



The Planning Inspectorate Yr Arolygiaeth Gynllunio

The Planning Act 2008 (as amended)

Thames Tideway Tunnel

**Examining authority's Report of Findings and Conclusions
and
Recommendation to the
Secretary of State for Communities and Local Government
and the
Secretary of State for Environment, Food and Rural Affairs**

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Examining Authority

Date: 12 June 2014

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The Examining authority's findings and conclusions and recommendation in respect of the proposed Thames Tideway Tunnel

File Ref: WW010001

The application, dated 28 February 2013, was made under section 37 of the Planning Act 2008 (as amended) (PA 2008) and was received in full by the Planning Inspectorate on 28 February 2013.

The Applicant is Thames Water Utilities Limited.

The application was accepted for examination on 27 March 2013.

The Preliminary Meeting was held on 12 September 2013. The examination of the application therefore began on 13 September 2013 and was completed on 12 March 2014.

The development proposed is for the construction and operation of a waste water storage and transfer project in London and in summary comprises:

- Main tunnel
- Connection tunnels
- Main tunnel work sites
- Combined sewer overflow (CSO) work sites
- System modification sites
- Beckton Sewage Treatment Works Associated Development
- Other Associated Development and
- Ancillary works.

Summary of Recommendation:

The Panel, as Examining authority (ExA) under the Planning Act 2008 (as amended), recommends that the Secretary of State for Communities and Local Government and Secretary of State for Environment, Food and Rural Affairs (Secretaries of State) should make an order granting development consent, subject to modifications in the form at appendix F.

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The Planning Inspectorate

ERRATA SHEET – Thames Tideway Tunnel - Ref. WW010001

Examining authority's Report of Findings and Conclusions and Recommendation to the Secretary of State for Communities and Local Government and the Secretary of State for Environment, Food and Rural Affairs

Corrections agreed by the Examining authority prior to a decision being made

Main Report

Page No.	Paragraph	Correction
109	10.21	Missing heading before this paragraph. Heading to read: 'Conclusions on archaeology'
118	10.62	Missing heading before this paragraph. Heading to read: 'Conclusions on effects on the setting of heritage assets during construction'
154	11.79	Reference to 'NPS, para 4.8.4' should be 'NPS, para 4.8.5'
167	12.15	In first bullet, second line, add ',mitigate' after 'avoid'
195	12.148	Replace 'Pipers' with 'the Piper'
203	12.192	Replace the word 'noise' with 'vibration' in 'ground-borne noise – non-residential receptors'
314	17.84	Replace 'Pipers' with 'the Piper'
338	17.213	Final sentence, replace 'purse' with 'pursue'
366	17.370	In fifth line, replace 'reminder' with 'remainder'
483	20.28	Replace '2014' with '2013'

Appendix E6

Page No.	Paragraph/line	Correction
5	20, Line 1	Replace 'Panel' with 'Secretary of State'
5	20	Replace '11 March' with '12 March'

1 INTRODUCTION

- 1.1 An application for an order granting development consent for the proposed Thames Tideway Tunnel was made by Thames Water Utilities Limited (the Applicant) on 28 February 2013 under s37(2) of the Planning Act 2008 (as amended) (PA 2008). The application is for development consent for the construction and operation of a waste water storage and transfer project in London, known as the Thames Tideway Tunnel.
- 1.2 On 23 June 2012 the Infrastructure Planning (Waste Water Transfer and Storage) Order 2012 came into force. This Waste Water Transfer and Storage Order was made by the Secretary of State for Environment, Food and Rural Affairs under sections 14(3) and (4), and 232(3) of PA 2008. The effect of Article 2 of the Waste Water Transfer and Storage Order is to add to the categories of Nationally Significant Infrastructure Projects (NSIP) under s14(1) PA 2008 a category that consists of infrastructure for the transfer or storage of waste water. An infrastructure project falls within this new category of NSIP only if:
- '(a) the works will be carried out wholly in England and the infrastructure will (when constructed) be wholly in England,*
- (b) the main purpose of the infrastructure will be—*
- (i) the transfer of waste water for treatment, or*
- (ii) the storage of waste water prior to treatment,*
- or both, and*
- (c) the infrastructure is expected to have a capacity for the storage of waste water exceeding 350,000 cubic metres.'*
- 1.3 The Thames Tideway Tunnel project is wholly within England. The Applicant has identified the main purpose of the project (Doc 1.2, Application Form and Doc 3.2, Explanatory Memorandum, paragraph 1.2) as being for the transfer of waste water for treatment, which would have a storage capacity of 1,250,000m³.
- 1.4 The Thames Tideway Tunnel project is designed and promoted by the Applicant to control the flows from 34 combined sewer overflows (CSOs), which currently spill untreated waste water into the River Thames and which have been identified by the Environment Agency (EA) as unsatisfactory¹.
- 1.5 In overview, the project as proposed by the Applicant comprises a main tunnel which is proposed to be approximately 25km long with an approximate internal diameter of 6.5m in the west,

¹ Urban Waste Water Treatment Directive (91/271/EEC)

increasing to 7.2m through central and east London². The main tunnel is proposed to run from Acton Storm Tanks in the London Borough of (LB) Ealing to Abbey Mills Pumping Station in LB Newham. The project also proposes two long connection tunnels (Frogmore³ and Greenwich⁴) and nine other short connection tunnels with the purpose of linking the CSOs to the main tunnel. During and following storm events, a series of interception structures are proposed to divert waste water flows into the tunnel system to be stored and transferred for treatment. Works for the construction and operation of the project are proposed at 24 locations⁵ along the route of the tunnels, within 14 local authority administrative areas⁶.

- 1.6 The application was accepted for examination as complying with s55 PA 2008 on 27 March 2013 (PD002).
- 1.7 The Applicant gave notice under s56 and s59 PA 2008 to the persons prescribed that the application had been accepted and gave them an opportunity to make relevant representations. The Applicant certified on 29 May 2013 (OD58)⁷ that this had been carried out. In response to the Applicant's notification and publicity 1,246 relevant representations were subsequently received (RRP001 to RRP1246).
- 1.8 On 3 June 2013, the Panel of five Examining Inspectors, namely Jan Bessell, Libby Gawith, Emrys Parry, Andrew Phillipson and David Prentis, was appointed⁸ as the Examining authority (ExA) to examine and report on the application under s74(2) PA 2008. Jan Bessell was appointed to be lead member and to chair the Panel⁹.
- 1.9 To the extent that the proposed development is or forms part of a NSIP, development consent is required before that project can

² APP204.02 draft DCO schedule 1 part 1 description, Main Tunnel, Work No. 1a west, 1b west central, 1c east central and 1d east

³ APP204.02 draft DCO schedule 1 part 1 description, Frogmore Connection Tunnel, Work No. 7

⁴ APP204.02 draft DCO schedule 1 part 1 description, Greenwich Connection Tunnel, Work No. 20

⁵ APP204.02 draft DCO schedule 1 part 1 description, Acton Storm Tanks, Hammersmith Pumping Station, Carnwath Road Riverside, Dormay Street, King George's Park, Falconbrook Pumping Station, Cremorne Wharf Depot, Chelsea Embankment Foreshore, Kirtling Street, Heathwall Pumping Station, Albert Embankment Foreshore, Victoria Embankment Foreshore, Blackfriars Bridge Foreshore, Shad Thames Pumping Station, Chambers Wharf, Earl Pumping Station, Deptford Church Street, Greenwich Pumping Station, King Edward Memorial Park Foreshore, Bekesbourne Street, Abbey Mills Pumping Station and Beckton Sewage Treatment Works

⁶ APP204.02 draft DCO schedule 1 part 1 description, in the London Boroughs of Ealing, Hounslow, Hammersmith and Fulham, Richmond upon Thames and Wandsworth, the Royal Borough of Kensington and Chelsea, the London Borough of Lambeth, the City of Westminster and the City of London, and the London Boroughs of Southwark, and Lewisham, the Royal Borough of Greenwich and the London Boroughs of Tower Hamlets and Newham

⁷ Certificate of compliance with s56 PA 2008, as required under s58 PA 2008 and Regulation 10(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP Regulations); Certificate of compliance with Regulation 13 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009; and Notice under s59 PA 2008 in the form of the prescribed Certificate, as required under s59 of PA 2008 and Regulation 10(2)(b) of the APFP Regulations

⁸ s61, s64 and s65 PA 2008

⁹ s65 PA 2008

proceed¹⁰. The relevant Secretary of State has the function of deciding an application for an order granting development consent¹¹ and this report provides the Secretary of State for Communities and Local Government and the Secretary of State for Environment, Food and Rural Affairs (Secretaries of State), with the Panel's findings and conclusions on the application for development consent for the Thames Tideway Tunnel. This report also contains the Panel's recommendation on whether to grant consent for the powers sought for compulsory acquisition (CA) of land and rights, and the terms of the draft Development Consent Order (DCO) should the Secretaries of State decide to make an order granting development consent¹².

- 1.10 The application involves Environmental Impact Assessment (EIA) development as defined by the EIA Regulations¹³. It was accompanied by an environmental statement (ES) (Doc 6.1 and 6.2.01 to 6.2.28). Supplementary environmental information was supplied during the course of the examination including that documented in the Environmental Statement Update Report and Appendices (APP208.1.01 to 208.01.33). In reaching a recommendation, the Panel has taken all the environmental information into consideration in accordance with Regulation 3(2) of the EIA Regulations.

STRUCTURE OF THE REPORT

- 1.11 The nature and purpose of this report, as with all reports to the Secretary of State (or Secretaries of State as in this application) in respect of DCO applications under PA 2008, is to a reasonable degree dictated by the importance of completing the examination within six months and the report thereafter within three months. This combined with all the application and examination material being published online¹⁴ means that it does not contain extensive summaries of all the representations before the examination although regard has been had to each and every representation made in the conclusions reached by the Panel. The approach taken therefore, which again is in line with previous reports by DCO examining authorities, is to address the essential issues and statutory requirements and to reach conclusions applying the statutory tests under PA 2008, s104, taking all relevant matters into account.
- 1.12 The contents are set out ahead of the Introduction at chapter 1 of this report. Chapter 1 introduces the application and sets out in summary the examination and procedural decisions.

¹⁰ s31 PA 2008

¹¹ s103 PA 2008

¹² s114 PA 2008

¹³ Regulation 2(1) and sub paragraphs 10(c) and 10(d) of schedule 2 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 as amended by the Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2012 (EIA Regulations)

¹⁴ Examination library appendix C

- 1.13 Chapter 2 sets out in summary the main features of the proposed development and chapter 3 identifies and summarises the legal and policy context applicable to the application and its consideration and therefore our recommendations.
- 1.14 In chapters 4 to 18 we set out our main findings and conclusions and recommendations in respect of each of the main considerations and relevant matters identified by the Panel on the development merits. Those matters that relate to EIA¹⁵ and European sites and Habitats Regulations¹⁶ are set out in chapter 16. Chapter 18 sets out our conclusions on the planning case for the proposed development taking into account all application documentation, representations and all matters considered by the Panel to be important and relevant.
- 1.15 Chapter 19 deals with CA matters. Chapter 20 considers the proposed DCO¹⁷ and the changes which were made to it during the course of the examination. It also considers further modifications to the DCO promoted by Interested Parties and the Applicant on a without prejudice basis in response to unresolved matters. Moreover, there are further modifications which we recommend are necessary to make the proposed development acceptable. In the light of all these matters, chapter 21 sets out in summary our overall conclusions and recommendations.
- 1.16 During and at the close of the examination a number of Interested Parties withdrew their representations and objections as set out in chapter 19 of this report. As a consequence of these representations and objections a number of responses were made by the Applicant including for example the submission of additional information, changes to the DCO and provision of additional mitigation measures. Therefore we continue to refer to some of these representations by way of context. An example of this is the Port of London Authority (PLA). The full documentation as submitted is also referenced in the Examination Library in appendix C.
- 1.17 It should be noted that to assist with the reading of the report we repeat abbreviations in full in each main chapter.

THE EXAMINATION AND PROCEDURAL DECISIONS

- 1.18 On 25 July 2013 the Panel wrote (the Rule 6 letter)¹⁸ to all Interested Parties and Statutory Parties setting out a number of points:

¹⁵ (EIA Regulations)

¹⁶ (Habitats Regulations)

¹⁷ APP204.02

¹⁸ PDO03, Rule 6 of The Infrastructure Planning (Examination Procedure) Rules 2010 (EP Rules) letter from ExA to all Interested and Statutory Parties

- confirmation of the status of Parties who had the right to participate in the examination
 - setting out our invitation to the Preliminary Meeting (PM) and details of how to suggest additional agenda items
 - the purpose of and arrangements for the PM, including an initial agenda
 - draft timetable for examination
 - the availability of relevant representations
 - initial procedural decisions made by the ExA under s89(3) PA 2008¹⁹
 - matters relating to award of costs
 - our initial assessment of Principal Issues²⁰
 - notice of appointment of the Panel as ExA²¹.
- 1.19 We published an updated agenda²² for the PM following receipt and consideration of amendments requested from Interested Parties in relation to the PM by our procedural deadline of 28 August 2013.
- 1.20 The PM was held on 12 September 2013 at the Barbican Hall, London, EC2Y 8DS. At the PM we introduced counsel, Celina Colquhoun and notified those present of the appointment of two further senior counsel, Martin Kingston QC and Ian Dove QC, as s101 legal advisors²³. The PM allowed the Applicant and all Interested Parties who had chosen to attend to make representations to the Panel about how the application should be examined. Our procedural decisions as the ExA and timetable for examination were issued on 26 September 2013 (PD006) and a note of the PM was published (PD007). A full audio recording was also made available on the Planning Portal web site²⁴ (HEA001 and HEA002).
- 1.21 At the PM and in a number of representations the adequacy of the pre-application consultation was raised²⁵. As noted further below, some of the matters raised related to the amount of information that was subsequently produced in the examination and the level of engagement required during the examination in response to substantial new information. As recorded in the acceptance checklist (PD001) many relevant local authorities did in contrast confirm their view that there had been adequate consultation in accordance with PA 2008. On balance therefore we consider it to

¹⁹ Annex E ExA Rule 6 EP Rules letter 25 July 2013 (PD003)

²⁰ In accordance with s88 PA 2008 and Rule 5 of the EP Rules the ExA completed an initial assessment of principal issues on 18 June 2013. A copy of the Initial Assessment of Principal Issues was provided at annex C to our Rule 6 letter (PD003)

²¹ PD003, annex F to our Rule 6 letter provided notice of appointment of the ExA in accordance with Rule 4 EP Rules

²² PD004, annex B(1)

²³ s101 PA 2008 notified under Rule 12 EP Rules in ExA Rule 8 EP Rules letter 26 September 2013 (PD005)

²⁴ Thames Tideway Tunnel project page planning portal
<http://infrastructure.planningportal.gov.uk/projects/london/thames-tideway-tunnel/>

²⁵ for example responses on adequacy of consultation (OD021) and Hammersmith and Fulham (OD008)

be reasonable for us to conclude that the Applicant has fulfilled the requirements of PA 2008 with regard to consultation (as set out in the acceptance decision (PD002)). We also consider this to be the case with regard to the ES Regulations and consultation requirements.

- 1.22 At the PM the Applicant sought to give notice to the ExA of changes to the application and consequential revised versions of several application documents that it wished to submit. This proposal was made orally at the PM and by letter dated 28 August 2013 (REP033).
- 1.23 Our procedural response to this request was set out in Annex B of our Rule 8²⁶ letter (PD006). In accordance with the Applicant's request and our procedural decision in response, the Applicant submitted its requested proposed changes on 23 September 2013. We published the proposed changes and requested that the Applicant advertise the proposed changes. We invited responses to the proposed changes on or before 7 October 2013 and, having had regard to the responses received, we confirmed acceptance of the proposed changes on 15 October 2013 (PD009 and PD010).
- 1.24 At the PM²⁷ the timetable was discussed and an opportunity given for all Interested Parties including the Applicant to make submissions about the examination being dealt with within the six month statutory period. We drew particular attention to the fact that there was little flexibility in the timetable due to the amount and complexity of information to be examined, the land area and interests involved, the volume of representations made and the number of Interested Parties.
- 1.25 As set out in our procedural decisions in our Rule 8²⁸ letter (PD006) the Applicant was asked about paragraph 4.1.1 of its letter dated 28 August 2013 (REP033)²⁹. In particular, we asked for confirmation from the Applicant that the resources were in place to meet the timetable proposed. Assurance was given by the Applicant, through its leading counsel, that the Applicant was confident that it could meet the timetable and was fully resourced to do so. We relied on this response when we decided to confirm the timetable in our Rule 8 letter (PD006).
- 1.26 It should be well known to applicants, as set out in paragraph 46 of the Planning Act 2008 Guidance for the examination of applications for development consent, April 2013 (Examination Guidance) that the ExA is required to comply with the statutory

²⁶ Rule 8 EP Rules

²⁷ Audio recordings of PM (HEA001 and HEA002)

²⁸ Rule 8 EP Rules

²⁹ 'we note the draft examination timetable, which will be very demanding for all participants, with a lot of work to accomplish within a short timescale. We anticipate that the timetable will need to be kept under review.'

timetable for completion of the examination of the application set out in s98 PA 2008.

- 1.27 Applicants should also be fully aware and follow the guidance set out in paragraph 105 of the Examination Guidance that applications are expected to be as well prepared as possible prior to submission and paragraph 96 of the Planning Act 2008 Guidance on the pre-application process, January 2013 (Pre-application Guidance) which identifies that *'ultimately it is in the applicant's interest to ensure that the application is as well prepared as possible in advance of submission to the Secretary of State, to ensure that examination of the application is as straightforward as possible. Under-prepared applications are likely to lead to longer and more complex examinations; and therefore higher costs for applicants.'*
- 1.28 Planning Act 2008 Guidance related to procedures for the CA of land, September 2013 (CA Guidance) identifies at paragraph 24 that *'early consultation with people who could be affected by the compulsory acquisition can help build up a good working relationship with those whose interests are affected, by showing that the applicant is willing to be open and to treat their concerns with respect. It may also help to save time during the examination process by addressing and resolving issues before an application is submitted, and reducing any potential mistrust or fear that can arise in these circumstances.'*
- 1.29 As the Examination Library (appendix C) illustrates, we received a significant number of submissions starting with 1,246 relevant representations, followed by 108 written representations (WRR01 to WRR107 and WRR110)³⁰, 14 Local Impact Reports (LIRs)³¹ (REP085 to REP100) and over 500 other written submissions throughout the entirety of the examination from Interested Parties and other participants. The Applicant itself submitted over 380 documents in response to the ExA's initial procedural decisions made up of errata, corrections, omissions and further update material to the documentation submitted in the application. Separate correspondence was provided by the Applicant including documentation relating to proposed minor changes to the application (Doc 10.01 to 10.03). In addition, the Applicant submitted over 1,040 further numbered documents throughout the examination, several of which were substantial submissions in multiple parts. Oral representations were made by the Applicant, Interested Parties and others³² at Issue Specific (IS), CA and Open Floor (OF) hearings (appendix B, Events in the Examination).

