, then we can confirm that we are unlikely to require any further land off-site for ancillary work and that all our needs can be accommodated on the Carnwath Road Riverside site.

**Decision on Alternative Site (Objection 22)**

As we stated to you during the drop-in sessions on 6 and 7 April, no decisions have yet been taken about our preferred site for main tunnel construction in the west and that we are undertaking a range of technical, environmental and engineering studies to understand the suitability of Carnwath Road Riverside site better. This will inform our decision making in preparation for Phase 2 public consultation in September 2011. In accordance with our Site Selection Methodology, during the Phase 2 public consultation in September 2011 we will present our preferred scheme at that stage for consultation and our final decision on the most suitable site will only be taken prior to formal submission of the Development Consent Order application to the IPC (or its successor) (if that is the final route to consent selected by Government), currently programmed for June 2012.
Community Response to Phase 2 Consultation

Stop them Shafting Fulham

c/o 25 The Piper Building, Peterborough Road, London SW6 3EF

10th Feb 2012

Phil Stride
Head of Thames Tideway Tunnels
Thames Water
The Point
7th floor, 37 North Wharf Road
Paddington
London, W2 1AF

Dear Mr. Stride,

Carnwath Road Riverside (CRR) as proposed Thames Tunnel construction site – summary consultation response from Stop them Shafting Fulham (SSF)

Following our correspondence with you since the opening of Phase 2, in which we have raised a series of concerns and queries, this letter summarises our formal response and objections to Thames Water's (TW's) proposal to use Carnwath Road Riverside (CRR) for the main West London drive shaft drilling and construction site.

We ask that this response be considered along with all our previous correspondence to you, since the Nov 4th Phase 2 announcement, of Nov 8th, 15th, Dec 13th, 19th and 23rd and Jan 5th.

We also ask that our original RATSF Carnwath Road Preliminary Submission & Site Analysis document (delivered to the company’s CEO and Chairman during the interim pre-consultation period on August 1) should be treated as part of our formal response - especially since we believe that much of the information therein appears not to have been considered or acknowledged in your site selection documentation. We would be happy to forward you another copy of this should you wish.

Our objections to the proposed selection of CRR are grouped into 2: the consultation process itself, and Thames Water’s site selection rationale and validation process for the choice of CRR over Barn Elms.
1 Consultation Process

Our main objections to this are as follows:

i) unequal length/format of Phase 1 and 2 consultation periods:
The period granted to CRR once selected as TW’s preferred site has been 4 weeks shorter than for the Phase 1 period which gave Barn Elms the time to respond. We believe this has been unfair or slanted against CRR in at least 3 ways, especially given the unaccountably over-complicated response process which TW introduced for Phase 2 - which was not the same as the far simpler one for Phase 1 stakeholder respondents (see (ii) below). It is also self-evident that Barn Elms campaigners have had two whole consultation periods to campaign and respond whilst CRR campaigners have had just the one, since CRR was not even nominated as a possible site at Phase 1.

(NB TW’s argument that CRR campaigners have also had the intervening period between March and November to campaign and to prepare our response is not valid since during this whole period Thames Water had made clear that Barn Elms remained its preferred site. Clearly, this will have misled many local CRR stakeholders into assuming there was no serious threat to their locality. Only once CRR was announced as the new preferred site were CRR stakeholders on a ‘level playing field’ with Barn Elms in Phase 1 regarding local awareness of the scale of the threat and the resulting opportunity to mobilise the community response).

ii) misleading information from TW itself about the proposed Barn Elms site which fuelled local community opposition.

ii) more onerous and off-putting stakeholder consultation response process than that used for Phase 1 and Barn Elms site selection.

We contend that, unlike for Phase 1, TW’s Phase 2 consultation process will have had the clear effect of deterring rather than encouraging stakeholders from responding:

- at the outset of Phase 2 TW notably did not make clear that stakeholders did not need to respond via its complicated and off-putting online and printed questionnaire form, indeed they implied the reverse. This questionnaire was, unaccountably, far more elaborate, longer and with more forbiddingly complex and convoluted questions than the questionnaire used for Phase 1. Only late on in the consultation period did TW concede, under duress, that all forms of consultation response, including personal letters and emails, would be admissible.
- The Phase 2 TW questionnaire form was designed in such a way as actively to discourage respondents from completing questions unless they had first read various lengthy, often technical, TW back-up documentation - which was not necessary at all for would-be respondents to Phase 1.
The Barn Elms lobby’s campaign against the preferred site proposal was based on an alarmist myth about the scale of the adverse impact on Barn Elms itself which was facilitated by TW itself. In Phase 1, TW’s original information output contained explicit maps and diagrams which clearly suggested that that the whole of Barn Elms would be used for the construction, rather than a very small part of it this - indeed even in some of its Phase 2 information materials (eg ‘Changes’ Project Information Paper) TW was still giving this misleading impression. This gave the local Barn Elms anti-sewer campaign an opportunity to perpetuate this myth as fact (which it did consistently throughout its publicity output), as the cornerstone of its tactics to mobilise the community against the proposal - on what was a false premise provided unintentionally by TW itself.

iv) partial, censored or misleading information in Phase 2 consultation documentation
Although the TW questionnaire does give respondents an opportunity to comment on the desirability or otherwise of the supersewer scheme as a whole, it omits entirely from its documentation for Phase 2 any review of alternatives to the Thames Tunnel. Also, at site impact level, it omits entirely any consideration of, or information about, the potentially viable option to extend the tunnel section to Kirtling Street and remove the need for a CRR or Barn Elms site entirely. Moreover the statistics used by TW in presenting the environmental case for the supersewer solution have been consistently exaggerated or misrepresented – eg, regarding the volume of sewage into the river which needs to be cleaned up. TW has misleadingly equated sewage volume figures with actual CSO outflows, when these outflows are of course predominantly rainwater, mixed with a very small percentage – probably less than one per-cent - of sewage. The figure TW consistently cites, of 39m tonnes, is also misleading not only on these grounds but because this figure has not been adjusted to take into account the reduction of this volume which will be achieved by the Lee Tunnel and upgrades to Mogden and other STWs.

2 New Preferred Site Selection Rationale (CRR v BE)

In summary, we believe there has been a deliberate underestimation of the adverse impact on CRR, and/or an overestimation of its comparative benefits vis-a-vis Barn Elms, as follows.

TW’s site appraisal documentation, especially in its Appendix G conclusions about the use of CRR, uses misleading, invidious or partial comparison:

i) The prime reason cited by TW for the switch from Barn Elms to CRR has been not only that ours is a “brownfield site” but, furthermore, that the planning guidelines regarding use of greenfield/MOL land make the use of Barn Elms all but impossible on these grounds alone, since there are insufficient grounds to preclude the use of CRR instead. We contend that this
is simply not true: our extensive previous correspondence since Nov 4 refers. Most importantly, neither in all its responses, nor in any public statements on this issue, has TW acknowledged the clear fact that the key relevant planning guidance, viz PPG2, does specifically provide for temporary use of MOL/Greenfield land by utilities. We believe that TW's knowledge of this inconvenient truth (which undermines its main claim for the need to select CRR) has led it to exaggerate the other claimed comparative ‘advantages’ of the CRR site and, conversely, downplay the site’s huge adverse effects on local stakeholders so that it cannot be deemed a “special circumstance” which could override the “inappropriate development” restriction on the use of MOL at Barn Elms. All this is particularly so given that there will have to be a construction site on the MOL land at Barn Elms anyhow, as TW has itself made clear.

The following points list the main areas where we believe TW has done this:

ii) one of TWs main stated reasons for choosing CRR over Barn Elms has been this site’s ‘advantages’ regarding barge transport, of which TW makes great play. Yet TW are not even planning to stipulate that all its contractors must use barge transport whenever practicable. Surely if “use of barges at Stages 4 and 5 is not a project commitment” in TW's own plans then barge transport cannot really be so significant a site selection criterion. Furthermore, given the very low number of daily barge movements projected by TW, barge transport (even if smaller barges were required) would also be quite practicable at Barn Elms.

iii) a study of major construction project management standards and statistics suggests that TW’s projections of major lorry movements to and from the site, and the corresponding additional congestion in a very congested borough, are badly underestimated. Not least, given the position in ii) above that contractors at project stages 4 and 5 are to be free to choose their own transport mode, TW's low estimates cannot have allowed for contractors' lorry movements - of which, we as have seen above, there could be a very high volume given that TW are not proposing to insist these contractors use barge transport where they can.