³⁰ Two additional written submissions were accepted from non Interested Parties at the written representations deadline (WRR108 and WRR109)

³¹ The London Legacy Development Corporation submitted a written representation which was also set out as an LIR. This representation is taken into account as a written representation

³² Rule 14(10) EP Rules, the Examining authority may permit any person, in addition to those who are entitled under section 91(3), 92(4) or 93(3), to make oral representations at a hearing

- 1.30 The number of omissions and errata submitted is in itself indicative in our view that the application was not fully ready to be capable of withstanding detailed scrutiny at examination. This became increasingly more apparent as the full extent of the issues to be investigated during the examination emerged throughout the examination process and our questioning.
- 1.31 An example of the application not being fully prepared was in relation to CA when it emerged during our examination that the Applicant had not undertaken early consultation with all people³³ who could be affected by CA and had not therefore built up a good working relationship with all such Parties, in order to show that the Applicant was in fact willing to be open and to treat their concerns with proper respect. This in our view resulted in many outstanding land and protective provision issues that did not reach resolution by the close of the examination.
- 1.32 The issue of noise during construction was an important and controversial issue throughout the examination. The fact that the Applicant declined to provide some of the information we asked for in a timely manner caused difficulties for the examination.
- 1.33 The late provision of relevant information also hindered our delivery of the examination. An example of this was the substantial redrafting of the DCO by the Applicant that came after our timetabled opportunity to prepare and ask written questions, resulting in the DCO and related matters having to be explored widely at the IS hearings. This all resulted in short periods of time for consideration of and representations on substantial new documentation and drafting. To provide all Parties with the best possible opportunity to contribute to the process we introduced an additional date for submitting final comments of 11 March 2014. The version of the DCO submitted on 3 March 2014 was substantially in its final form. We received 29 representations from Interested Parties and final submissions from the Applicant for this additional date for submission before the close of the examination on 12 March 2014.
- 1.34 Our first written questions and requests for information were notified in procedural decisions set out in our letter of 26 September 2013 (the Rule 8 letter)³⁴ and the questions published on the planning portal Thames Tideway Tunnel project page web site (PD008). The questions and requests³⁵ (PD008) covered a wide range of matters based on the relevant factors for the examination set out in the National Policy Statement for Waste Water: A framework document for planning decisions on nationally

³³ We accept that the statutory consultation required under PA 2008 was carried out and that early consultation was undertaken with a number of Parties, but that this did not apply as widely as could have been expected

³⁴ PD006 Rule 8 EP Rules

³⁵ Thames Tideway Tunnel project page

<http://infrastructure.planningportal.gov.uk/projects/london/thames-tideway-tunnel/>

significant waste water infrastructure, March 2012 (NPS)³⁶ and identified in the Principal Issues concerning:

- Air quality and emissions
- Biodiversity, biological environment and ecology
- Coastal matters and river change
- CA and related matters
- Design, landscape and visual impact
- Development Consent Order drafting and related matters
- Flood risk and climate change
- Historic environment
- Land use including regeneration and open space
- Local impact reports
- Noise and disturbance
- Other matters including identification of mitigation, changes and updates, indexing of submitted documents and locations to be part of the proposed accompanied site visit
- Policy
- Rationale for the selection of work sites and drive strategies
- Socio-economic effects
- Traffic, travel and transportation
- Waste management
- Water quality and resources
- Statements of common ground.

1.35 Following the receipt on 4 November 2013 and 2 December 2013 of written representations, the LIRs, responses to our first written questions and subsequent comments on these documents, a number of Statements of Common Ground (SoCGs), and our consideration of oral submissions at hearings held, we wrote to all Interested Parties on 19 December 2013. In this letter we set out, in accordance with the published timetable, our second written questions and requests for information. These followed the same areas as the first written questions, drew from the submissions made (especially matters raised by the local authorities in their LIRs) and were directed to the Applicant, relevant local authorities, Statutory Parties, those with affected land interests and identified community interest groups (PD017).

1.36 We held a number of IS hearings under s91 PA 2008 to ensure adequate examination of the particular issue and to ensure that individual Interested Parties had a fair chance to put their case in relation to different matters as set out below:

- Rationale for the selection of work sites and tunnel drive strategy matters 11 to 15 November 2013
- Second IS hearing on rationale for the selection of work sites and tunnel drive strategy matters 22 and 23 January 2014

³⁶ It should be noted that some of the NPS matters eg odour were brought under broader subject headings such as air quality and emissions or dealt with under the heading of other matters

(following a request³⁷ we also allowed limited cross examination during this hearing)

- Traffic and transport 24 January 2014
- Noise and vibration 4 February 2014 (this IS hearing was adjourned³⁸ twice, first to 5 February and then to 20 February 2014 when it was concluded).

1.37 We also held a series of IS hearings in relation to the DCO, (including documentation secured through the DCO), any s106³⁹ obligations and any LIR matters relating to the DCO throughout the examination on 26 and 27 November 2013, 20 and 21 January 2014 and 6 and 7 February 2014. This last DCO hearing was adjourned⁴⁰ and concluded on 21 February 2014.

1.38 A number of requests were made by Affected Persons for a CA hearing⁴¹, and consequently we held a series of CA hearings under s92 PA 2008. The Applicant also sought certifications under s127 PA 2008⁴² and consent under s138 PA 2008 and we therefore also undertook sessions related specifically to statutory undertakers' land⁴³ and extinguishment of rights and removal of apparatus⁴⁴ under delegation from the relevant Secretaries of State⁴⁵. These hearings took place on the following dates: 28 and 29 November 2013, 3 to 6, 10 to 13, and 17 to 20 December 2013 and 14 to 17 and 27 and 28 January 2014 and considered the whole scheme working broadly from west to east by each local authority administrative area.

1.39 A number of requests were received for an OF hearing⁴⁶. Accordingly, following s93 PA 2008 we held an early series of OF hearings on 19 to 23 November 2013 during the day across five locations representative of the application area. This included a Saturday OF hearing in an accessible central location. We also held a second series of OF hearings on 29 and 30 January 2014, and 3 and 5 February 2014, all held in the evening across four locations representative of the application area. The Panel chose a spread of times and locations to ensure that all those wishing to participate in the examination had every opportunity to make representations and explain their concerns.

³⁷ REP164

³⁸ PDO29

³⁹ s106 of the Town and Country Planning Act 1990 as amended by s174 of PA 2008

⁴⁰ PDO29

⁴¹ s92 PA 2008

⁴² OD032 to OD037, and REP503

⁴³ s127 PA 2008

⁴⁴ s138 PA 2008

⁴⁵ Delegations available on the National Infrastructure Planning Portal website at

<http://infrastructure.planningportal.gov.uk/legislation-and-advice/guidance/>

⁴⁶ s93 PA 2008

Request to the Secretaries of State to make a direction under s95A(2) PA 2008

- 1.40 On 25 November 2013 a request was made by the occupiers of 85 Albert Embankment to the Secretaries of State to make a direction under s95A(2) PA 2008 for a 'closed' hearing on grounds of national defence and security. Following this request a direction was made on 16 January 2014.
- 1.41 On 20 January 2014, under delegated authority from the Secretaries of State, the ExA members were appointed as the s95A PA 2008 examiners able to preside at a 'closed' hearing and to make a report to the Secretaries of State setting out the examiners' findings and conclusions in respect of the 'closed' evidence; and to make a recommendation, as to the decision to be made on the application.
- 1.42 The 'closed' hearing took place on 3 February 2014. In accordance with the appointment Jan Bessell, Emrys Parry and David Prentis presided at the direction hearing and were supported by one of our s101 PA 2008 appointed legal advisors, Celina Colquhoun. The Applicant, occupiers of 85 Albert Embankment, LB Lambeth, Historic Buildings and Monuments Commission for England (HBMCE)⁴⁷, PLA, and London Duck Tours Limited were all represented at the hearing⁴⁸.

The Report on the Implications for European Sites

- 1.43 The Report on the Implications for European Sites (RIES) for the Thames Tideway Tunnel was published on 21 January 2014 in accordance with the examination timetable (PD006) following a question (PD017, Q21.1) to Interested Parties as to whether it was necessary to publish and consult on such a report.
- 1.44 This publication of the RIES ensured that all Interested Parties including statutory nature conservation bodies: Natural England (NE), the Marine Management Organisation (MMO), and the EA, were consulted formally on habitats regulations matters. In our view this process may be relied on by the relevant Secretaries of State for the purposes of Regulation 61(3) of the Habitats Regulations in the event that it is concluded that an appropriate assessment is required.

⁴⁷ This is the name used for English Heritage

⁴⁸ The consideration and discussion leading to a SoCG between the Applicant and occupiers of 85 Albert Embankment was part of the examination process as a whole rather than just the result of the 'closed' hearing and, furthermore, the SoCG (APP144) was placed into 'open' to allow all Interested Parties to be aware of the position and to make representations and have their say on the matters set out and concluded. This is reported fully in chapter 16 of this report under the heading 'Security Considerations'. As a result it has not been necessary to report in 'closed' at all

Further Request for Information and Update to the Examination Timetable

1.45 On 20 February 2014, in response to the substantial volume of new and updated information submitted during the examination, particularly by the Applicant, we issued a further request for information⁴⁹ (PD031) to continue our questioning and exploration of the evidence relating in particular to:

- Air quality and emissions
- Biodiversity, biological environment and ecology
- Design, landscape and visual impact
- Development Consent Order drafting and related matters
- Flood risk and climate change
- Historic environment
- Land use including regeneration and open space
- Noise and disturbance
- Other matters in relation to the need for the Applicant to respond to outstanding matters and consistency, clarity and accuracy of documentation
- Rationale for the selection of work sites and drive strategies
- Socio-economic effects
- Traffic, travel and transportation
- Waste management
- Water quality and resources.

1.46 On 20 February 2014 we also notified all Interested Parties (PD030) of an update to the examination timetable to allow final written responses to submitted documentation, to identify outstanding matters and to address matters raised orally in adjourned and concluded IS hearings within the timetabled examination period set⁵⁰.

Site Inspections

1.47 We carried out accompanied site inspections, early in the examination on 29 October 2013, to work sites which were not publicly accessible. Later in the examination we carried out further accompanied site inspections over three days (29 to 31 January 2014) across a range of sites throughout the application area. A further site inspection to St Paul's Church Deptford took place on 27 February 2014. These accompanied site inspections were supplemented by several unaccompanied site inspections before the PM and during the examination throughout the application area and to surrounding areas⁵¹.

⁴⁹ Rule 17 EP Rules

⁵⁰ s98 PA 2008

⁵¹ Rule 16 EP Rules

Applicant's Request for an Extension under s98(4) PA 2008

- 1.48 The Applicant made a request to the Secretaries of State for an extension to the examination on 7 February 2014, under s98(4) PA 2008 (OD057). The Secretary of State for Communities and Local Government refused the request and a letter confirming this was received by the Planning Inspectorate on 20 February 2014 (PD032). The examination closed in accordance with the statutory timetable at 23:59hrs on 12 March 2014 and this was confirmed and notified to all Interested Parties in the ExA's letter dated 13 March 2014, in accordance with s99 PA 2008 (PD033).

Other Consents

- 1.49 The Applicant's approach to the application has been to incorporate as much as possible within one single consenting process. Consents and licences being incorporated⁵² within the DCO and those that may be necessary but not being addressed in the DCO, were identified by the Applicant in box 24 of the application form (Doc 1.2).
- 1.50 In response to our Q12.3 the Applicant set out (APP12, section 12.03) the position with regard to the need for separate consents outside the DCO and advised that, following discussions and negotiations with stakeholders, the Applicant has established a list of consents that had not been included in the DCO comparison document (Doc 9.20.02). Consents within the DCO are addressed in the Applicant's answer to Q6.86 (APP06, section 6.08).
- 1.51 For those consents that have not been included in the DCO, the Applicant confirms that these will be sought from the relevant consenting authority at the appropriate time. The Applicant advised that those consents have been considered with the relevant consenting body as part of ongoing discussions and negotiations with them.
- 1.52 An updated list of these consents is provided in the Applicant's appendix APP12.03.01. In that appendix, the Applicant sets out a list of consents, together with the identity of the discharging body, and provide an update on what has been agreed with each body in relation to each consent. The Applicant confirms that the contractor will be responsible for securing consents outside the DCO, unless Thames Water Utilities Limited agrees that securing a consent is its responsibility.
- 1.53 The Applicant has sought confirmation from the consenting bodies that there are no overriding impediments to securing, in principle, consents within and outside the DCO. The Applicant issued letters to all the local planning authorities and the EA, NE and HBMCE

⁵² with the agreement of the relevant regulatory authority, being the EA under s150 PA 2008

seeking such confirmation. A sample of these letters can be found in the Applicant's appendix APP12.03.02.

- 1.54 In respect of certain consenting bodies, including Transport for London (TfL), the PLA, the MMO and the Canal and River Trust, following discussions with these bodies the Applicant confirmed that it has been agreed that statements confirming that there are no overriding impediments to securing the said consents will be included in position statements (for the PLA and the MMO), and/or Statements of Common Ground (for TfL and the Canal and River Trust in appendix APP19.S1.17 and APP19.S1.23 respectively). The PLA, MMO and EA position statement is in appendix APP12.03.03.

Requests to become or withdraw from being an Interested Party

- 1.55 During the examination we received a number of requests to become an Interested Party under s102A PA 2008. Our decisions in consideration of the categories for the purposes of s102A⁵³ are set out in confirmation letters⁵⁴ (PD034 to PD040).
- 1.56 Before the close of the examination a number of Interested Parties reached agreement with the Applicant particularly in relation to land interests and a number of these Interested Parties confirmed in writing withdrawal of their representations and advised us that they no longer wished to be an Interested Party under s102(1ZA) (Diocese of Southwark and others (REP425); Canal and River Trust (REP467); Chris Poll (REP468); Diocese of Southwark and Others (REP471); Minerva Wandsworth Limited (REP472); The Mercers' Company and St Paul's School (REP473); Cannon Wharf LLP (REP480); Diocese of Southwark - Parish of St Luke's (REP483); Diocese of Southwark - Parish of St Mary's (REP484); Royal Mail Group, Royal Mail Estates Limited and Post Office Limited (OD054)).

s106 obligations given to support the application

- 1.57 During the course of and at the conclusion of the examination, a number of development consent obligations were offered and made pursuant to s106 of the Town and Country Planning Act 1990 (as amended)⁵⁵ (TCPA 1990) both as unilateral obligations and as made⁵⁶ with the relevant local planning authorities (eg APP119.04 and APP119.15). The obligations relate to both non-statutory off-site mitigation and compensation matters (APP210.01, Non-statutory off-site mitigation and compensation policy; APP209.02, Legal Agreement and section 106 Unilateral

⁵³ s102B PA 2008

⁵⁴ in accordance with s102A(3) PA 2008 this confirmation was notified to the person making the request and the Applicant

⁵⁵ Amended by s174 PA 2008

⁵⁶ There were also some Deeds to enter into agreements after the grant of a DCO

Undertaking - Drafting Notes; and APP209.03, Legal Agreement for Securing of Off-site Mitigation Policies and Resources for Local Planning Authorities) and site and area-specific mitigation matters with an affected local authority and community area.

- 1.58 At the time of the examination the Applicant did not have sufficient land interests to properly secure planning obligations relating to off-site mitigation and compensation and resources for local authorities. It therefore suggested that these matters be secured by Article 60 in the DCO (APP204.02), which would prevent development commencing before appropriate obligations were in place, relating to project-wide matters, for securing off-site mitigation and compensation policy and resources for local planning authorities (in accordance with APP209.03).
- 1.59 In support of this approach the Applicant set out (APP209.01, para 1.4) that Article 60 of the DCO (APP204.02) and the legal agreement (APP209.03)⁵⁷ requires that: *'upon the grant of the Development Consent Order the Undertaker will enter the section 106 unilateral undertaking (the form of which is included at Appendix 5 of the Legal Agreement) that will bind the land within the Order Limits of the DCO (the DCO Land).'*
- 1.60 In relation to site-specific requirements⁵⁸ which refer to s106 obligations the following are identified and proposed by the Applicant at:
- Albert Embankment Foreshore, Requirement ALBEF19 states that *'the authorised development shall not commence on this site unless and until the undertaker enters into the Albert Embankment Foreshore s106 Agreement/Undertaking (in accordance with the obligations specified in the draft at doc. ref. APP119.07)'*
 - Victoria Embankment Foreshore, Requirement VCTEF22 states that *'the authorised development shall not commence on this site unless and until the undertaker enters into the Victoria Embankment Foreshore s106 Agreement/Undertaking (in accordance with the obligations specified in the draft at doc. ref. APP119.09)'*
 - Blackfriars Bridge Foreshore, Requirement BLABF25 states that *'the authorised development shall not commence on this site unless and until the undertaker enters into the Blackfriars Bridge Foreshore s106 Agreement/Undertaking (in accordance with the obligations specified in the draft at doc. ref. APP119.08)'*
 - King Edward Memorial Park Foreshore, Requirement KEMPF16 states that *'the authorised development shall not commence on this site unless and until the undertaker enters into the*

⁵⁷ Legal Agreement for Securing of Off-site Mitigation Policies and Resources for Local Planning Authorities

⁵⁸ Schedule 3, DCO (APP204.02)

King Edward Memorial Park Foreshore s106 Agreement/Undertaking (in accordance with the obligations specified in the draft at doc. ref. APP119.15)

- *Bekesbourne Street, Requirement BEKST6 states that 'the authorised development shall not commence on this site unless and until the undertaker enters into the Bekesbourne Street s106 Agreement/Undertaking (in accordance with the obligations specified in the draft at doc. ref. APP119.15)'*.

Although this is the way the site-specific requirements are drafted by the Applicant (APP204.02) we have reviewed the referenced draft agreements and obligations and note that documents APP119.09 and App119.15 are agreements to enter into what is described in the document as the confirmatory s106. These agreements have been made and signed pursuant to s111 of the Local Government Act 1972 and section 1 of the Localism Act 2011 and all other powers so enabling. We consider that the drafting in the requirements still gives this full effect in the way intended.

- 1.61 We have had regard to the guidance set out in the NPS (para 3.1.7) and National Planning Practice Guidance (Paragraph: 001 Reference ID: 23b-001-20140306) that planning obligations must be relevant to planning, necessary to make the proposed development acceptable in planning terms, directly related to the proposed development, fairly and reasonably related in scale and kind to the proposed development, and reasonable in all other respects. We have referred to the obligations in our main findings and conclusions (chapters 4 to 18). Where we have indicated that we attach weight to obligations we are satisfied that the tests are met. There are many obligations, not all of which meet the tests. Those that do not meet the tests we give no weight. We have considered all the obligations although we have not commented in detail on all those which, in our view, do not meet the tests. The DCO does not address, nor is there specific guidance in respect of, legal agreements in the form adopted by the Applicant, (that is, agreements made binding by way of a DCO provision) to enter into a s106 obligation once a DCO is granted. However, we see no objection in principle to this approach.
- 1.62 The Applicant provided an update on legal agreements and s106 obligations in its letter dated 11 March 2014 (APP197, section 7.1) setting out:

'7.1 Legal agreement with the river regulators

7.1.1 In our cover letter dated 3 March 2014, we indicated that we would submit a completed legal agreement between Thames Water, the Port of London Authority, the Environment Agency and the Marine Management Organisation on either 3 March 2014 or 11 March 2014. A copy of the completed legal agreement was submitted under separate cover on 3 March 2014 (APP183).

7.2 Legal agreement for securing off-site mitigation policies and resources for local planning authorities.

7.2.1 We enclose, at APP209.03, the final form legal agreement and associated Section 106 unilateral undertaking between Thames Water and the 15 local planning authorities (the LPAs). This deed seeks to ensure our compliance with the policies for securing off-site mitigation and compensation relating to the project. The covering note at APP209.01 summarises the background and arrangement of the deed, and APP209.02 sets out how we sought agreement with the LPAs and lists those LPAs which provided detailed comments on the draft deeds.

7.2.2 We further enclose, at APP209.06, copies of the letter dated 10 March 2014 sent to the councils which accompanied engrossments of the legal agreement and requested confirmation from the LPAs of their ability and/or willingness to sign the deed against a proposed deadline of 24 March 2014. Where any LPA confirms it is unwilling or unable to sign the legal agreement, the letter confirms our undertaking that we will observe the terms of the legal agreement as if all LPAs were a signatory party.

7.2.3 Once each of the LPAs willing to sign the legal agreement returns the executed agreement to us, we will proceed to execute the agreement and complete it on a date that will be confirmed to the LPAs. Those LPAs which do not wish, or are not able to enter into the legal agreement will have the benefit of the undertaking referred to in paragraph 7.2.2 above. Upon the grant of development consent, we will proceed to execute the Section 106 unilateral undertaking as provided for in the legal agreement.

7.2.4 We are aware that the London Borough of Ealing emailed the Planning Inspectorate on 10 March 2014 (see email to thamestunnel@infrastructure.gsi.gov.uk from Neil Bleakley at the London Borough of Ealing at 13:52) explaining why it would not be completing the legal agreement. It included with that submission earlier correspondence between our solicitors, Berwin Leighton Paisner LLP, and the borough. In that correspondence, Berwin Leighton Paisner explains why we have offered the legal agreement to the LPAs, including reference to the extensive discussions on the issue of noise mitigation that have taken place at issue specific hearings.

7.2.5 We are disappointed that the London Borough of Ealing has responded in the manner it has. We note that the council has no authority to enter the agreement at this time, but do not accept that the reasons given in the three bullet points represent insurmountable reasons not to enter the legal agreement. In that respect, APP209.01 Page 6 explains how the agreement and subsequently the Section 106 unilateral undertaking secure the off-site mitigation policies and resources for the LPAs. These proposals have been discussed with the ExA and the LPAs which

attended the relevant issue specific hearings. There is a general acceptance that the off-site mitigation policies and the proposals regarding local authority resourcing need to be secured, and neither the ExA nor any of the LPAs attending the issue specific hearings has raised any objection or concern as to the principle of our approach.

7.2.6 Of course the London Borough of Ealing will benefit from the undertaking referred to in paragraph 7.2.2 and, if the development consent is granted, it will be in receipt of the completed Section 106 unilateral undertaking. Notwithstanding its comment that the legal agreement and unilateral undertaking protect individual property interests, we believe it is reasonable to secure these protections by way of Section 106 obligation, not least given the views expressed forcibly by other LPAs that they must have some way of protecting the communities they represent; a point we understand to be of importance to the ExA also. We believe that the legal agreement and unilateral undertaking is an appropriate, proportionate and lawful response to the issues raised.

8 Update on matters progressed and yet to be resolved

8.1.1 In our cover letter for the 3 March 2014 submission, we indicated that we would provide an update as part of our 11 March 2014 submission on how matters identified as not yet resolved have progressed in the intervening period. This update is provided at Schedule 2. Where appropriate, a hyperlink is provided to referenced letters and/or agreements.'

- 1.63 In addition, in response to submissions made by Interested Parties in relation to the proposed mechanisms for securing s106 obligations and their drafting, the Applicant prepared and submitted a drafting note response, dated 11 March 2014, setting out its full response (APP209.01, covering letter and APP209.02, drafting note).
- 1.64 In the circumstances of the scale and extent of land interests of this particular project, we believe it is appropriate to secure obligations through use of Article 60 (which prevents development commencing until a s106 agreement is entered into) and the identified site-specific requirements to enable necessary mitigation measures to be secured to make the proposed development acceptable in planning terms. This is because a s106 obligation (which would require all those holding current land interests to be a party in order to bind all of the land) would be unwieldy and impracticable to secure in this case. In addition, the Applicant will also not have land interests which would bind adequate land in each of the relevant local authority areas until a DCO is made and until CA powers are actually exercised.

Asset Protection

- 1.65 The settlement information paper (APP191) explains the approach taken by the Applicant to the assessment, monitoring and mitigation measures to be implemented as part of the asset protection process being carried out for the project.
- 1.66 The Applicant's settlement paper explains the processes and procedures followed to date and those to be used during construction to manage the interfaces with third party infrastructure and buildings as the works progress. This includes pre-construction condition surveys and monitoring to provide the necessary assurance that the behaviour of the ground in response to the construction works is as predicted⁵⁹.
- 1.67 The settlement paper states that *'detailed assessments were carried out on all listed buildings within the potential zone of influence of the main tunnel. The risk of damage due to predicted ground movements as well as the heritage sensitivity, condition and structural form of the building were assessed. Intrusive mitigation measures would not be required or appropriate for any buildings.'*⁶⁰
- 1.68 The Applicant has developed a policy under which certain procedures may be implemented for eligible owners in order to monitor changes attributable to the project with a view to assisting in any claim for statutory compensation. A deed to secure these commitments will be offered by the Applicant in qualifying cases⁶¹.
- 1.69 The Applicant's assessments were based on approaches proven on other major projects undertaken in London including the Jubilee Line Extension, Channel Tunnel Rail Link (High Speed 1) and the current Crossrail project.
- 1.70 A draft form of settlement deed has also been prepared by the Applicant and evolved during the examination (APP190). We agree that this is appropriate and necessary.

Exceptional Hardship Procedure

- 1.71 The Applicant has acknowledged and recognises that, from the announcement of the project until it would be completed, there would be uncertainty as to which properties may be substantially and adversely affected by construction or operation of the Thames Tideway Tunnel project.
- 1.72 This means that, in some cases, there may be a significant effect on properties in the immediate vicinity of the proposed Thames

⁵⁹ APP191, Settlement Information Paper, appendix C

⁶⁰ we have considered and referred to settlement and listed buildings in chapter 10, Historic Environment

⁶¹ The process for the deed is illustrated in APP191, Settlement Information Paper, appendix C

Tideway Tunnel project work sites and tunnel works in the period until the project would be completed.

- 1.73 Given this, the Applicant has decided to introduce an Exceptional Hardship Procedure (APP213.01).
- 1.74 The procedure was introduced as an interim scheme in August 2011 and has subsequently been amended to provide the same support for property owners throughout the lifetime of the project.
- 1.75 The procedure has also been amended to provide support for leasehold occupiers of premises identified for temporary use as a construction work site in the DCO. In certain circumstances, applicants may request their lease be purchased outright, thereby removing the question of being required to return after the construction phase.
- 1.76 The Exceptional Hardship Procedure is available to eligible property owners who can demonstrate that they have a pressing need to sell but have been unable to do so, other than at a substantially reduced price as a direct result of the Thames Tideway Tunnel project.
- 1.77 The Exceptional Hardship Procedure is also available to eligible occupiers of premises to be used temporarily as part of a construction work site.
- 1.78 Those property owners who apply to the Exceptional Hardship Procedure and meet the eligibility criteria can then have their property purchased by the Undertaker⁶² at its unaffected fair market value (that is, what the value of the property would have been without any adverse effect arising from the Thames Tideway Tunnel project proposals).
- 1.79 Those occupiers of premises to be used as a construction site who apply to the Exceptional Hardship Procedure and meet the eligibility criteria can have their leasehold interest purchased by the Undertaker at its unaffected fair market value and will also be entitled to claim compensation for disturbance in accordance with the Statutory Code⁶³.
- 1.80 The Exceptional Hardship Procedure is a discretionary procedure, and supplements the statutory rights of owners. We agree that this is appropriate and necessary.
- 1.81 It recognises the importance of providing assistance for those property owners who are most severely affected by the Thames Tideway Tunnel project.

⁶² Undertaker as defined in Article 2 of the DCO (APP204.04)

⁶³ The Statutory Code refers to one or more of the following acts: Land Compensation Act 1961, Compulsory Purchase Act 1965, Land Compensation Act 1973, Acquisition of Land Act 1981, Planning Compensation Act 1991

- 1.82 Every application under the provisions of this procedure will be subject to assessment by the Independent Compensation Panel⁶⁴.

Overall consideration

- 1.83 In the light of these matters, chapter 18 sets out the Panel's recommendation on the case for development, chapter 19 reports on CA and related matters, chapter 20 reports on the DCO and related matters and chapter 21 sets out in summary our overall conclusions and recommendation.

⁶⁴ Further advice and clarification on this procedure can be obtained by contacting the Independent Advisory Service. These two services are discussed in more detail in Section 5 of the exceptional hardship procedure. The Applicant has produced a help guide and application form in relation to the exceptional hardship procedure and this can be found on the Thames Tideway Tunnel project's website, www.thamestidewaytunnel.co.uk

2 MAIN FEATURES OF THE PROPOSAL AND WORK SITES

THE APPLICANT

- 2.1 Thames Water Utilities Limited is described in the Funding Statement (September 2013) (Doc 9.10.06) as the largest provider of water and sewerage services in the United Kingdom (UK), based on the number of customers served, with a regulatory capital value of £10,897 million as of 31 March 2013. It forms the principal business of the Thames Water Group Companies which provide water and sewerage services under the Water Industry Act 1991 (as amended) (WIA 1991).
- 2.2 Thames Water Utilities Limited has been appointed by an Instrument of Appointment dated August 1989 (with effect from 1 September 1989) as a licensed water and sewerage undertaker pursuant to the WIA 1991 for the geographic area identified as a water region. The region occupies approximately 13,300km² and encompasses more than 9% of the area of England and Wales. The region has an estimated population of approximately 14 million people, which represents more than a quarter of the total population of England and Wales.
- 2.3 As a sewerage undertaker, pursuant to s94 WIA 1991, Thames Water Utilities Limited has a duty to provide public sewers to effectively drain its areas, to make provision for the emptying of these sewers and effectively treating and disposing of the contents of those sewers. This duty is now supplemented by the requirements of Regulation 4 of the Urban Waste Water Treatment Regulations 1994.
- 2.4 The Applicant's stated⁶⁵ preferred delivery model for the project is that it would be delivered by an independent and separately licensed infrastructure provider (IP) procured by Thames Water Utilities Limited in its role as a sewerage undertaker for the Sewerage Region in accordance with regulations made under Part 2A of the WIA 1991 as inserted by the Flood and Water Management Act 2010.

GUIDE TO THE APPLICATION

- 2.5 The Applicant produced a 'Guide to the Application' (APP199), initially in response to our request (Q12.4), which summarises the documentation forming the application and revisions and further documentation submitted by the Applicant throughout the examination.
- 2.6 The Guide (APP199) is provided in four sections:
- Section 1 is the original submitted application documents.

⁶⁵ Doc 9.10.06 Funding Statement September 2013

- Section 2.1 lists new documentation submitted during the examination.
- Section 2.2 identifies documents produced during the examination for which subsequent updates and revised documents were provided.
- Section 3 provides a description of each document the Applicant submitted on making the application and during the examination, organised by submission date.

PROJECT DESCRIPTION

2.7 The project as described by the Applicant (APP79.1, Statement of Reasons) identifies the project as comprising two principal elements:

- Tunnels:
 - (i) the main tunnel
 - (ii) connection tunnels
- Work sites:
 - (i) main tunnel sites
 - (ii) combined sewer overflow (CSO)⁶⁶ sites
 - (iii) system modification sites
 - (iv) Beckton Sewage Treatment Works.

2.8 The Applicant proposes that the CSO flows would be controlled by means of:

- The main storage and transfer tunnel from Acton Storm Tanks to Abbey Mills Pumping Station where it is proposed to connect to the Lee Tunnel
- Two long connection tunnels and nine short connection tunnels to connect the CSOs into the main tunnel
- Intercepting and diverting flows from 18 CSOs into the main tunnel, requiring 16 CSO sites
- Locally modifying the sewerage system to control two CSOs, resulting in two system modification sites
- Works to drain down the proposed tunnel system at Beckton Sewage Treatment Works.

SITE TYPES AND LOCATIONS

2.9 The Applicant selected 24 work sites for delivery of the project and these have been categorised by proposed function as follows:

- Main tunnel sites

⁶⁶ Combined sewers carry business and domestic waste water and rainfall in the same pipes to a local waste water treatment. CSOs act as release valves when the system is full, designed to carry any excess flow by pipes to an outfall point, often a local watercourse

- CSO sites
 - System modification sites
 - Beckton Sewage Treatment Works.
- 2.10 In the draft Development Consent Order (DCO) (APP204.02) schedule 1 Authorised Project part 1 Authorised Development describes, in column 1 of the table, the works comprising a Nationally Significant Infrastructure Project (NSIP) as defined in s14 and s29(1A) of the Planning Act 2008 (as amended) (PA 2008)⁶⁷.
- 2.11 At the proposed main tunnel sites, shafts would be excavated. Tunnel boring machines (TBMs) would be used to construct the main tunnel and these would start at drive shafts and be removed via reception shafts. Within the proposed scheme a shaft may serve as both a drive shaft and a reception shaft, therefore main tunnel sites would be designed to accommodate both shaft and tunnel construction activities as follows:
- Main tunnel drive sites are proposed to be used to assemble and then drive the TBM; handle the excavated material from the main tunnel; construct the tunnel's primary lining; and provide access for installation of secondary lining.
 - Main tunnel reception sites are proposed to be used to remove the TBM from the tunnel at the end of the drive and provide access for installation of the secondary lining.
- 2.12 The five main tunnel sites proposed are:
- Acton Storm Tanks (main tunnel reception site and CSO interception site)
 - Carnwath Road Riverside (main tunnel drive and reception site; Frogmore connection tunnel reception site)
 - Kirtling Street (main tunnel double drive site)
 - Chambers Wharf (main tunnel drive and reception site; Greenwich connection tunnel reception site)
 - Abbey Mills Pumping Station (main tunnel reception site).
- 2.13 A total of 16 CSO work sites are proposed to be used to construct the CSO interception structures and associated connection tunnels, as follows:
- Two CSO work sites would be used to drive long connection tunnels:
 - (i) Dormay Street (Frogmore connection tunnel double drive site)
 - (ii) Greenwich Pumping Station (Greenwich connection tunnel drive site).

⁶⁷ Full descriptions are set out in the DCO (APP204.02) schedule 1 Authorised Project part 1 Authorised Development, under each of the Works numbers identified

- One CSO work site would be used to receive a long connection tunnel:
 - (i) King George's Park (Frogmore connection tunnel reception site).
 - Nine CSO work sites would be used to construct short connection tunnels to the main tunnel:
 - (i) Hammersmith Pumping Station (Hammersmith connection tunnel)
 - (ii) Barn Elms (West Putney connection tunnel)
 - (iii) Putney Embankment Foreshore (Putney Bridge connection tunnel)
 - (iv) Falconbrook Pumping Station (Falconbrook connection tunnel)
 - (v) Cremorne Wharf Depot (Lots Road connection tunnel)
 - (vi) Chelsea Embankment Foreshore (Ranelagh connection tunnel)
 - (vii) Heathwall Pumping Station (Heathwall/South West Storm Relief connection tunnel)
 - (viii) Albert Embankment Foreshore (Clapham/Brixton connection tunnel)
 - (ix) Victoria Embankment Foreshore (Regent Street connection tunnel).
 - Four CSO work sites would be used to connect directly either to the main tunnel or to a long connection tunnel via a drop shaft:
 - (i) Blackfriars Bridge Foreshore (main tunnel)
 - (ii) King Edward Memorial Park Foreshore (main tunnel)
 - (iii) Deptford Church Street (Greenwich connection tunnel)
 - (iv) Earl Pumping Station (Greenwich connection tunnel).
- 2.14 Two system modification work sites would be used to control CSOs by locally altering the operation of the existing sewerage system rather than intercepting and connecting them to the main tunnel:
- Shad Thames Pumping Station (Shad Thames Pumping Station CSO)
 - Bekesbourne Street (Holloway Storm Relief CSO).
- 2.15 The work site at Beckton Sewage Treatment Works would be used to:
- extend the pumping capacity of the Tideway Pumping Station by installing two pumps and pipeline works to transfer the flows from this pumping station to the inlet works of the treatment works
 - install additional mechanical and electrical equipment at the inlet works
 - construct two shafts and a siphon tunnel to transfer tunnel overflows to the Lee Tunnel overflow shaft.

MAIN TUNNEL

- 2.16 The Applicant identified the purpose of the main tunnel as being to capture and store combined sewage from unsatisfactory CSOs along its route and to transfer it to Beckton Sewage Treatment Works.
- 2.17 The Applicant has stated that the horizontal alignment of the main tunnel route would take the shortest practical line from Acton Storm Tanks to the River Thames and stay beneath the river from west London to Rotherhithe. It would then divert from beneath the river to the north east via the route of Limehouse Cut and terminate at Abbey Mills Pumping Station, where it is proposed to connect to the Lee Tunnel.
- 2.18 The main tunnel would be approximately 25km long with an approximate internal diameter of 6.5m in the west increasing to 7.2m through central and east London. The proposed approximate depth of the tunnel would be between 30m in west London and 65m in the east in order to provide sufficient clearance to existing tunnels and to meet the Applicant's stated hydraulic requirements.
- 2.19 The Applicant proposes that the tunnel system would be used to store flows following periods of heavy rainfall. On average, the Applicant has estimated that storage duration would be approximately 13 hours (maximum 48 hours) and the tunnel system would take approximately 36 hours to empty. The Applicant advises that during most rainfall events, in a typical year, the tunnel would not fill completely⁶⁸.
- 2.20 The Applicant proposes that the main tunnel would be driven from Carnwath Road Riverside to Acton Storm Tanks, from Kirtling Street in both directions to Carnwath Road Riverside and Chambers Wharf and from Chambers Wharf to Abbey Mills Pumping Station.

CONNECTION TUNNELS

- 2.21 The Applicant has stated that two long connection tunnels would be required in order to connect five remote CSOs to the main tunnel. These are:
- The Frogmore connection tunnel (2.6m to 3m internal diameter and approximately 1.1km long), which is proposed to be situated in the London Borough of (LB) Wandsworth. The approximate depth of the tunnel would be between 21m at the King George's Park drop shaft and 26m at the Carnwath Road Riverside main tunnel shaft. It would be

⁶⁸ Doc 4.1 Statement of Reasons para 2,4,5 and Doc 6.2.01 Environmental statement volume 1 introduction, para 2.2.57

driven from Dormay Street in both directions to King George's Park and Carnwath Road Riverside.