iv) in its summary appraisal documentation TW makes no reference to the major adverse effects on the local community around CRR and beyond of preventing the planned regeneration of the whole proposed site area. This plan was already in existence before TW nominated CRR as a possible alternative site. We also note that TW has ‘edited’ out of its documentation the existence of pending planning applications for commercial use of parts of the site.

v) there is almost no reference and regard paid in the EIA to the very high number of schools (and therefore hundreds of schoolchildren), in the
immediate CRR environs, 6 of them, including a junior school within 100 yards of the site.

vi) TW has consistently tried to mollify local campaigners by claiming that there would be no discernable odour from the residual ventilation column once the tunnel is operational, yet in its documentation it provides clear calculations and assumptions to the contrary.

vii) similarly, TW has misleadingly tried to reassure campaigners here that it would be able to mitigate the worst effects of noise, pollution, etc on site by constructing a robust ‘enclosure’ across the whole of the main drilling zone. It is only on cross-examination that TW has admitted it has no plans to do this until the most disruptive, noisiest, visually most unsightly and messiest phase of the whole operation – the excavation and construction of the huge vertical drive shaft (which is planned to take about 2 years) is already complete - thus there would be no meaningful mitigation for nearby residents for the worst phase of the operation (at the Barn Elms site this would have no significant impact on residents).

viii) TW has not taken due cognisance of the far more serious traffic congestion impact at CRR than at Barn Elms. Indeed, its comparison in its site selection documentation of the adverse traffic impacts at BE and at CRR is disingenuous. Our previous correspondence of Dec 9th refers, however the key point is that in its Appendix G summary of the site selection decision the traffic congestion at Barn Elms is singled out for mention as a contra-factor whilst the greater, and more damaging congestion at CRR (Fulham is, according to recent TfL data, already the second most congested borough in London) - is not mentioned at all. As to the required access road through Barn Elms - which is, TW claims, the differentiating transport factor between the two sites - this will be required anyway for the CSO construction site.

Also regarding the traffic congestion issue, TW have failed to place due weight on the air pollution issues in Fulham, as compared with the situation in Barn Elms. Recent data* shows that 6 out of 10 monitoring sites in the borough, including Townmead Road just nearby Carnwath Road, exceeded the nitrogen dioxide mean target.

ix) TW have refused to disclose how much more expensive it will be to develop CRR than Barn Elms. The public, and especially all TW customers, have a right to know.

x) TW’s site assessment documentation on the impact at CRR on nearby residents and homes is disingenuously downplayed at several points. By way of example, we take its reference to one of the residential buildings which would be most directly blighted by the site at CRR, The Piper Building, viz: “The configuration of the Piper Building is designed as an L-shape, which places residential dwellings to the north side of the building and commercial units to the south. This arrangement, with a blank facade fronting Carnwath
Road, provides some protection to the residential units behind from construction impacts, such as noise, dust and lighting”. What this omits to point out is that the residential dwellings do not face north but face south and west, ie directly over the proposed site, some of them no more than 30 feet away, and that the blank facade commercial building “in front” of them along Carnwath Road of itself affords negligible protection to most residents in these flats since it is a low building and nearly all of the apartments behind are much higher. Therefore there is neither any significant visual or noise protection at all (and moreover, for a building which is already notoriously prone to noise amplification from the proposed site opposite due to its configuration and construction).

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In summary, we contend that Thames Water’s site selection appraisal of CRR versus Barn Elms has been misguided and biased. For reasons of political expediency, it has prioritised the interests of occasional recreational users at Barn Elms and at the river there - where even the most regular of users might spend, at most, a few hours a week, and who could easily if necessary find alternative recreational space in a range of nearby areas until the works were completed, and whose overall quality of life would not be blighted - over the 24-hour daily lives of a large and diverse residential community here around Carnwath Road who would simply not be able to escape the huge adverse impact of the sewer construction on their doorstep for years, no matter how committed and ingenious the mitigation efforts of Thames Water.

Yours sincerely,

Nigel Henson
for Stop them Shafting Fulham

cc Greg Hands MP
  Councillor Nick Botterill
## Comparative Analysis of Barn Elms as main tunnel drive site and Carnwath Road Riverside.