- The Greenwich connection tunnel (5m internal diameter and approximately 4.6km long), which is proposed to pass through the LBs of Southwark and Lewisham and the Royal Borough (RB) of Greenwich. The approximate depth of the tunnel would be between 46m at the Greenwich Pumping Station drop shaft and 55m at the Chambers Wharf main tunnel shaft. It would be driven from Greenwich Pumping Station to Chambers Wharf.

2.22 The Applicant also proposes a series of nine shorter connection tunnels to connect various CSOs that are close to the proposed alignment of the main tunnel. The depths of these would range from 33m to 50m.

ABOVE-GROUND PERMANENT WORKS

2.23 The Applicant proposes some above-ground permanent works, which would vary according to the type of site. This infrastructure is described by the Applicant as including:

- air management facilities including ventilation structures and ventilation columns
- kiosk structures to house electrical and control equipment
- means of access
- areas of hard-standing adjacent to shafts and structure to enable periodic inspection and maintenance.

2.24 The Applicant proposes that the construction sites would be restored on completion of the works by means of levelling, in-filling, landscaping and making good.

ASSOCIATED DEVELOPMENT DESCRIBED

2.25 In the DCO (APP204.02) schedule 1 Authorised Project part 1 Authorised Development describes, in column 2 of the table, the works comprising Associated Development within the meaning of s115(2) PA 2008.

2.26 In brief summary⁶⁹ the Associated Development is comprised of:

- works to intercept and divert flow at Acton Storm Tanks, Hammersmith Pumping Station, Barn Elms, Putney Embankment Foreshore, Dormay Street, King George's Park, Falconbrook Pumping Station, Cremorne Wharf Depot, Chelsea Embankment Foreshore, Heathwall Pumping Station, Albert Embankment Foreshore, Blackfriars Bridge Foreshore,

⁶⁹ Full descriptions are set out in the DCO (APP204.02) schedule 1 Authorised Project part 1 Authorised Development, under each of the Works numbers

Earl Pumping Station, Deptford Church Street and King Edward Memorial Park Foreshore

- Putney Embankment Foreshore temporary slipway
- works to establish a tunnel drive and reception site at Carnwath Road Riverside and Chambers Wharf
- works to establish a tunnel drive site at Dormay Street, Kirtling Street and Greenwich Pumping Station
- works to establish a main tunnel reception site at Abbey Mills Pumping Station
- works to modify the existing sewer at Bekesbourne Street and works to modify the sewage treatment works at Beckton Sewage Treatment Works
- other Associated Development not otherwise forming part of a specified work in connection with Work Nos 1 to 27 including matters such as temporary construction areas, hard-standing, office accommodation, workshops and stores, storage and handling area, vehicle accesses and parking, moorings etc.

ANCILLARY WORKS

- 2.27 In the DCO (APP204.02) schedule 1 Authorised Project part 2 Ancillary Works sets out and describes the ancillary works at Shad Thames Pumping Station, Beckton Sewage Treatment Works and generally, relating to matters such as installation and modification of pumps and works to existing sewers, chambers, culverts and other structures that are enabling.

KEY LOCATION DRAWINGS AND PLANS

- 2.28 An illustrative overview of the project can be seen in figure 2.5 of the Environmental Statement Non-technical Summary (Doc 6.1).
- 2.29 All sites and tunnel alignments are shown on drawings DCO-WP-000-ZZZZZ-010001 through to DCO-WP-000-ZZZZZ-010060 inclusive, which are in the works plans and sections (identified in final form in DCO schedule 2 Plans part 1 Works Plans APP204.02). The first drawing is a key plan.

AMENDMENT TO THE APPLICATION DURING EXAMINATION

- 2.30 Overall, the Guide to the Application (APP199) Section 3 provides a description of each document the Applicant provided on making the application and during the examination, organised by submission date, showing the evolution of the application and supporting documentation.
- 2.31 The Applicant proposed changes to the application and consequential revised versions of several application documents that it wished to submit. This proposal was made orally at the Preliminary Meeting (PM) and by letter dated 28 August 2013. The

Examining authority's (ExA's) procedural response to this request was set out in Annex B of the Rule 8⁷⁰ letter (PD006). The ExA confirmed acceptance of the proposed changes on 15 October 2013 (PD009 and PD010).

- 2.32 The changes related to Victoria Embankment Foreshore and Blackfriars Bridge Foreshore. These changes are described in full in section 2.1 Description of proposed changes in the supporting statement to each site (Doc 10.02 and 10.03).
- 2.33 During the examination the Applicant confirmed that at Abbey Mills Pumping Station the main tunnel shaft works had been undertaken through an amendment to the Lee Tunnel permission and therefore changed the DCO to provide for connection works at shaft G and shaft F⁷¹.
- 2.34 During the examination of the application, the Applicant, following our questioning at CA hearings, agreed to reduce the extent of the limits of deviation at certain locations. This was on the basis that the Applicant accepted that the full extent of land identified was not required for the development and did not therefore meet the test under s122 PA 2008. Table 3.1 in the Environmental Statement Update Report (APP208.01) briefly summarises these changes, which are shown in amendments to the Book of Plans (APP65). It is our view that these changes, which are within the limits of the land to be acquired or used, do not result in a material change to the application to such a degree as to constitute a new application. Therefore these changes can be considered under the existing application.
- 2.35 In summary the Panel concludes, as set out in this report, that the application as amended by all the changes received is within the scope of the proposals as assessed in the Environmental Impact Assessment and supporting environmental information and none are substantive enough to constitute a different application from the one submitted. In addition, given the consultation and advertisement carried out by the Applicant in relation to the notified change and the opportunity to respond to the changes made in the examination it is considered that all Interested Parties have had an opportunity to make representations upon them before the close of the examination, although our reservations about the volume of material and change during the later stages of the examination are set out above at chapter 1. Therefore the Panel also finds that the Secretaries of State would have the power under s114(1) to make an Order in the form recommended, subject to the further certainty to be secured, as recommended by the Panel.

⁷⁰ Rule 8 of The Infrastructure Planning (Examination Procedure) Rules 2010

⁷¹ Works No 26a DCO (APP204.02) schedule 1 Authorised Project part 1 Authorised Development, under Abbey Mills Pumping Station

PLANNING HISTORY RELATING TO NATIONAL INFRASTRUCTURE

- 2.36 The Thames Tideway Tunnel does not fall within the original thresholds contained in PA 2008 to be considered an NSIP as it is not associated with a new or extended sewage treatment works (STW) of 500,000 population equivalent or above. However, the Secretary of State for Environment, Food and Rural Affairs made an announcement on 6 September 2010 that consideration of development consent for the project should be dealt with under PA 2008⁷².
- 2.37 As set out in chapter 1 above, on 23 June 2012, the Infrastructure Planning (Waste Water Transfer and Storage) Order 2012 (WWTS Order) came into force and the effect of article 2 of the WWTS Order was to add to the categories of NSIP under s14(1) of PA 2008 projects that consist of infrastructure for the transfer and storage of waste water.
- 2.38 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS), was supported by an Appraisal of Sustainability (incorporating the requirements of the Strategic Environmental Assessment (SEA) Directive); Habitats Regulations Assessment (HRA); Impact Assessment; and Equalities Impact Assessment.

⁷² NPS para 2.6.14

3 LEGAL AND POLICY CONTEXT

- 3.1 This chapter sets out the relevant legal and policy context for the examination of the application which was taken into account and applied by the Panel in carrying out its examination and in making its findings and recommendations to the Secretary of State for Communities and Local Government and Secretary of State for Environment, Food and Rural Affairs (Secretaries of State).
- 3.2 The secondary legislation and guidance under the Planning Act 2008 (as amended) (PA 2008) has been fully taken into account throughout the examination as far as it is relevant to the examination of this application. When appropriate this legislation and guidance is referenced within the individual chapters of this report.
- 3.3 Other relevant government policy has been taken into account more generally (for example matters such as guidance on conditions and s106 obligations now set out in National Planning Practice Guidance (NPPG) are also taken into account) and when appropriate is referenced within the individual chapters of this report.
- 3.4 The following application documents contain a detailed description of the legislative and policy framework that the Applicant considers relevant to the proposal:
- Environmental Statement (ES) (Doc 6.2.01, volume 1, introduction, section 1.1)
 - Statement of Reasons (Doc 4.1) subject to errata (Doc 9.04.01) and (APP79.1)
 - Planning Statement (Doc 7.01) subject to errata (Doc 9.04.01).

PLANNING ACT 2008 (AS AMENDED)

- 3.5 S104(1) PA 2008 applies '*in relation to an application for an order granting development consent if a national policy statement has effect in relation to development of the description to which the application relates.*'
- 3.6 The application is for a Nationally Significant Infrastructure Project (NSIP), namely the construction of infrastructure for the transfer or storage of waste water with a proposed capacity⁷³ of 1,250,000m³, known as the Thames Tideway Tunnel⁷⁴. This status as a NSIP accords with the effect of Article 2 of the Infrastructure Planning (Waste Water Transfer and Storage) Order 2012 (WWTS

⁷³ Doc 7.8, Engineering Design Statement, para 3.3.7

⁷⁴ Stated in Doc 1.2, Application Form, Box 4, Doc 5.1, Consultation Report, and Doc 7.01, Planning Statement, para 2.1.3

Order) referred to above (chapter 2) in adding to the categories of NSIP under s14(1) PA 2008.

- 3.7 The Panel therefore finds that the proposal falls within the terms of s14(1)(o) PA 2008 in that it consists of the construction of infrastructure for the transfer or storage of waste water. It also falls within s29(1A) PA 2008 as the works are proposed to be carried out wholly within England, the main purpose of the project is for the transfer of waste water for treatment and it has a proposed storage capacity of more than 350,000m³. Furthermore, a national policy statement has effect in relation to this application, therefore s104 PA 2008 applies with regard to what the decision maker must have regard to in making his decision.
- 3.8 S104(2) PA 2008 sets out the matters to which the Secretaries of State, who are the decision makers, must have regard in deciding an application submitted in accordance with PA 2008. In summary, the matters set out in s104(2) are any relevant National Policy Statement, any appropriate marine policy documents, any Local Impact Report (LIR) and any other matters that the Secretaries of State think are both important and relevant to the decision.
- 3.9 S104(3) of PA 2008 requires that the Secretaries of State decide the application in accordance with any relevant National Policy Statement, except to the extent that the Secretaries of State are satisfied that one or more of a number of provisions apply as set out in s104(4)-(8). In summary, these exceptions apply when complying with the National Policy Statement would:
- lead to the United Kingdom being in breach of any of its international obligations (s104(4))
 - lead to the Secretaries of State being in breach of any duty imposed on them by or under any enactment (s104(5))
 - be unlawful by virtue of any enactment (s104(6))
 - lead to the adverse impacts of the proposed development outweighing its benefits (s104(7))
 - meet a prescribed condition for deciding the application otherwise than in accordance with the National Policy Statement (s104(8)).
- 3.10 This report sets out the Panel's findings, conclusions and recommendations taking these matters fully into account and applying the approach set out in s104 PA 2008.

NATIONAL POLICY STATEMENT

- 3.11 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS), sets out Government policy for provision of major waste water infrastructure as defined in section 1.2 of the NPS and is the only NPS relevant to the Secretaries of States' decision in respect of this application.

- 3.12 The NPS at paragraph 1.1.1 states that it is to *'be used by the decision maker as the primary basis for deciding development consent applications for waste water developments that fall within the definition of Nationally Significant Infrastructure Projects (NSIP) as defined in the Planning Act 2008. In making decisions on waste water NSIPs, the decision maker must also have regard to any local impact report submitted by a relevant local authority, any relevant matters prescribed in regulations, any Marine Policy Statement (MPS) and marine plans and any other matters which it considers are both important and relevant to its decision.'*
- 3.13 Part 2 of the NPS sets out the Government's policy in respect of the need for waste water infrastructure. In particular it states that the Examining authority (ExA) and the decision maker should start its consideration of any applications submitted to it relating to the new sewage treatment works at Deephams and Thames Tunnel *'on the basis that the strategic need for these two improvements at Deephams and the combined sewer overflows into the Thames has been demonstrated'*.
- 3.14 This is echoed in para 2.6.34 which states:
- 'The examining authority and the decision maker should undertake any assessment of an application for the development of the Thames Tunnel on the basis that the national need for this infrastructure has been demonstrated. The appropriate strategic alternatives to a tunnel have been considered and it has been concluded that it is the only option to address the problem of discharging unacceptable levels of untreated sewage into the River Thames within a reasonable time at a reasonable cost. It would be for Thames Water to justify in its application the specific design and route of the project that it is proposing, including any other options it has considered and ruled out.'*
- 3.15 This statement, and in particular the need to consider and examine whether the Applicant has justified the choices it made with regard to design and specific sites it ultimately chose for the project, proved to be one of the more contentious aspects of the examination. This is explored in depth in chapter 17, which addresses the rationale for the selection of work sites and drive strategies.
- 3.16 For the purposes of this section of the report the Panel considers that the NPS is clear. It requires the Applicant to justify the specific design and route in its application. Moreover, as further set out in the NPS Annex A1.3 at paragraph A1.3.9, *'the key issue for consideration of this scheme by the examining authority and the decision maker is where several shafts from the surface connecting to the tunnel are located and also the location of construction compounds'*. Therefore, the Panel and the Secretaries of State need to be able to examine and decide whether the Applicant has provided adequate justification. This necessarily

meant exploring the site selection process and what formed the basis for the Applicant deciding one site was preferable to another. In order to understand that, comparisons had to be made between sites and that necessarily included comparing likely adverse impacts as well as the advantages of particular sites.

- 3.17 The Applicant was concerned (APP32.02⁷⁵) that this exercise would turn into what it termed a 'beauty parade' and that the examination would not be able to make proper and fair comparisons between the project, as shown in detail in the application, and a different project which utilised other sites. Other Interested Parties also raised concerns about alternatives that were not part of the application⁷⁶. The ExA noted those concerns. We were clear in the conduct of the examination that we were considering the application before us⁷⁷ and in this context sought to understand why the Applicant had made the choices it did, in the context of the NPS tests as a whole and in relation to the rationale for site selection and work sites (NPS paragraph 2.6.34 and A1.3.10).
- 3.18 Part 3 of the NPS '*sets out certain general policies in accordance with which applications relating to waste water infrastructure are to be decided that do not relate only to the need for new infrastructure (covered in part 2)*'.
- 3.19 Part 4 of the NPS sets out the generic policy approach to likely impacts from the physical impacts of the construction or operation of a waste water NSIP. In particular guidance is provided as to the requisite approach to a range of subjects and these are also dealt with in the chapters of this report set out below.
- 3.20 These general policies and further aspects of the NPS are referred to as relevant throughout this report and are considered under the relevant chapters in the context of the examination.

MARINE AND COASTAL ACCESS ACT 2009

- 3.21 The Marine and Coastal Access Act 2009 (MCA) introduced the production of marine plans and designation of Marine Conservation Zones (MCZ) in United Kingdom (UK) waters as well as establishing the Marine Management Organisation (MMO). The UK Marine Policy Statement (MPS) and marine planning are dealt with below. Under the MCA the Secretary of State for Environment, Food and Rural Affairs designated, on 21 November 2013, 27 MCZs around the English coast to form part of a network of Marine

⁷⁵Extract from APP32.02 '*the examination is not some sort of competitive exercise to identify the 'best option'; it is not, to adopt the expression sometimes used in these circumstances, some sort of beauty parade of different alternatives*'

⁷⁶ Examples of such representations include LB Newham representation on alternatives REP446 (LIR 3 March – oppose change in drive direction) – and Barn Elms related alternatives representation REP321 (3 Feb – Stop the Shaft – oppose change to Barn Elms)

⁷⁷ This was stated by the Panel at the Issue Specific rationale hearings

Protected Areas (MPAs). Further designations are proposed in two phases over the next three years.

- 3.22 The Applicant in its Planning Statement (Doc 7.01) refers to the tidal Thames being part of the proposed South East MCZ. Although in February 2014 a further tranche of designations was announced for 2015, the designation process for the Thames Estuary MCZ is currently on hold. No designated MCZs would be affected by the proposed development.
- 3.23 In the Statement of Common Ground (SoCG) (REP366 and APP159.06) between the Applicant and the MMO it is confirmed that *'In general, the MMO considers that the Habitats Regulations Assessment: No Significant Effects Report (Doc ref: 6.3) was adequate in scope. Therefore, the MMO is satisfied with the conclusions of this report.'*
- 3.24 In relation to impacts on sites of importance for nature conservation the MMO confirmed that it was part of a Biodiversity Compensation Working Group and the *'MMO have confirmed they are happy with the current mitigation suggestions proposed by the group as long as the EA and NE also support the proposals. The ecological compensation will be secured through Section 106 agreement between TWUL and the London Borough of Wandsworth. The MMO is content that this will provide an adequate mechanism to secure delivery, and as such no longer requires a DML condition in relation to habitat mitigation. This is reflected in the latest DML drafting being finalised with the MMO and TWUL.'*
- 3.25 These matters are reported more fully in chapter 6 in relation to biodiversity, biological environment and ecology and landscape matters and chapter 16 in relation to habitats regulations assessment.

UK Marine Policy Statement

- 3.26 The UK Marine Policy Statement (MPS) was prepared and adopted for the purposes of s44 of the Marine and Coastal Access Act 2009 and was published on 18 March 2011 by all the UK administrations as part of a new system of marine planning being introduced across UK seas.
- 3.27 The MPS is the framework for preparing Marine Plans and taking decisions affecting the marine environment. It contributes to the achievement of sustainable development in the UK marine area. The UK marine area includes the territorial seas and offshore area adjacent to the UK, which includes the area of sea designated as the UK Exclusive Economic Zone (the Renewable Energy Zone until the Exclusive Economic Zone comes into force) and the UK sector of the continental shelf. It includes any area submerged by seawater at mean high water spring tide, as well as the tidal

extent (at mean high water spring tide) of rivers, estuaries and creeks⁷⁸.

- 3.28 The MPS is the framework for marine planning systems within the UK. It provides the high level policy context, within which national and sub-national Marine Plans will be developed, implemented, monitored and amended and will ensure appropriate consistency in marine planning across the UK marine area. The MPS also sets the direction for marine licensing and other relevant authorisation systems.
- 3.29 The MPS has provided the overarching policy context for the ExA's consideration of the application offshore works and Deemed Marine Licence (DML).
- 3.30 In the SoCG (REP366 and APP159.06) between the Applicant and the MMO it is confirmed that *'At this time, there is no marine plan in place for the South East inshore area in which the project would be located. It is unlikely that there will be a marine plan in place before the determination of the application.'*
- 3.31 In the MMO final written submission (REP494) it confirmed *'The Marine Management Organisation (MMO) can confirm that the 4-Way Legal Agreement was signed by all parties on the 3 March 2014. A copy of this agreement has been submitted to the panel by Thames Water Utilities Ltd (TWUL). The MMO are satisfied with the DCO updates and deemed marine licence (DML), as agreed with TWUL, and would recommend the documents as annexed to our 3 March 2014 submission to the panel are adopted in the Examining Authority's recommendation report to the Secretary of State.'*
- 3.32 Under s104(2)(aa) PA 2008 the Secretaries of State must have regard to *'the appropriate marine policy documents ...'* This is the MPS for this application and all relevant matters have been taken into account in the examination by the Panel.

WATER INDUSTRY ACT 1991

- 3.33 The Water Industry Act 1991 (WIA 1991) sets out the powers and duties of the water and sewerage companies, thus replacing those set out in the Water Act 1989, and defined the powers of the Director General of Water Services (now Ofwat).

The Water Industry (Specified Infrastructure Projects) (English Undertakers) Regulations 2013 Statutory Instruments SI 2013/1582

- 3.34 The Water Industry (Specified Infrastructure Projects) (English Undertakers) Regulations 2013 (SIP Regulations) were brought

⁷⁸ see Marine and Coastal Access Act 2009 s42(3) and (4)

into force on 28 June 2013, and were required to be put in place as a result of s36(A) to s36(F) of the WIA 1991, which were inserted into the WIA 1991 as a result of the Flood and Water Management Act, which was passed in 2010. The purpose of both the Flood and Water Management Act and the SIP Regulations was to make provision in respect of projects or works that in the Secretary of State's opinion are of a size and complexity which would threaten the undertaker's ability to provide services for its customers.

- 3.35 The first step to using the SIP Regulations requires the specification of an infrastructure project. This arises under regulation 4(1). Regulation 4(1) allows either the Secretary of State or the authority to specify an infrastructure project. Where the term 'authority' is used in the SIP Regulations, it refers to the Water Services Regulation Authority, or Ofwat, as it is more generally known.
- 3.36 The infrastructure project itself is defined in the WIA 1991, and it relates to the design, construction, ownership and operation of a specified project. These are therefore the elements of a project that the Secretary of State is able to specify.
- 3.37 The written summary of the oral submissions made by the Applicant at the Compulsory Acquisition (CA) hearing held on 28 November 2013 (APP42.1) sets out the relationship with, and application of, the SIP Regulations, particularly with regard to funding and delivery structure.
- 3.38 The Panel has had regard to the WIA 1991 and SIP Regulations in its examination of the application.

EUROPEAN REQUIREMENTS AND RELATED UK REGULATIONS RELEVANT TO THE APPLICATION

Habitats Directive (Directive 92/43/EEC)

- 3.39 The Habitats Directive (together with the Council Directive 79/409/EEC on the conservation of wild birds (Wild Birds Directive) (Birds Directive)) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. The Habitats Directive protects over 1000 animals and plant species and over 200 habitat types (for example: special types of forests; meadows; wetlands; etc.), which are of European importance.
- 3.40 The Habitats Directive and its implications have been taken into account in considering the application and these are addressed below in chapter 16.

Birds Directive (Council Directive 2009/147/EC)

- 3.41 The Birds Directive is a comprehensive scheme of protection for all wild bird species naturally occurring in the European Union. The Birds Directive recognises that habitat loss and degradation are the most serious threats to the conservation of wild birds. It therefore places great emphasis on the protection of habitats for endangered as well as migratory species. It requires classification of areas as Special Protection Areas (SPAs) comprising all the most suitable territories for these species. Since 1994 all SPAs have formed an integral part of the Natura 2000 ecological network.
- 3.42 The Birds Directive bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs, and associated activities such as trading in live or dead birds. It requires Member States to take the requisite measures to maintain the population of species of wild birds at a level which corresponds, in particular, to ecological, scientific, and cultural requirements while taking account of economic and recreational requirements.
- 3.43 The Birds Directive and its implications have been taken into account in considering the application and these are addressed below in chapter 16.

Conservation and Species Regulations 2010 (as amended) the Habitats Regulations and Conservation of Habitats and Species (Amendment) Regulations 2012

- 3.44 The Conservation of Habitats and Species Regulations 2010 replaced The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) in England and Wales. The Conservation of Habitats and Species Regulations 2010 (which are the principal means by which the Habitats Directive is transposed in England and Wales) update the legislation and consolidated all the many amendments which have been made to the regulations since they were first made in 1994.
- 3.45 The Conservation of Habitats and Species Regulations 2010 apply in the terrestrial environment and in territorial waters out to 12 nautical miles. The European Union (EU) Habitats and the Wild Birds Directives are transposed in UK offshore waters by separate regulations – The Offshore Marine Conservation (Natural Habitats &c.) Regulations 2007 (as amended).
- 3.46 The Conservation of Habitats and Species (Amendment) Regulations 2012 came into force on 16 August 2012.
- 3.47 These Regulations amend the Habitats Regulations. They place new duties on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds. They also make a number of further amendments to the Habitats Regulations to

ensure certain provisions of the Habitats Directive and the Wild Birds Directive are transposed clearly.

- 3.48 The Applicant submitted a Habitats Regulations Assessment (HRA): 'No Significant Effects Report' (NSER) (Doc 6.3).
- 3.49 The Panel has set out its findings and recommendations in relation to HRA in chapter 16 below.

Water Framework Directive

- 3.50 On 23 October 2000, the 'Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy' or, in short, the EU Water Framework Directive (the WFD) was adopted.
- 3.51 The WFD was published in the Official Journal (OJ L 327) on 22 December 2000 and came into force the same day. Some amendments have been introduced into the Directive since 2000⁷⁹.
- 3.52 Twelve 'Water Notes' which intend to give an introduction and overview of key aspects of the implementation of the WFD have also been published⁸⁰.
- 3.53 The WFD establishes a legal framework to protect and restore clean water across Europe and ensure its long term, sustainable use. The UK government is obliged to comply with the WFD.
- 3.54 The WFD and its implications have been taken into account in considering the application and these are addressed below in chapter 15.

Urban Waste Water Treatment Directive

- 3.55 On 21 May 1991, the 'Directive 1991/271/EEC of the European Parliament and of the Council concerning urban waste water treatment' or, in short, the EU Urban Waste Water Treatment Directive (UWWTD) was adopted.
- 3.56 The UWWTD is one of a number of EU Directives that have the objective of protecting the water environment for the animals and plants that live in and around water, for recreation, and its use as a resource for drinking water, sanitation, industry and commerce.
- 3.57 The UWWTD and its implications have been taken into account in considering the application. Water quality and resources matters are addressed below in chapter 15.

⁷⁹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:02000L0060-20090625:EN:NOT>

⁸⁰ http://ec.europa.eu/environment/water/participation/notes_en.htm

European Marine Strategy Framework Directive

- 3.58 The Marine Strategy Framework Directive (MSFD) 2008/56/EC of the European Parliament and of the Council of 17 June 2008 established a framework for community action in the field of marine environmental policy. The directive came into force on 15 July 2008 and was transposed into UK law by the Marine Strategy Regulations 2010.
- 3.59 Key requirements of the legislation are the: '*establishment of a monitoring programme to measure progress toward Good Environmental Status (as defined by 11 high level descriptors) by July 2014 and; Establishment of a programme of measures for achieving Good Environmental Status by 2016.*'
- 3.60 The Panel has had regard to the MSFD in its approach to the examination and matters considered under MCA as set out above.

UNITED NATIONS ENVIRONMENT PROGRAMME CONVENTION ON BIOLOGICAL DIVERSITY 1992

- 3.61 As required by Regulation 7 of the Infrastructure Planning (Decisions) Regulations 2010, the Panel has had regard to this Convention in its consideration of the likely impacts of the proposed development and appropriate objectives and mechanisms for mitigation and compensation. In particular the Panel finds that compliance with the UK provisions on environmental impact assessment and transboundary matters, referred to below, satisfies, with regard to impacts on biodiversity, the requirements of Article 14.
- 3.62 The UK Government ratified the Convention in June 1994. Responsibility for the UK contribution to the Convention lies with the Department for Environment, Food and Rural Affairs (Defra) who promote the integration of biodiversity into policies, projects and programmes within Government and beyond.
- 3.63 This is of relevance to biodiversity, biological environment and ecology and landscape matters which are discussed in chapter 6 and environmental impact assessment and HRA as discussed in chapter 16.

OTHER LEGAL AND POLICY PROVISIONS

National policy and legislation

The Wildlife and Countryside Act 1981 (as amended)

- 3.64 The Wildlife and Countryside Act 1981 is the primary legislation which protects animals, plants, and certain habitats in the UK. The Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs). These sites are identified for their flora, fauna, geological or physiographical features by the

countryside conservation bodies (in England, Natural England (NE)). The Act also contains measures for the protection and management of SSSIs.

- 3.65 The Act is divided into four parts: Part I relating to the protection of wildlife, Part II relating to designation of SSSIs and other designations, Part III on public rights of way and Part IV on miscellaneous provisions. If a species protected under Part I is likely to be affected by development, a protected species licence will be required from NE.
- 3.66 This has relevance to consideration of impacts on SSSIs and on protected species and habitats.
- 3.67 This is of relevance to biodiversity, biological environment and ecology and landscape matters which are discussed in chapter 6.

Natural Environment and Rural Communities Act 2006

- 3.68 The Natural Environment and Rural Communities Act (NERC) made provision for bodies concerned with the natural environment and rural communities, in connection with wildlife sites, SSSIs, National Parks and the Broads. It includes a duty that every public body must, in exercising its functions, have regard so far as is consistent with the proper exercising of those functions, to the purpose of biodiversity. In complying with this, regard must be given to the United Nations Environment Programme Convention on Biological Diversity of 1992.
- 3.69 In relation to this application it is noted that the Applicant has included consideration of habitats and species of principal importance for the conservation of biodiversity in England within the ES. These are habitats and species which have been included in the list drawn up by the Secretary of State in consultation with NE as required by section 41 of NERC.
- 3.70 Chapters 5 and 6 of volume 2 of the ES (Doc 6.2.02) present the methodology for assessment of impacts to aquatic and terrestrial ecology, which includes ascribing values to these features as receptors in accordance with the guidelines of the Chartered Institute of Ecology and Environmental Management.
- 3.71 The SoCG between the Applicant and NE, dated 13 January 2014 (APP85.21), confirms that NE is content with the work on ecology carried out to date. NE also states that the Applicant has set up the independently chaired stakeholder Biodiversity Compensation Working Group (BCWG), to agree biodiversity compensation issues for loss of foreshore habitat, and that they remain committed to providing on-going advice and support through the BCWG. NE further states that there are no matters still to be agreed.

- 3.72 Representations submitted by local authorities for deadlines of 3 March and 11 March 2014 do not indicate any outstanding concerns with regards to biodiversity issues.
- 3.73 These matters are discussed in chapter 6 below.

Transboundary Effects

- 3.74 Under Regulation 24 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (EIA Regulations) and on the basis of the information available from the Applicant, the Panel is of the view that the proposed development is not likely to have significant effects on the environment in another European Economic Area (EEA) State.
- 3.75 In reaching this view the ExA has applied the precautionary approach (as explained in the Planning Inspectorate Advice Note 12 Transboundary Impacts Consultation). Transboundary issues consultation under Regulation 24 of the EIA Regulations was therefore not considered necessary in relation to this application.

National Planning Policy Framework

- 3.76 The National Planning Policy Framework (NPPF) was adopted at the same time that the NPS was designated. Neither s104 PA 2008 nor the NPS makes reference to the NPPF whilst paragraph 3 of the NPPF notes that the framework does not contain specific policies for NSIPs for which it states particular considerations apply. In addition, the NPPF does not contain specific waste policies, which are to be dealt with under the National Waste Management Plan for England.
- 3.77 Whilst the NPPF clearly reflects national policy and consideration should be given to whether it contains matters that are important and relevant to this application, the NPPF is, in the Panel's view, directed principally towards planning decisions and plan making under the Town and Country Planning Act 1990 (as amended) (TCPA 1990) regime which requires decisions to be made in accordance with the local development plan (see 38(6) of the Planning and Compulsory Purchase Act 2004) unless material considerations indicate otherwise. This is not the case under PA 2008.
- 3.78 There are two main aspects of the NPPF which the ExA considers may be relevant to the Secretaries of States' decision. The first is that the NPPF states that the '*purpose of the planning system is to contribute to the achievement of sustainable development*' and the NPPF goes on to set out what the Government considers to be sustainable development. In particular the three dimensions to it are identified in paragraph 7 namely economic, social and environmental. The NPS has sustainable development in waste water infrastructure terms as one of three key Government objectives (section 1.4) and equally refers to the three

dimensions. The NPS makes it clear that the Appraisal of Sustainability (AoS) conducted in respect of the NSIPs addressed in the NPS *'provides a general appraisal for any waste water NSIPs which might come forward in the future as well as a more specific appraisal for the two potential NSIPs currently identified in this NPS. However, Government's AoS for these NSIPs is strategic in nature and does not pre-empt or replace the need for the developer to conduct site-specific assessments as part of the development consent application when the exact details of each scheme are known.'*

- 3.79 In looking at the site-specific effects of the application therefore and drawing final conclusions in respect of the application, the Panel has had regard to these considerations.
- 3.80 The second matter, to which the Applicant draws attention in its Planning Statement (Doc 7.01), is that the NPPF at paragraph 162 states that local planning authorities when making their local plans *'should work with other authorities and providers to: assess the quality and capacity of infrastructure for transport, water supply, wastewater and its treatment'*, and to *'take account of the need for strategic infrastructure including nationally significant infrastructure within their areas.'*
- 3.81 The Panel has also had regard to this matter in considering the application.

LOCAL IMPACT REPORTS

- 3.82 There is a requirement under s60(2) PA 2008 to give notice in writing to each local authority falling under s56A PA 2008 inviting them to submit LIRs. This notice was given on 26 September 2013 (PD006, examination timetable, item 10 see footnote 59).
- 3.83 LIRs were submitted by 13 local authorities (REP085 to REP098) and one by the Mayor of London in two parts (REP099 and REP100). The principal matters raised in the LIRs relate to details of the likely impact of the proposed development on each local authority or administrative area and are broadly summarised as:
- Appraisal of the relationship, relevance of and conformity to the overall planning framework and local authority policies and guidance in relation to the proposals
 - Development Consent Order
 - Requirements and s106 obligations
 - Mitigation measures
 - CA
 - Rationale for the selection of work sites and drive strategies
 - Architecture and design
 - Biodiversity, ecology and open space
 - Climate change and adaption
 - Heritage, historic environment and archaeology

- Land quality and contamination
- Landscape, metropolitan open land, townscape, streetscape, lighting and visual impact
- Noise, vibration, air quality, dust, odour and emissions
- Settlement of buildings and structures
- Site-specific matters and assets
- Socio-economic impacts, including: regeneration; land use; safeguarded wharves; economy and employment, skills and training; community/amenity matters; schools; sport and recreation; health and equality
- Traffic, highways, access, parking, walkways, pedestrian and cycle movements, public transport
- Utilities infrastructure
- Ventilation
- Waste
- Water resources and flood risk.

3.84 These are considered and taken into account in each main chapter of this report and in particular in chapters 4 to 18 in considering principal and other examination issues and in the considerations relating to CA and related matters in chapter 19 and the draft Development Consent Order (DCO) and related matters in chapter 20.

THE DEVELOPMENT PLAN

- 3.85 The application relates to land in 14 local planning authority areas within London. The London Plan, adopted in 2011 with Revised Early Minor Amendments in 2013, is the strategic plan for the whole of London including all parts of the application. In response to the ExA's questions (PD017, Q31.1), the Mayor of London confirms that the Revised Early Minor Amendments have no implications in relation to the examination of the application. The Mayor also comments that the Further Alterations to the London Plan, published for consultation early in 2014, would not materially affect the examination (REP240)⁸¹.
- 3.86 London Plan Policy 5.14 states that the Mayor of London will work in partnership to *'ensure that London has adequate and appropriate waste water infrastructure to meet the requirements placed upon it by population growth and climate change'*. The policy goes on to say that *'the development of the Thames Tideway Sewer Tunnels to address London's combined sewer overflows should be supported in principle'*.
- 3.87 Other policies of the London Plan are discussed in more detail in the various chapters of the report. Policy 2.13 identifies strategic opportunity areas which are London's major reservoir of brownfield land with significant capacity to accommodate new

⁸¹ The Mayor of London states that, although the supporting text to Policy 5.14 is proposed to be altered, the changes relate only to matter of clarity

housing and other development. The Vauxhall Nine Elms Battersea Opportunity Area is discussed in chapter 11. Policy 7.11 states that the Mayor of London has designated a list of strategic views and has prepared supplementary planning guidance on the management of the designated views. Policy 7.12 seeks to protect the characteristics and composition of strategic views. These matters are discussed in chapter 8.

- 3.88 London Plan Policy 7.17 states that *'The strongest protection should be given to London's Metropolitan Open Land and inappropriate development refused, except in very special circumstances, giving the same level of protection as in the Green Belt'*. Parts of the application would be within Metropolitan Open Land (MOL). This is discussed in chapter 11.
- 3.89 The River Thames forms part of London's Blue Ribbon Network of strategically important waterspaces. London Plan Policy 7.26 seeks to increase the use of the Blue Ribbon Network for freight transport and to protect existing facilities for waterborne freight traffic. In particular, safeguarded wharves should only be used for waterborne freight handling use. Safeguarded wharves are discussed in chapter 11.
- 3.90 Each of the 14 local authority areas affected by the application has locally adopted policies which form part of the development plan within their respective areas. In some cases our attention has also been directed to emerging plans and supplementary planning guidance. The NPS provides guidance on where, and how, local policies should be taken into account. This includes, for example, guidance relating to Green Belt; where an application may preclude development proposed in a development plan; the weight to be attached to emerging plans and where networks of green infrastructure, identified in development plans, may be affected (NPS, section 4.8).
- 3.91 The Panel invited each local planning authority to agree a list of relevant policies with the Applicant as part of their respective SoCG (PD008, S9.1). Policies thus identified include site-specific allocations, area designations such as MOL and Sites of Interest for Nature Conservation (SINC) and supplementary planning guidance. Schedules are provided in the local planning authority SoCGs and that information is not reproduced here. Those policies which we consider to be important and relevant are discussed in more detail in the relevant sections of the report.

THE SECRETARIES OF STATES' POWERS TO MAKE A DEVELOPMENT CONSENT ORDER AND CHANGES TO THE APPLICATION

- 3.92 The Panel was aware of the need to consider whether changes proposed by the Applicant to the application meant that the application had changed to the point where it was a different

application and whether the Secretaries of State would have power therefore under s114 PA 2008 to make a Development Consent Order having regard to the development consent applied for.

- 3.93 As a result of consideration of the rationale for the drive strategy and work sites, submissions were heard and received in writing in relation to the options open to the Secretaries of State with regard to changes to the application and include submissions from the Applicant and a number of Interested Parties (eg APP32.01 and APP32.02, REP123 to REP126).
- 3.94 This matter is considered above in chapter 2 under the heading 'Amendment to the Application during Examination'. In addition to this set of amendments the Panel has concluded that all the changes proposed to the DCO by the Applicant during the course of the examination and now included in the recommended DCO are acceptable, subject to the changes recommended by the Panel being confirmed. The NPS tests, changes made by the Applicant and key issues about which we received relevant submissions from Interested Parties, are considered throughout chapters 4 to 18 and in relation to CA in chapter 19 and the DCO drafting in chapter 20.