<table>
<thead>
<tr>
<th>Discipline/Issue</th>
<th>Barn Elms</th>
<th>Carnwath Road Riverside</th>
<th>Comment</th>
</tr>
</thead>
</table>
| **Site Area**    | CSO Site 0.8ha  
Main Drive site 2.5ha  
Net site area for main drive site 1.7ha | Main Drive site 1.6ha | Temporary loss of one pitch. Also noted there would be some spare capacity in pitch use  
CRR site area 1.6ha although TW say would need 2.5 ha (1.7 ha net) at BE. Larger site area required at BE because single access but also single access at CRR apart from an additional entrance for emergency access |
| **Population**   | 250m of the main drive site:  
Under 300 residents | 4,100 residents |  |
|                  | 175m of the main drive site:  
0 | 1500 residents approx |  |
|                  | 50m:  
0 dwellings | 90 dwellings approx |  |
| **Businesses**   | 250m of main drive site:  
0 | Over 300 businesses  
Employees 3,250  
Turnover £260m |  |
|                  | 500m of main drive site:  
N/A | Approx 450 businesses  
Employees 4750  
Turnover £572m |  |
| **Community**    | Vulnerable residents:  
No vulnerable residents within 200m of the possible main drive site | 81-207 Carnwath Road 66 social rent dwellings with wheelchair users and other disabled and vulnerable residents  
Philpot Square – council owned housing estate with sheltered housing. | Adverse affects on vulnerable and elderly are likely to be greater because they spend much more time at home and in the local area. |
<table>
<thead>
<tr>
<th><strong>Schools and nurseries</strong></th>
<th>None</th>
<th>Over 1000 nursery and school age children within 250m of the site. Currently another 1100 children within 700m which is likely to rise to 1800 pupils</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parks and playgrounds</strong></td>
<td>Playing fields with a net loss of 3 pitches during construction. No permanent loss of pitches</td>
<td>No loss of open space but adverse impact on open space amenity. Within 250m of CRR - South Park (8.5ha) and 2 private sports clubs with 10,500 members. 3 children’s playgrounds. Within 500m Hurlingham Park (7.9ha)</td>
</tr>
<tr>
<td><strong>Land Use</strong></td>
<td>Playing fields – net loss of 3 pitches during construction. No permanent loss</td>
<td>Industrial Estate – 5 businesses with an estimated 135 employees. Vacant industrial land</td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td>Designated MOL</td>
<td>H&amp;F Core Strategy adopted Oct 2011 and South Fulham Riverside SPD adopted Jan 2013. Planning consent pending a decision for 467 houses and open space and other uses. Hurlingham Wharf designated a safeguarded wharf, but the S of S has not made a decision in relation March 2013. Safeguarded Wharf Review</td>
</tr>
<tr>
<td><strong>Impact on strategic</strong></td>
<td></td>
<td>10 year delay to construction of over 600</td>
</tr>
<tr>
<td>Regeneration proposals</td>
<td>Dwellings</td>
<td>Permanent loss of about 70 dwellings and possibly more, depending on impact of odour on residential uses</td>
</tr>
<tr>
<td>------------------------</td>
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<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Replacement Land</td>
<td>Possible need to provide replacement open space. This has not been established as a requirement or the possible temporary replacement of playing fields</td>
<td>Need to relocate businesses at Carnwath Road Industrial Estate.</td>
</tr>
<tr>
<td></td>
<td>No shortage of playing fields has been identified in either LB Wandsworth or LB Richmond. TW have not assessed the impact of the TTT construction on the quality of the local parks and open spaces and on the users of this space, including school use of both South Park and Hurlingham Park (see LIR)</td>
<td></td>
</tr>
</tbody>
</table>

**Transport**

<table>
<thead>
<tr>
<th>Road access</th>
<th>New access road required to strategic road network. Required for CSO site therefore no additional road access required for main drive site. Lower levels of background traffic growth.</th>
<th>Access to strategic road network via Carnwath Road. Background traffic growth greater. The Carnwath Road/Wandsworth Road junction is at capacity in the morning peak and delays will increase. Junction improvements required to enable HGVs to turn left into Carnwath Road.</th>
</tr>
</thead>
<tbody>
<tr>
<td>River access</td>
<td>River width – 190m</td>
<td>River width – 205m</td>
</tr>
<tr>
<td></td>
<td>New campshed required. Area of approx 1800m² to 1.7m depth</td>
<td>New jetty or campshed required. Jetty area of approx 2160m² to 03m depth Campshed area 3672m² to 1.7 to 2.0m depth. Riverwall replacement.</td>
</tr>
<tr>
<td></td>
<td>350 tonne barges 10 barge movements per day – 5 per</td>
<td>800 tonne barges 4 barge movements per day</td>
</tr>
</tbody>
</table>