4 INTRODUCTION TO MAIN ISSUES IN THE EXAMINATION

- 4.1 An initial assessment of the principal issues arising was undertaken by the Examining authority (ExA) following consideration of the application documents and relevant representations⁸².
- 4.2 This preliminary identification of principal issues was not an exclusive list of all relevant matters but provided a framework for the examination and included the following main subject areas:
- Air Quality and Emissions
 - Biodiversity, Biological Environment and Ecology
 - Coastal/River Change
 - Compulsory Acquisition (CA) and Related Matters
 - Design, Landscape and Visual Impact
 - Flood Risk and Climate Change
 - Historic Environment
 - Land Use Including Regeneration and Open Space
 - Noise and Disturbance
 - Rationale for the Selection of Work Sites and Drive Strategies
 - Socio-Economic Effects
 - Traffic, Travel and Transportation
 - Water Quality and Resources.
- 4.3 We noted that a number of the principal issues have an interrelationship and overlap and that this would be reflected in the examination. Policy, the draft Development Consent Order (DCO) and overall consenting requirements and documentation were an integral part of the examination and were therefore not set out as principal issues but formed part of the overall framework and context for examination.
- 4.4 We advised all Interested Parties that we would expect to deal with the need for requirements and other undertakings to secure any necessary mitigation set out in the Environmental Statement (ES), and/or arising from other matters identified during examination.
- 4.5 These matters provided the framework for the examination, our written questions, requests for information and questioning at hearings. They form the basis of our reporting as set out in chapters 5 to 17, our recommendation on the case for development in chapter 18 and the matters relating to CA and the DCO and related matters set out in chapters 19 and 20 respectively. Finally, we provide a summary of our overall conclusions and recommendation in chapter 21.

⁸² ExA Rule 6 of The Infrastructure Planning (Examination Procedure) Rules 2010 letter dated 25 July 2013, annex C Initial Assessment of Principal Issues

THE PRINCIPLE OF AND NEED FOR THE DEVELOPMENT

- 4.6 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS), identifies at section 2.5, in consideration of the need for new waste water infrastructure, that: *'Every five years, the Government's environmental and economic regulators of the water industry (the Environment Agency and Ofwat), work with the water and sewerage companies in England and Wales to establish spending plans, including proposed waste water infrastructure, for the following five-year period. The Environment Agency will determine when projects are needed to meet statutory environmental requirements (though there may be some other requirements which are made up of measures related to Biodiversity Action Plans (BAP) and local priorities) by assessing for example which discharges from the sewerage system need to be improved. The EA will then propose projects for inclusion in the National Environment Programme - confirmed by the Secretary of State.'*
- 4.7 Section 2.6 of the NPS identifies nationally significant projects for which need has been demonstrated and the 'Thames Tunnel' is identified as such a project⁸³.
- 4.8 The drivers for demand for waste water infrastructure projects are set out at section 2.3 of the NPS and draw attention to the statutory requirements to protect the environment and water quality and the need for investment to fulfil UK obligations under the Urban Waste Water Treatment Directive (1991/271/EEC), the Freshwater Fish Directive (2006/44/EC) and the Water Framework Directive (2000/60/EC). These directives are all referred to in chapter 3 above.
- 4.9 In concluding on need for the 'Thames Tunnel' the NPS sets out at paragraph 2.6.33 that: *'It is inappropriate to "do nothing": a sustainable long term solution is required to address the unacceptable levels of untreated sewage which are discharged into the River Thames and which have significant environmental, social and economic impacts. The Government considers that detailed investigations have confirmed the case for a Thames Tunnel as the preferred solution.'*
- 4.10 The Panel considers it important that the conclusion on need for the 'Thames Tunnel' is set out at paragraph 2.6.34 of the NPS and makes it clear that: *'The examining authority and the decision maker should undertake any assessment of an application for the development of the Thames Tunnel on the basis that the national need for this infrastructure has been demonstrated. The appropriate strategic alternatives to a tunnel have been considered*

⁸³ NPS para 2.6.14 to 2.6.34

and it has been concluded that it is the only option to address the problem of discharging unacceptable levels of untreated sewage into the River Thames within a reasonable time at a reasonable cost. It would be for Thames Water to justify in its application the specific design and route of the project that it is proposing, including any other options it has considered and ruled out.'

- 4.11 In relation to factors for examination and determination of applications set out at section 3 of the NPS, paragraph 3.1.2 sets out that: *'Given the level and urgency of need for infrastructure of the types covered by this NPS, set out in part 2 of this NPS, the decision maker should start with a presumption in favour of granting consent to applications for waste water NSIPs. That presumption applies unless any more specific and relevant policies set out in this NPS clearly indicate that consent should be refused. The presumption is also subject to the provisions of the Planning Act 2008 referred to at paragraph 1.1.1 of this NPS.'*
- 4.12 The NPS continues at paragraph 3.1.3 and paragraph 3.1.4 by setting out that: *'In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the decision maker should take into account:*
- *Its potential benefits including its contribution to meeting the need for waste water infrastructure, job creation and any long term or wider benefits; and*
 - *Its potential adverse impacts, including any long term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts*

In this context, the decision maker should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels. These may be identified in this NPS, in the application or elsewhere (including in local impact reports).'

- 4.13 The Applicant has been clear in making the application and in its representations throughout the examination in writing and in oral submissions at hearings about the urgency of the need for the project. This is summarised, with relevant referencing to the application Planning Statement (Doc 7.01) in its covering letter of 3 March 2014 (APP156) and in particular at paragraph 3.1.6 where the Applicant sets out that: *'In this case the important permanent benefits to the environment in London and the urgency of the need will need to be balanced against any temporary adverse impacts during the period of construction.'*
- 4.14 Other Interested Parties have made submissions relating to need overall and with regard to the urgency or otherwise of the delivery of the project. An example of this is Thamesbank in its relevant representation (RRP1072) and written and oral submissions throughout the examination (see Examination Library appendix C).

4.15 We have carried out the examination and report on the application made with full regard to the need for the development as prescribed in the relevant NPS in effect at the time of examination and during the reporting period.

5 AIR QUALITY AND EMISSIONS

INTRODUCTION

Policy context

- 5.1 In considering an application for development consent, the National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) advises that the examining authority and the decision maker should focus on whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves (NPS, para 3.7.3). This clearly applies to the impact upon air quality of the proposed development. The approach advocated by the NPS is for the examining authority and the decision maker to work on the assumption that the relevant pollution control regime will be properly applied and enforced. Their approach should complement but not seek to duplicate the regime.
- 5.2 The NPS continues to advise that in considering a proposal the decision maker should generally give air quality considerations substantial weight where a project would lead to deterioration in air quality in an area, or leads to a new area, where the air quality breaches any national air quality limits. However, air quality considerations will also be important where substantial changes in air quality are expected, even if this does not lead to any breaches of any national air quality limits. In all cases the decision maker must take account of relevant statutory air quality limits. Where a project is likely to lead to a breach of such limits applicants should work with the relevant authorities to secure appropriate mitigation measures to allow the proposal to proceed. In the event that a project will lead to non-compliance with a statutory limit the decision maker should refuse consent (NPS, para 4.11.4 and 4.11.5).
- 5.3 Mitigation measures proposed which help address any adverse impacts in air quality and emission terms, should be considered on the basis as to whether they are acceptable or not. The NPS encourages the provision of a construction management plan as a means of helping codify mitigation at this stage (NPS, para 4.11.6).
- 5.4 The above approach also applies to dust. However the NPS addresses the issue of odour from waste water infrastructure under a separate section, recognising that such infrastructure generates odour emissions during all stages of conveyance, treatment and storage. The NPS advises that it is important that the impacts of odour from waste water treatment are considered by the examining authority and the decision maker. Applicants are required to carry out odour impact assessment using appropriate

odour impact standards that reflect whether the odour source is highly offensive, moderately offensive or less offensive (NPS, section 4.3).

- 5.5 The NPS states that the decision maker should satisfy itself that all reasonable steps have been taken and will be taken, to minimise any detrimental impact on amenity from odours on surrounding uses of land and development including housing, hospitals, schools, commercial premises, recreational facilities and open spaces (NPS, para 4.3.11).

Air quality context of the proposal

- 5.6 The proposed tunnels run through 14 London boroughs including many in central London. This area is currently subject to relatively high air pollution levels, particularly at sites close to major traffic routes. Existing concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀) are such that borough-wide air quality management areas have been declared by most of the councils where tunnel work sites are proposed. In a few of the boroughs the air quality management areas are not borough-wide. However, all of the proposed tunnel work sites are within air quality management areas, with the exception of Beckton Sewage Treatment Works.

AIR QUALITY ASSESSMENT

Introduction

- 5.7 Documents relating to the assessment of air quality and emissions (including odour) submitted with the application are contained in the Environmental Statement (ES). An Air Management Plan (Doc 7.14) explains the strategy for air handling in the proposed tunnel⁸⁴ and addresses the measures proposed to control odour when the tunnel is operational. The Code of Construction Practice, Part A (CoCP) contains a section specifically addressing air quality (including measures for dust control and dust and particulate monitoring) (APP205.01).
- 5.8 Project-wide requirements relating to air quality in the draft Development Consent Order (DCO) (APP204.02) include PW6, which requires the proposed development to be carried out in accordance with the CoCP Part A, and PW7 which requires the proposed development to be operated and maintained in accordance with the Air Management Plan. Requirement PW15 requires the proposed development to be carried out in accordance with the River Transport Strategy. Where individual work sites are proposed to be subject to further site-specific measures to control

⁸⁴ Duty and standby air extraction fans would be provided at all 'active' ventilation sites (Acton Storm Tanks, Carnwath Road Riverside, Greenwich Pumping Station and Abbey Mills Pumping Station). At all other sites passive ventilation only would be provided to allow air to escape as the shafts fill. Carbon filters would be provided at all sites to control odour when air discharges

air pollution (including dust and odour) during construction these are included in the CoCP Part B for the work site, compliance with which is secured by site-specific requirements (eg ACTST1).

Our assessment

- 5.9 The proposed project has the potential to adversely affect air quality near the work sites and the transport routes leading to them during the construction phase. In the operational phase it is generally accepted that significant impacts on air quality would not occur. However, there is potential for some adverse odour impacts to affect the amenity of receptors near the tunnel vent sites.
- 5.10 In the construction phase the adverse effects of vehicle and plant emissions would be minimised by a series of measures contained in the CoCP Part A (APP205.01, para 7.2.1).
- 5.11 Dust emissions would similarly be controlled by best practice measures including those contained in The Control of Dust and Emissions from Construction and Demolition published by the Greater London Authority and London Councils (or the Supplementary Planning Guidance when published) (APP205.01, para 7.1.3). Critically, the CoCP requires:
- the contractor to develop an air quality management plan for each work site and to submit it to the relevant planning authority for approval before commencing work (APP205.01, para 7.1.2)
 - dust and particulate monitoring to be carried out at the work site in locations agreed with the relevant local authority (APP205.01, section 7.5).

With the measures required by the CoCP in place, the ES predicts that the effects of dust at sensitive receptors near to the proposed work sites would be no worse than minor adverse. We have no reason to conclude otherwise.

- 5.12 Whilst it is not anticipated that the construction works would give rise to any significant odour effects, the CoCP requires the potential for odours to affect sensitive receptors to be considered and controlled where connections are made to existing sewer systems (APP205.01, para 7.6.1 and 7.6.2). Where measures are required to control odour during construction these would be addressed in the air quality management plan (APP205.01, para 7.6.1).
- 5.13 Another important factor that would serve to limit emissions in the construction phase is the Applicant's commitment to transport the majority of the bulk materials required for the project by river (see chapter 14). The effect of this, and other measures to be included in the construction traffic management and travel plans for each work site, would be to limit the number of vehicles using the public

road network leading to the work sites, and hence any pollution that may result from these vehicles.

- 5.14 During the course of the examination several Interested Parties argued that the effects of dust generated by construction works on the work sites and emissions from vehicles associated with the construction of the tunnel would result in a deterioration in air quality near to the work sites or on the routes leading to them where air quality is already poor (see eg REP160 and REP269). However, the concerns put to us were generally not supported by evidence. At Deptford Church Street, the air quality data identified as being prepared (as part of a wider environmental study) by a representative of the community at the Open Floor hearing in Deptford on 5 February 2014 (REP404) was not available before the end of the examination.
- 5.15 The Applicant's position, as set out in the ES, is that greater than minor adverse effects on air quality would not occur near to the proposed work sites except at two properties at Shad Thames Pumping Station (Doc 6.2.19, para 4.5.9) and one at Bekesbourne Street (Doc 6.2.27, para 4.5.8) where moderate adverse impacts are predicted. On traffic routes leading to the sites, the ES predicts⁸⁵ no significant adverse effects would occur except at two properties close to the A2 due to construction traffic in the peak construction year (Doc 6.2.03, table 4.10.1). On the evidence before us at the close of the examination we have no reason to disagree.
- 5.16 As to the operational phase, several Interested Parties expressed concerns about the potential for unwelcome odours to affect people near the ventilation shafts, including particularly residents of nearby flats and residents living near 'active' ventilation sites. In its Local Impact Report (LIR) (REP090) the London Borough of Hammersmith and Fulham question the proposal to make Carnwath Road Riverside an active ventilation site. However, the evidence in the ES, together with that supplied subsequently during the examination (see eg APP30.05 and APP47, response to Q20.2), is that the effects of odour in the operational phase would not be significant at any location assuming the measures included in the Air Management Plan are implemented. Provided that this is the case (which would be secured by Requirement PW7) we have no reason to conclude that significant unwelcome odours would arise.

CONCLUSIONS ON AIR QUALITY

- 5.17 We conclude that, with the various safeguards proposed⁸⁶, the proposal would not lead to new breaches of national air quality

⁸⁵ In this connection it should be noted that the Transport Assessment (which informs the ES) assumes 10% of material expected to be transported by River would in fact be moved by road

⁸⁶ Including safeguards secured by the requirements and the Code of Construction Practice

limits or result in any substantial changes to air quality in the area. We further find no reason to criticise the Applicant's odour assessment and are satisfied that all reasonable steps have been taken to control any odours that could arise from constructing or operating the project.

- 5.18 Accordingly, we take the view that the Secretaries of State can be satisfied that air quality considerations (including matters related to dust and odour) are not a matter that should attract significant weight in the decision as to whether to make the DCO or not. Our conclusions in this matter are broadly mirrored by the Mayor of London who notes in his Statement of Common Ground (SoCG) with the Applicant: (i) that the adverse effects of vehicle and plant emissions would be controlled through measures specified in the CoCP; and (ii) that the measures contained in the Air Management Plan for mitigation and control of odour are satisfactory (REP358, para 3.4.1 and 3.4.2).

6 BIODIVERSITY, BIOLOGICAL ENVIRONMENT AND ECOLOGY

INTRODUCTION

- 6.1 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) seeks to avoid significant harm to biodiversity, including through mitigation and consideration of reasonable alternatives. The decision maker should attach appropriate weight to designated sites, protected species, habitats and other species important to the conservation of biodiversity. A Development Consent Order should not normally be granted where there would be an adverse effect on a Site of Special Scientific Interest (SSSI). Due consideration should be given to regional or local designations although these designations should not be used in themselves to refuse development consent. The NPS notes that many wildlife species receive statutory protection under a range of legislative provisions and states that applicants should ensure these species are protected from the adverse effects of development (NPS, section 4.5).
- 6.2 The Environmental Statement (ES) notes that the tidal Thames is visited from time to time by several species of marine mammals. It has a complex and dynamic fish community which fluctuates through the seasons as fish move between spawning, nursery and adult feeding areas. This includes a number of rare and notable fish species which are detailed in the ES. The invertebrate community of the tidal Thames is characteristic of an estuary and contains a range of protected and notable species (Doc 6.2.03, section 5).
- 6.3 The Applicant has included consideration of habitats and species of principal importance for the conservation of biodiversity in England within the ES. These are habitats and species which have been included in the list drawn up by the Secretary of State in consultation with Natural England (NE) as required by s41 of the Natural Environment and Rural Communities Act 2006. Sections 5 and 6 of volume 2 of the ES (Doc 6.2.02) present the methodology for assessment of impacts to aquatic and terrestrial ecology, which includes ascribing values to these features as receptors in accordance with the guidelines of the Chartered Institute of Ecology and Environmental Management.
- 6.4 NE identified the two main issues raised by the application as the potential disturbance of the notified interest features of the Barn Elms Wetland Centre SSSI and the potential loss of 1.2ha of intertidal mudflat along the extent of the project (RRP711). Sites subject to international nature conservation designations have been considered in chapter 16 in the habitats regulations assessment section. This chapter of the report discusses:
- Nationally designated sites

- Protected and notable species
 - Locally designated sites - aquatic
 - Locally designated sites - terrestrial
 - Opportunities for enhancement of biodiversity.
- 6.5 NE confirms that it has no issues in respect of the methodology for Environmental Impact Assessment (EIA), data collection, judgements and assumptions, identification and sensitivity of relevant features and quantification of potential impacts (APP85.21, para 3.5.1).

NATIONALLY DESIGNATED SITES

- 6.6 The proposed development at Barn Elms would be within 300m of the Barn Elms Wetland Centre SSSI, which was notified in 2002 for aggregations of non-breeding shoveler as well as for breeding bird assemblages. NE is satisfied with the survey and impact methodology for these features and considers that the project is unlikely to have a significant effect on them (APP85.21, para 3.5.5). The ES also identifies receptors at the Inner Thames Marshes SSSI and the Syon Park SSSI. No significant effects are predicted at these sites (Doc 6.2.03, section 5).

PROTECTED AND NOTABLE SPECIES

- 6.7 NE advises that the protected species which may be affected by the project are bats, (all United Kingdom (UK) species of bat are European Protected Species (EPS)), and breeding birds which are nationally protected. Although the project would affect some areas used by bats for foraging, the ES did not identify any locations where an EPS licence would be required. The Royal Borough (RB) of Kensington and Chelsea and London Borough (LB) of Wandsworth commented on the need for further information about protected species (bats) in their respective Local Impact Reports (LIRs) (REP091, para 2.2.78; REP098, para 7.2.5).
- 6.8 An updated terrestrial species ecology survey was submitted during the examination (Doc 9.10.04). This survey identified a transitory bat roost within a building that would be demolished at Cremorne Wharf Depot. However, having regard to measures included in the revised Code of Construction Practice (CoCP) Part B, NE does not consider that an EPS licence would be needed in relation to this site. Indeed, the Applicant and NE agree that there is currently no anticipated need for an EPS licence at any work site although this would need to be kept under review before any commencement and during the course of the construction phase of the proposed development (APP85.21, para 3.7.3).
- 6.9 The CoCP Part A includes measures which would protect wildlife species. A suitably qualified ecologist would prepare site-specific ecology and landscape management plans in consultation with relevant stakeholders. Site checks for notable and protected

species and updated bat roost potential surveys would be carried out immediately prior to site clearance. Any potential bird nesting habitats would be cleared outside the nesting season. NE is satisfied that the presence of a suitably qualified ecologist and awareness of bird breeding seasons would alleviate the potential issue of disturbance to breeding birds (APP85.21, para 3.5.7).

- 6.10 Further measures are included in the site-specific CoCP Part Bs. For example, at Barn Elms any lighting required near a known bat foraging and bird nesting habitat would be designed to minimise light spillage in accordance with a scheme which would be approved by the local planning authority (APP178.07, section 11).
- 6.11 The ES identifies moderate adverse effects on fish due to loss of spawning, feeding and resting habitat both during construction and operation. Minor adverse effects on fish are identified due to matters such as sediment consolidation and noise during construction. Minor adverse effects on invertebrates are identified due to temporary and permanent loss of and modification to habitat (Doc 6.2.03, section 5). Mitigation measures in relation to the aquatic environment are discussed below.

LOCALLY DESIGNATED SITES - AQUATIC

- 6.12 The foreshore sites would be located within the River Thames and Tidal Tributaries (RT&TT) Site of Interest for Nature Conservation (SINC), a site of metropolitan importance. It supports a diverse mix of habitats and is important for a range of bird and fish species. The project is designed to improve the water quality of the River Thames, thereby resulting in benefits to the ecology of the SINC. The ES assessment of the project-wide operational effect on the SINC is that there would be a moderate beneficial effect. There would also be moderate beneficial project-wide effects on fish, due to a reduction in the occurrence of low dissolved oxygen related fish mortalities, and on invertebrate density and abundance.
- 6.13 The identification and quantification of potential impacts in the ES is accepted by NE (APP85.21, para 3.5.1). The Mayor of London, in his LIR, comments that the project would result in a strategic scale positive impact on biodiversity (REP099, para 84). Some submissions question the weight to be attached to the projected improvements to water quality. These arguments are considered further in chapter 15.
- 6.14 The proposals are also assessed as having adverse impacts on aquatic habitats. The calculation of habitat loss and the assessment of significance was a concern raised by the Environment Agency (EA) in its relevant representation (RRP710). LB Hammersmith and Fulham and RB Kensington and Chelsea referred to the need for habitat compensation in relation to the

loss of aquatic habitat in their respective LIRs (REP090, section 11; REP091, para 3.2.80).

- 6.15 In response to the ExA's request (PD003, para 8.1.4, item J) the Applicant provided additional information on the estuarine habitat calculation method (Doc 9.08). This explains how the maximum permanent loss of both inter-tidal and sub-tidal habitat has been calculated to be 13,300m². The ES also takes account of habitat gain resulting from proposed inter-tidal terraces at Albert Embankment Foreshore and Dormay Street. On this basis the net loss of permanent habitat is calculated to be 1.2ha. The ES assesses this to be a moderate adverse effect because, although it would represent only 0.1% of the area of the SINC, it would be a permanent loss. Habitat compensation is therefore proposed.
- 6.16 A further area of 9,200m² of foreshore and river bed would be modified by scour protection and spill aprons. Scour protection would be provided by buried rip rap consisting of rock material of varying size. Responding to the ExA's Q2.3 (PD008), the Applicant explained that this would have both positive and negative effects on aquatic species. Greater complexity of habitat would provide refuge for small fish. At the same time, there would be a loss of spawning habitat (APP02, section 3.1). Taking account of this balance of effects the ES concludes that there would be a minor adverse effect on fish. However, this is assessed as a modification of habitat rather than an outright loss. Further detail on the approach to scour protection is given in chapter 7.
- 6.17 Temporary loss of an additional 35,205m² of inter-tidal and sub-tidal habitat would result from the construction of cofferdams. Outside the cofferdams up to 133,030m² of habitat would be subject to disturbance and consolidation by jack up barges and other river operations. The ES anticipates that these areas would undergo recovery in 1 – 5 years and notes that they would amount to less than 1% of the area of the SINC. The effect is assessed to be minor adverse. The EA is now in agreement with the Applicant in relation to the assessments of loss of habitat in the ES (APP215.03, table 3.6.1).

Mitigation of impacts during construction

- 6.18 The CoCP includes measures to control impacts on aquatic habitats during construction. These include the use of a membrane beneath temporary fill material within the cofferdams, designing campsheds to minimise environmental impacts, use of low vibration piling methods (where technically feasible), avoiding piling at night to ensure windows of no disturbance to aquatic species and removal of temporary structures on completion of the works (APP205.01, para 6.4.7 and 11.5.6).
- 6.19 Works in the river would be subject to controls by the Marine Management Organisation (MMO), the EA and the Port of London

Authority (PLA). Under the terms of the Deemed Marine Licence (DML) (Schedule 15 of the draft Development Consent Order (DCO) (APP204.02)), the MMO would approve the details of matters such as plans of the works, materials to be placed in the marine area, timings of activities and environmental mitigation measures. The EA would also approve plans and other details including ecological mitigation measures, piling method statements and any proposals for the reinstatement of the foreshore (Part 3 of Schedule 16 to the DCO).

- 6.20 The contractor's Construction Environmental Management Plan (CEMP) would be submitted for approval to both the MMO and the EA insofar as it relates to matters within their remits. Removal of temporary works would be covered under the protective provisions in favour of the PLA set out in Part 2 of Schedule 16 of the DCO.

Whether there would be unnecessary loss of aquatic habitat

- 6.21 The EA's approach to encroachment on the foreshore is explained in a note prepared at the request of the Panel (REP120). This sets out the principle that only essential infrastructure or 'water compatible use' development should occur there and that any other development, including Associated Development, should be avoided wherever possible. The EA accepts that this policy does not have any legal status but considers that it sets out appropriate guiding principles which in this case have been used successfully to guide site selection and design.
- 6.22 The Applicant had regard to this approach as the design of the proposed development evolved, both in relation to site selection and the design of individual sites. For example, one of the factors which the Applicant states led it to promote a site at Deptford Church Street, rather than a site at Borthwick Wharf, was the opportunity to avoid works in the river by selecting a land-based site. Further details on site selection are set out in chapter 17.
- 6.23 Design Principle IRVR.01 states that structures in or over the river shall be reduced in scale as far as possible (APP206.01). We consider that this design principle is appropriate, having regard to the conservation status of the RT&TT SINC. It would be secured through the terms of the DCO in that the parameter plans show the maximum extent of the proposed foreshore structures. Site-specific requirements, for example Requirement CHEEF2, would restrict the structures to within the maximum extent shown and, if the extent were to be less than the maximum, the amended alignment would have to be approved by the relevant planning authority in consultation with the EA and others.
- 6.24 The relevant representation from the EA draws attention to Chelsea Embankment Foreshore, Albert Embankment Foreshore, Victoria Embankment Foreshore and King Edward Memorial Park Foreshore. It is suggested that the proposals at these sites would

include features introduced for design or amenity reasons which would amount to unnecessary encroachment into the foreshore (RRP710, issues 9.1, 9.2, 9.3, 10.8 and 10.14)⁸⁷. These concerns were maintained throughout the examination and are recorded in the final SoCG update (APP159.09 and APP215.03, section 4). In response to the ExA's questions (PD008, Q2.14 and Q2.15) the Applicant provided additional information on these matters (APP02, sections 14 and 15).

- 6.25 These four sites are in locations which are sensitive in townscape and/or heritage terms. (These issues are explored more fully in chapters 8 and 10). At Chelsea Embankment Foreshore, the design seeks to respond to its location on the axial view known as Monument Walk, an important feature within the setting of the Grade I listed Royal Hospital Chelsea. The river wall in this locality is characterised by an unusually uncluttered appearance. The upper part of the proposed structure would be shaped to respond to the axis. On the downstream side there would be a planted inter-tidal terrace at a lower level, part of which would be needed in any event to accommodate a connection culvert to the Ranelagh combined sewer overflow (CSO). On the upstream side there would be a similar planted terrace creating a more or less symmetrical layout. This design approach is supported by RB Kensington and Chelsea⁸⁸ (APP116.10, para 3.8.10).
- 6.26 We consider that the gently curved alignment of the inter-tidal terrace would help to integrate the foreshore structure with the river wall. Compared with the minimum area required to accommodate the necessary engineering components, the proposed design approach would add around 350m² to the footprint of the foreshore structure. This would be a modest addition in a location where the formality of the townscape setting calls for a formal and symmetrical arrangement. We consider that the harm arising from the additional loss of aquatic habitat would be outweighed by the townscape and heritage benefits of the proposed design.
- 6.27 At Albert Embankment Foreshore, the proposed interception structure would link two CSOs located either side of the Grade II* listed Vauxhall Bridge. Consequently a large engineering structure would be required. The proposals would incorporate a series of flowing stepped terraces which, in our view, would help to reduce the impact of the proposed structure on the setting of the bridge. The design is supported by LB Lambeth (APP116.07, para 3.9.1).
- 6.28 We consider that the additional area of around 355m² attributable to the terraces would be acceptable, having regard to the need to

⁸⁷ Issues 9.1 and 10.14 both relate to Albert Embankment Foreshore

⁸⁸ The HBMCE is largely satisfied with the designs for the residual infrastructure at all sites, subject to specific detailed matters which are discussed in the section on historic environment (APP116.20, para 3.10.3)

respect the setting of Vauxhall Bridge. The EA also has concerns about Design Principle ALBEF.05 which states that the structure should be bedded in to the foreshore by rocks and boulders (RRP710, issue 10.14). However, we regard ALBEF.05 as an integral part of a satisfactory overall design approach to this site.

- 6.29 The foreshore structure at Victoria Embankment Foreshore would be attached to the Grade II listed embankment wall which is within the Whitehall Conservation Area. After extensive stakeholder involvement, the design solution promoted in the DCO has a loosely symmetrical orthogonal layout which seeks to respond to the linear character of the river wall and other projections found in this locality. The design approach is supported by the City of Westminster (APP116.09, para 3.8.1).
- 6.30 The circular plan form of the drop shaft would be squared off to achieve an orthogonal layout. The proposed layout would add around 180m² to the footprint of the structure over and above the minimum required for the engineering structures. We consider that this small additional area would be justified and indeed necessary in order to protect the setting of the listed embankment wall and the character and appearance of the Whitehall Conservation Area.
- 6.31 The EA objects to Design Principle KEMPF.08 which requires any areas overhanging the river at King Edward Memorial Park Foreshore to be protected by fenders for the safety of boat users (RRP710, issue 10.8). The illustrative landscape plan⁸⁹ shows that there would be areas of public realm over the river outside the line of the proposed river wall. The EA considers that this would amount to unnecessary loss of habitat due to shading of the foreshore. The proposed layout, including the overhanging areas, would add about 290m² to the footprint of the foreshore structure.
- 6.32 King Edward Memorial Park Foreshore is partially located within a park. The impact of the foreshore structure on the landscape character of the park is a controversial matter which is discussed in more detail in chapter 8. We consider that the additional area would allow for a better integration of the foreshore structure with the layout for the park than could be achieved if the area of the foreshore structure were kept to an absolute minimum. In particular, the realigned Thames Path would follow a curved route around the new foreshore structure. This would reduce what we consider to be the adverse effect of the structure on the landscape character of the park.
- 6.33 In conclusion, whilst the circumstances of the four locations are different, in each case the additional areas of foreshore taken up would be relatively modest. Our overall assessment is that any resulting loss of aquatic habitat would be outweighed by the need

⁸⁹ DCO-PP-24X-KEMPF-250009 – Rev1

to achieve appropriate design solutions in these sensitive locations.

Mitigation for permanent loss of aquatic habitat

- 6.34 The NPS states that applicants should include appropriate mitigation measures as an integral part of the proposed development. The decision maker should consider what requirements should be attached to any consent, and/or planning obligations entered into, to ensure that mitigation measures are delivered, taking account of what measures may have been agreed with those who may need to grant any relevant licences (NPS, para 4.5.17 to 4.5.19).
- 6.35 The ES acknowledges that mitigation would be required in respect of the permanent loss of 1.2ha of aquatic habitat (Doc 6.2.03, para 5.8.9). However, other than the proposed creation of an inter-tidal terrace at Dormay Street, specific mitigation measures had not been identified at that stage. In response to the ExA's question (PD008, Q2.13) the Applicant advised that a Habitat Compensation Working Group (HCWG) had been established representing a range of stakeholders. The group was tasked with developing appropriate mitigation measures (APP02, para 9.1.2). By the close of the examination the mitigation proposals comprised:
- an inter-tidal terrace at Dormay Street
 - removal of a weir at the mouth of the river Wandle
 - incorporating fish refuges in the design of foreshore structures
 - a programme of ecological awareness raising.
- 6.36 The River Thames is important to various species of migratory fish which are reliant on the tidal currents to make their way up the river. Small fry cannot swim against the stronger currents and need to find areas to take refuge when the tide is adverse.
- 6.37 In answer to the ExA's Q2.12 (PD008) the Applicant states that the area of the inter-tidal terrace at Dormay Street would be 104m² and that, although relatively small, it would have high value to fish and invertebrate receptors. This is because it would have a full tidal regime, closely linked to the main river but sheltered from the strong tidal currents found there. LB Wandsworth's LIR states that the terrace would provide a valuable habitat leading to a positive overall effect on biodiversity at this location (REPO98, para 6.2.7).
- 6.38 The terrace is shown on the indicative site features plan⁹⁰. Requirement DRMST5 secures submission of details of the river wall and inter-tidal terrace for the approval of the local planning

⁹⁰ DCO-PP-08X-DRMST-100008

authority in consultation with the EA. These details would include a monitoring and maintenance plan.

- 6.39 A half tide weir was built at the mouth of the River Wandle in the 1980s as part of an unsuccessful development project. Contaminated silt has accumulated behind the weir. The proposal is to remove the contaminated silt and then to demolish the weir, allowing a natural river regime to re-establish within around 1ha of tidal tributary (APP161, figure 3.1 and section 4). The Applicant has entered into a s106 Agreement with LB Wandsworth which would provide funding together with a mechanism for developing and delivering this project (APP149).
- 6.40 The EA is a member of the HCWG. In response to the ExA's information request (PD031, para R51.3b) the EA drew our attention to the conclusions of that group regarding the proposed removal of the weir. The EA and the HCWG agree that remediating the habitat upstream of the weir would provide suitable juvenile habitat for flounder and smelt. Removal of the weir would also allow other fish species to access the River Wandle at all states of tide and would be beneficial to invertebrate species. The HCWG considers that the value of the improved habitat would be greater than that of the 1.2ha of habitat that would be lost as a result of the proposed development (REP440).
- 6.41 NE is also a member of the HCWG. It is satisfied with the approach to be adopted regarding biodiversity compensation and remains committed to providing ongoing advice through the HCWG mechanism (APP85.21, para 3.5.8 and 3.12.3).
- 6.42 The weir removal project is at an early stage and the ExA therefore sought further information on risks to delivery arising from potential technical difficulties, cost, ownership constraints or regulatory issues (PD031, para R51.3c). Following the responses to that request, Thamesbank submitted that the mitigation would be insufficient and that there is no certainty of delivery. Thamesbank is also concerned that the mitigation proposals were developed without public involvement and only emerged at a late stage in the examination (REP497)⁹¹.
- 6.43 The Applicant states that the weir removal project was identified by the EA as a priority before the submission of the application. It is a project which is described in the All London Green Grid Framework and the areas of risk have been investigated during initial feasibility studies for the various habitat compensation options. Relevant land interests are known and include LB Wandsworth, the EA and the PLA (APP161, section 5.1).

⁹¹ The s106 was published on 17 February 2014 and there was opportunity to respond and make comments before the close of the examination on 12 March 2014

- 6.44 LB Wandsworth states that the project has been developed over many years with the collaboration of the EA and the PLA. Whilst acknowledging the cost risk, the Council considers that there is a high degree of confidence that the project can be achieved (REP448). The EA sets out the various regulatory consents that would be needed. These are likely to involve the EA itself, the MMO, the PLA and LB Wandsworth. The EA is satisfied that the associated environmental risk posed by the proposal can be adequately managed (REP440).
- 6.45 Although the weir removal project is at an early stage there is evidence of strong stakeholder support for it. Based on the degree of confidence expressed by LB Wandsworth and the active support of NE, PLA and EA we consider that there is a good prospect that it would be delivered through the contributions and mechanisms set out in the Agreement. Consequently our view is that significant weight should be attached to it, although a degree of risk must be acknowledged.
- 6.46 If delivered with the outcomes anticipated, the weir removal project would provide appropriate mitigation for the permanent loss of aquatic habitat resulting from the proposed development. Whilst the total area of restored habitat would be less than the habitat lost, we have had regard to the conclusion of HCWG that the value of the improved habitat would be greater than that of the habitat lost because it would be within a tidal tributary which would be of particular value to aquatic species.
- 6.47 In the event that the project cannot be implemented, the s106 Agreement makes provision for an alternative scheme of habitat compensation to come forward within LB Wandsworth. Failing that, a Replacement Compensation Scheme Panel would be established. This Replacement Compensation Scheme Panel would consider applications made by others for funding for appropriate habitat compensation schemes within other Boroughs affected by the proposed development. Whilst we note these arrangements, we attach little weight to them because there is no evidence regarding the nature or ecological value of any such alternative schemes.
- 6.48 The HCWG considers that the design of the foreshore structures could provide refuges for juvenile fish, thereby facilitating fish migration. This is reflected in Design Principle IRVR.01 which states that such features, either integral to or adjacent to the foreshore structures, shall be included where practical (APP161, 4.1.11). We note that further work is in progress on this matter. However, at this stage there is in our view insufficient evidence of the potential benefits for significant weight to be attached to this measure. The proposed programme of ecological awareness raising is also at an early stage and we attach little weight to it.

LOCALLY DESIGNATED SITES - TERRESTRIAL

6.49 The impacts on locally designated sites are described in the site-specific volumes of the ES. The identification and quantification of potential impacts set out in the ES is accepted by NE (APP85.21, para 3.5.1). The measures set out in the CoCP Part A, referred to above in relation to protected species, would apply in respect of wildlife, whether or not protected, at all sites. The proposed development would be located within, or partly within, SINC designations at King George's Park, Falconbrook Pumping Station, Deptford Church Street and Beckton Sewage Treatment Works. This section of the report will comment on those sites and also SINC designations referred to in the LIR from LB Hammersmith and Fulham (REP090).

Sites in LB Wandsworth

6.50 King George's Park is a SINC of borough-wide importance. The ES notes that approximately 21 trees together with amenity grassland and shrubs would be removed. Design Principles KNGGP.13, 14 and 15 refer to ecological matters including using planting to promote colonisation by invertebrates and carrying out advance planting prior to site clearance (APP206.01).

6.51 Falconbrook Pumping Station is within the York Gardens SINC. The Design Principles for this site include FALPS.08, 09, 14 and 15 covering matters such as advance planting, use of deciduous trees and provision of bat boxes. The ES does not identify any significant adverse effects at either SINC (Doc 6.2.06, section 6 and Doc 6.2.11, section 6). LB Wandsworth has agreed the principles of the advance planting proposals at both sites (APP116.06, para 3.1.1).

Deptford Church Street

6.52 Deptford Church Street is within the St Paul's Churchyard and Crossfield Street Open Space SINC⁹². A significant proportion of the SINC would be occupied by construction activities resulting in the removal of 45 semi-mature trees, scrub and grassland. The Sue Godfrey Nature Reserve, located about 30m to the north, is also a SINC. The ES states that, having regard to the proposed reinstatement of the space and habitat creation, there would be no significant effect on the integrity of the SINC. Moreover, there would be no significant effect on the Sue Godfrey Nature Reserve (Doc 6.2.23, section 6).