Campshed is the preferred option of PLA and Cory.
<table>
<thead>
<tr>
<th>Pedestrian access</th>
<th>Thames Path would remain with overhead conveyors passing over the Thames Path</th>
<th>155m diversion of Thames Path onto Carnwath Road. Greater risk to pedestrians and cyclists on Carnwath Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road safety</td>
<td>Minor impact</td>
<td>Adverse impact on pedestrian and cyclist safety on Carnwath Road and at the Wandsworth Bridge, Carnwath Road and Townmead Road junction.</td>
</tr>
<tr>
<td></td>
<td>Greater recreational use of the Thames</td>
<td>No assessment of possible mitigation measures for recreational users of the Thames during construction period TW assessment has not taken account of the Western Riverside Waste Authority barge movements directly opposite TTT jetty/campshed.</td>
</tr>
<tr>
<td>Environment</td>
<td>Less impact because less people in close proximity to sources of pollution</td>
<td>Significantly worse both during construction and in operation. Impact of land contamination on air quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Distance from nearest sensitive receptors at BE is 3 dwellings on access road and over 175m to nearest dwellings Wandsworth. Compared to CRR where there are over 300 dwellings overlooking or adjacent to the site. In addition there are the workers in businesses in Carnwath Rd. Once operational up to 75 hours p.a. (or an average of 1.5 hours per week) of untreated air will be expelled from the ventilation shaft.</td>
</tr>
</tbody>
</table>
Over 300 dwellings are within 100m of the centre of the construction site and are overlooking or adjacent to the site and another over 800 dwellings are planned within close proximity of the operational site.

<table>
<thead>
<tr>
<th>Ecology - aquatic</th>
<th>Potentially less dredging and disturbance to river wall</th>
<th>Potentially greater volume of dredging and impact on 250m of river wall. Also potential impact of land based contamination entering the aquatic environment has not been assessed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - terrestrial</td>
<td>Greater adverse impact Number of trees lost due to construction similar, although 2 trees would be lost due to CSO construction site</td>
<td>Less adverse impact but still a potential impact on foraging bats. Number of trees lost due to construction similar</td>
</tr>
<tr>
<td>Historic Environment</td>
<td>Potential adverse effects on archaeology at both sites.</td>
<td>Potential adverse effects on archaeology at both sites. Adverse impact on the character of the Sands End CA</td>
</tr>
<tr>
<td>Land Quality</td>
<td>Limited evidence of land contamination</td>
<td>Evidence of significant land contamination</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>Impact of noise and vibration significantly lower because of greater distance from sensitive receptors.</td>
<td>Impact of noise and vibration significantly worse because of close proximity of sensitive receptors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The adverse impact of land contamination on air quality, aquatic ecology and groundwater have not been adequately assessed for CRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The adverse impacts at CRR have not been adequately assessed and quantified in terms of numbers of residents, businesses and the wider community that will be affected and in what ways. This is essential before a decision can be made on site</td>
</tr>
<tr>
<td>Townscape and visual</td>
<td>Greatest impact will be from east bank of the Thames. Most directly affected are the non residential uses – Fulham Football Club and playing pitches in Bishops Park</td>
<td>Greatest impact will be from housing around the site and from the flats at Riverside West on the southside of the Thames.</td>
</tr>
<tr>
<td>Water resources – groundwater</td>
<td>Some possible impact from land contamination.</td>
<td>TW have not adequately assessed the impact on groundwater from land contamination</td>
</tr>
</tbody>
</table>
| Water resources – surface water | Impact from dredging | Impact from dredging and land contamination  
Risks of surface water flooding and contamination |
| Water resources – flood risk | No additional impact from the CSP proposal  
Possible impact on flood defences | Risks of surface water flooding and contamination  
Significant impact on existing river flood defences |
| Property | | |
| Cost | Issue of replacement land for the temporary loss of sports pitches has not been adequately investigated and could also be required to enable the proposed CSO connection to proceed | Land acquisition and relocation costs for businesses and residents significantly greater at CRR.  
River wall replacement costs do not seem to have been included |