6.53 LB Lewisham, in its LIR, draws attention to the ecological value of the open space, noting the presence of the locally scarce fiddle dock plant species. It also comments that loss of the space during construction would place additional recreational pressure on other

⁹² The space is referred to as Crossfield Amenity Green elsewhere in the report

public spaces, particularly the Sue Godfrey Nature Reserve (REP093, para 8.2.10 to 8.2.15). This issue is recorded as unresolved in the Council's note of 23 January 2014⁹³ although at that time a s106 Agreement was under discussion. Design Principles DEPCS.08 and 09 deal with the installation of bird boxes and the re-landscaping of the open space with a species-rich grassland mix which would include the fiddle dock plant species (APP206.01).

- 6.54 The Council subsequently entered into a s106 Agreement with the Applicant which includes various provisions related to the Crossfield Amenity Green (APP119.13). The Agreement, which is discussed further in chapter 11, seeks to address community and heritage impacts as well as biodiversity issues. At this point it is sufficient to note that the Agreement would provide funding for the Council to involve the local community and other stakeholders in drawing up proposals for the redesign of the open space and for the implementation of those proposals. It would also provide funding for additional maintenance of other spaces nearby which are likely to be used more intensively if the Crossfield Amenity Green were unavailable during the construction period.
- 6.55 We consider that the funding and delivery arrangements in the Agreement would enable those responsible to take full account of biodiversity as part of the design process. We also consider that the contribution to maintenance of other spaces would be appropriate mitigation for the additional pressures on those areas during construction.

Beckton Sewage Treatment Works

- 6.56 At Beckton Sewage Treatment Works the work site would be partially within the Beckton Lands South SINC. However, the Planning Statement notes that the habitat for which the SINC was designated no longer exists. The Greenway and Old Ford Nature Reserve SINC runs through the treatment works and part of the site falls within it. No significant adverse effects are predicted (Doc 7.01, appendix Y.5.31).

Carnwath Road Riverside

- 6.57 LB Hammersmith and Fulham, in its LIR, draws attention to open spaces in the locality of Carnwath Road Riverside which are designated as SINC which it considers are likely to be areas used for bat foraging (REP090, para 11.10). However, there is no evidence that these areas are sufficiently close to the proposed work site to be significantly affected. The ES notes that during construction there may be some temporary impact on bat foraging

⁹³ The note is attached as appendix B to the unsigned SoCG between the Applicant and LB Lewisham (APP116.13)

and commuting, particularly along the river. It assesses the significance of this effect as negligible.

Enhancements to terrestrial habitats

- 6.58 The proposed development would incorporate a number of features designed to enhance terrestrial habitats. Design Principle FNCC.09 states that buildings and kiosks will generally have brown roofs. Brown roofs are shown on several of the indicative drawings for these structures at various locations. Several of the site-specific Design Principles refer to the provision of bat and/or bird nesting boxes, ACTST.08 and KEMPF.10 being typical examples. At Earl Pumping Station, EARPS.04 states that there should be a planted brown roof above the shaft (APP206.01). The delivery of these features would be secured through site-specific requirements for the approval of details of items such as above-ground structures and landscaping.

CONCLUSIONS ON BIODIVERSITY, BIOLOGICAL ENVIRONMENT AND ECOLOGY

- 6.59 We conclude that the proposed development is unlikely to result in significant harm to any nationally designated site or to any protected species. Further, the CoCP Part A includes measures to identify and control any impacts on protected species that may emerge before construction starts or during the construction period.
- 6.60 With regard to locally designated sites, there would be effects on both aquatic and terrestrial ecology. The aim of the proposed development is to improve water quality which would be beneficial to the RT&TT SINC. However, in the construction phase there would be the potential for a wide range of impacts on the aquatic environment due to works in or adjacent to the river. These potential impacts would be controlled through the CoCP, the DML and the protective provisions in favour of the EA and the PLA. Taken together, we consider that this would provide a comprehensive set of controls which would adequately manage and protect the aquatic environment.
- 6.61 At some sites the permanent loss of aquatic habitat would be greater than the minimum required purely to accommodate the engineering structures. However, in all cases we consider that any additional harm to aquatic habitats would be outweighed by the need to achieve acceptable design solutions in sensitive locations. Design and heritage matters are discussed further in chapters 8 and 11.
- 6.62 The permanent loss of around 1.2ha of aquatic habitat would be an adverse effect at a project-wide level. A proposed inter-tidal terrace at Dormay Street would provide a valuable ecological resource although it would be small scale. The removal of a weir at

the River Wandle is provided for in a s106 Agreement between the Applicant and LB Wandsworth. Whilst we note that there are risks to delivery, for the reasons given above we consider that there is a good prospect that this habitat compensation would be delivered and we attach significant weight to it. In our view this project would provide appropriate compensatory habitat.

- 6.63 In the event that the Secretaries of State do not feel able to attach weight to this compensation, it must be borne in mind that the RT&TT SINC is not an international or national designation. The NPS states that regional or local designations should be given due consideration but should not be used in themselves to refuse development consent.
- 6.64 Turning to terrestrial habitats, although there would be development within and in the vicinity of various SINC, no significant adverse effects have been identified in the ES. We have seen no evidence that would cause us to disagree with that assessment.
- 6.65 Reference has been made to s106 Agreements with LB Wandsworth and LB Lewisham. Insofar as the obligations within those Agreements relate to the matters covered in this section of the report, we consider that the obligations are reasonable, necessary and generally in accordance with the guidance set out in the NPS.
- 6.66 Our overall conclusion is that the construction of the proposed development would avoid significant harm to biodiversity in accordance with the NPS. In our view the Applicant has set out the likely effects on nationally and locally designated sites and has taken the opportunity to conserve and enhance biodiversity. Mitigation measures would be an integral part of the proposed development and would be appropriately secured through the DCO, related documentation and s106 Agreements.
- 6.67 During operation, there would be a beneficial effect on the RT&TT SINC. There would also be beneficial project-wide effects on fish and on invertebrate density and abundance.

7 COASTAL/RIVER CHANGE

INTRODUCTION

- 7.1 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) guidance on coastal change applies to infrastructure projects situated on rivers where, as in this case, the infrastructure may affect estuarine processes. The NPS states that the Applicant should undertake modelling to predict and understand impacts and that the Environmental Statement (ES) should include an assessment of coastal processes. The decision maker should ensure that applicants have restoration plans for areas of foreshore disturbed by works and will undertake monitoring with defined triggers for intervention and restoration. Applicants should propose appropriate mitigation in consultation with the Marine Management Organisation (MMO), the Environment Agency (EA) and the local planning authority (NPS, section 4.6).
- 7.2 The construction of cofferdams, jetties and the permanent foreshore structures would result in changes to river flow velocity which in turn would cause some areas of the riverbed to be reduced in level (scour) whilst elsewhere suspended material would be deposited (accretion). The ES refers to local scour, which would result directly from individual structures and would be close to them, and contraction scour which would occur across most of the channel bed as a result of channel narrowing.

PREDICTED EFFECTS

- 7.3 Scour and accretion have the potential to affect navigational safety, flood defences, transport infrastructure, habitats and archaeological sites. In the construction phase, the ES assesses the effect of changes to inter-tidal and sub-tidal habitat due to scour and accretion as minor adverse. With the permanent structures in place, impacts on scour and accretion are predicted to be negligible (Doc 6.2.03, section 5). The scour protection works would themselves have environmental effects due to modification of aquatic habitats. This issue is discussed further in chapter 6.
- 7.4 Information on predicted scour and accretion is provided in the Interpretative Scour Report (Doc 6.2.03, appendix L.3). In response to the ExA's information request (PD003, appendix E, item 8.1.4k) the Applicant also submitted Detailed Scour Assessment reports prepared by HR Wallingford for each of the work sites (eg Doc 9.09.06). Predicted local scour depths are given for each of the foreshore sites - for example 2.5m at Putney Embankment Foreshore, 2.8m at Chelsea Embankment Foreshore and 1.1m at Albert Embankment Foreshore.

- 7.5 Contraction scour depth would be greatest at Blackfriars Bridge Foreshore and King Edward Memorial Park Foreshore where 0.5m is predicted. At other sites contraction scour is predicted to be less than 0.1m. The detailed assessments contain further information on the numerical modelling undertaken, changes in river velocities and consideration of transport infrastructure such as the road and rail bridges at Blackfriars and the Rotherhithe Tunnel.

MITIGATION

- 7.6 The Applicant's initial approach to mitigation was contained in the Scour Monitoring and Mitigation Strategy (Doc 6.2.03, appendix L.4). This document was updated during the examination and ultimately became part of the Four Way Legal Agreement (4WLA) referred to below. The Applicant's intention is to carry out a series of surveys of the river bed in advance of construction and then to undertake monitoring at agreed points during the works. During construction scour protection works would only be carried out if agreed trigger values were exceeded.
- 7.7 Permanent scour protection would be likely to comprise rip rap (boulders) which would be buried below the level of the river bed. Scour protection would be constructed around the foreshore structures and at points where combined sewer overflows (CSOs) discharge into the river⁹⁴. Whilst the detailed design of the scour protection would be the responsibility of the contractors, the ES sets out the suggested width of scour protection at each site - for example 5m at Putney Embankment Foreshore (Doc 6.2.03, appendix L.3, table 6-2). All such works would be within the maximum extent of the permanent works as defined on the parameter plans.
- 7.8 Works in the river are normally subject to controls by the MMO, the EA and the Port of London Authority (PLA) under their respective statutory regimes. The draft Development Consent Order (DCO) would replace those controls with a Deemed Marine Licence (DML) and protective provisions in favour of the EA and PLA. Both the EA and the PLA raised concerns about the Applicant's initial approach to scour and accretion in their relevant representations (RRP710, issues 4.1 to 4.5, RRP1079, item (d)). The City of Westminster also raised concerns about dredging, scour and hydraulic effects associated with the relocation of the vessel Tattershall Castle at Victoria Embankment Foreshore (APP116.09, para 3.5.4).
- 7.9 The Applicant, PLA, EA and MMO completed the 4WLA on 3 March 2014 (APP183). The 4WLA includes a co-operation protocol whereby the Parties agree to collaborate and co-operate in the achievement of their respective statutory duties. The Applicant

⁹⁴ Whilst the object of the proposed development is to control CSO discharges, there would still be occasional discharges which would have the potential to cause scour

would submit a project-wide work programme at regular intervals and would establish a Strategic Working Group. The Applicant would also submit an overall Scour and Accretion Monitoring and Mitigation Strategy for the approval of the other three Parties. The general form of the Strategy, which is set out in appendix 3 to the 4WLA, would cover the approach to further modelling, monitoring arrangements, the development of trigger levels and the design of works in the river.

- 7.10 Individual Scour and Accretion Monitoring and Mitigation Plans would then be submitted, for the approval of MMO, PLA and EA, for each work site. These plans would specify trigger levels which, if exceeded, would trigger remedial action. In addition, plans and other details of works in the river would be submitted for the approval of MMO, PLA and EA in accordance with the DML and protective provisions. This would include approving details of the permanent scour protection works. After completion of the proposed development, the 4WLA would enable the PLA to recover from the Applicant the costs of any additional works needed to remove any accretion or make good any scour attributable to the development. This arrangement would last for six years⁹⁵.
- 7.11 The MMO states that all outstanding matters between it and the Applicant have now been resolved (APP159.06). The EA also confirms that agreement has been reached regarding its previous concerns in respect of scour and accretion (APP159.09, table 3.6.4). Finally, the PLA confirms that, having reached agreement with the Applicant, its representation objecting to the application is withdrawn (REP470).
- 7.12 The ExA explored whether the 'monitor and manage' approach proposed during construction would be appropriate for the permanent works, given the need to minimise modification of aquatic habitat (PD008, Q3.2). The Applicant's response explained that, during construction, contractors would have plant and materials on standby to deal quickly with the occurrence of scour. It would not be practical to maintain these resources once construction is complete. The Applicant considers that permanent scour protection would be necessary to protect the new river walls and to reduce navigational risks resulting from accretion in the authorised channel (APP03, section 2). The parameter plans allow for scour protection at the relevant sites.

HOUSEBOAT COMMUNITIES

- 7.13 Tower Bridge Yacht and Boat Company, and others, commented on the vulnerability of the ground anchors and chain moorings at Downings Roads Moorings near Chambers Wharf (RRP1096). At the Open Floor (OF) hearing of 23 November 2013 Mark Hale

⁹⁵ The 4WLA allows for the period to be extended if the need arises

expressed concern about the effects of dredging at the proposed Kirtling Street jetty on houseboats at Nine Elms Pier. Similar concerns were expressed at subsequent hearings. Responding to the ExA's questions (PD017, Q22.2 and Q22.3), the Applicant stated that neither scour nor accretion was likely at either location. Regular surveys would be carried out and, if accretion were to affect the moorings, dredging would be undertaken. This could involve moving houseboats for a short period of time. Berths would be reinstated. This mitigation would be secured by the DML and protective provisions referred to above (APP49, sections 2 and 3).

CONCLUSIONS ON COASTAL/RIVER CHANGE

- 7.14 The Applicant has carried out modelling to predict and understand the effects of the proposed development on estuarine processes. During construction, mitigation would comprise a programme of surveys and monitoring with intervention envisaged only in the event that defined trigger levels were exceeded. There would be permanent scour protection around the completed foreshore structures and at CSO discharge points. We consider that this dual approach has been explained and justified.
- 7.15 Although the detailed design of the scour protection would be the responsibility of the contractors, the general extent of the protection works has been explored and assessed within the ES. The mitigation proposals have been developed during the course of the examination through discussions between the Applicant, MMO, EA and PLA. These discussions resolved the outstanding concerns of those Parties and culminated in the 4WLA.
- 7.16 We attach significant weight to the agreements reached with the river regulators and we consider that the DML and protective provisions would provide appropriate controls in relation to works in the river. These controls would address the concerns raised on behalf of houseboat communities and by the City of Westminster. We conclude that the Applicant has brought forward satisfactory mitigation measures which would include monitoring arrangements and trigger levels for remedial action in accordance with the requirements of the NPS. These measures would be adequately secured through the 4WLA and the DCO as a whole.

8 DESIGN, LANDSCAPE AND VISUAL IMPACT

INTRODUCTION

- 8.1 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) states that good design is about ensuring attractive, useable, durable and adaptable places. The decision maker is to be satisfied that the project would be sustainable, attractive, durable and adaptable, having regard to both aesthetics and functionality⁹⁶. There may be opportunities to demonstrate good design in terms of siting relative to existing character, landform and vegetation. The Applicant should set out the main alternatives considered and the decision maker should bear in mind operational, safety and security requirements (NPS, para 3.5).
- 8.2 The NPS also states that the Environmental Statement (ES) should include landscape and visual assessment, taking account of any existing character assessments and related local policies. In this context the term 'landscape' includes 'townscape'. The assessment should include visibility and conspicuousness during construction, the presence and operation of the project and potential impacts on views and visual amenity. Any light pollution effects should be considered. The decision maker should consider whether the project has been carefully designed to minimise harm to the landscape, including by reasonable mitigation. The decision maker should judge whether visual effects on sensitive receptors, such as residents or visitors to the local area, outweigh the benefits of the development. Within a defined site adverse landscape and visual effects may be minimised through appropriate siting, design and landscaping schemes (NPS, section 4.7).
- 8.3 Design is a cross-cutting theme which touches on many aspects of the examination, including historic environment, open spaces and socio-economic effects. Our conclusions in this section of the report have taken account of our findings on these other matters.

THE APPLICANT'S APPROACH TO DELIVERING GOOD DESIGN

- 8.4 The Applicant's approach is described in the Design and Access Statement (DAS) (Doc 7.04) which states that the design has been developed by an integrated team including architects, landscape architects, town planners and engineers. The team sought to engage with the directly affected local authorities and with organisations such as the Historic Buildings and Monuments Commission for England (HBMCE) and the Environment Agency

⁹⁶ This also fulfils the duty under s10 of the Planning Act 2008 (as amended) (PA 2008)

(EA). Independent review of the emerging designs was provided by Design Council CABE (CABE)⁹⁷ (Doc 7.04, section 4).

- 8.5 For each of the work sites, the DAS sets out the site-specific design opportunities and constraints that influenced the design. The process of design evolution and alternatives considered are then described. For example, at Putney Embankment Foreshore an early version of the design proposed a terraced foreshore structure and realigned public slipway. The terracing was subsequently removed to minimise encroachment into the river, a temporary slipway was proposed and the degree of change to the existing public slipway was reduced. CABE recommended a simple orthogonal geometry for the foreshore structure and also suggested that the profile of the interception chamber beneath Putney Bridge should be kept as low as possible to preserve views of the arch. That advice is now reflected in the proposed design. Features such as the curved outer corners of the foreshore structure and the use of timber cladding for the end elevations were added in response to subsequent rounds of consultation (Doc 7.04, section 9).
- 8.6 The NPS notes that it may not be possible at the time of an application for development consent for all aspects of the proposal to have been settled in precise detail (NPS, para 3.2.6). The DAS states that the design process is not yet complete and that design development would continue after the grant of development consent. The contractors would retain the ability to select methodologies, plant and equipment based on their expertise (Doc 7.04, para 4.2.16). The application seeks to achieve an appropriate balance between certainty and flexibility in order to ensure that the final proposals reflect what has been discussed and agreed with consultees and assessed in the ES. It is proposed that this balance would be secured by the use of illustrative and indicative plans, site-specific requirements for approval of details and by the design principles.
- 8.7 In relation to the proposed permanent works there are four types of plan:
- for approval - demolition and site clearance plans and site works parameter plans
 - for approval in part - these are typically survey drawings of heritage assets, submitted for information, with the maximum extent of loss of historic fabric shown for approval
 - indicative - these indicate and commit to the way in which part of the development would be arranged. Details such as materials and planting schedules would remain to be determined. The final details would be approved by the local planning authority. Typical examples are some of the

⁹⁷ CABE merged with the Design Council on 1 April 2011. Although it is no longer a statutory consultee in its new form, the Applicant chose to treat it as such for the purpose of pre-application engagement

landscape plans and some of the design intent drawings for structures such as ventilation columns, electrical/control kiosks and river walls

- illustrative - these indicate one way the development could be arranged but do not commit to so doing. Most of the sections and elevations and all of the construction site layouts are illustrative.

- 8.8 Most of the local planning authorities who contributed to the examination were satisfied with the level of detail provided in the application. However, London Borough (LB) of Hammersmith and Fulham had doubts about the clarity of the approach and LB Richmond upon Thames questioned the value of the indicative/illustrative distinction (APP116.03, table 4.1, item 8 and APP116.05, table 4.1, item 9). The Examining authority (ExA) asked the Applicant to review the relationship between the indicative plans and the site-specific requirements (PD008, Q6.82). We are satisfied that these now operate in a consistent manner. For example, Requirement PUTEF4 states that details of the river wall at this site, which are to be approved by the local planning authority, are to accord with the indicative typical river wall design intent plan for this site.
- 8.9 LB Southwark commented that the indicative plans for Shad Thames Pumping Station showed insufficient detail for a site within a conservation area (REP095, para 5.8.11). However, Requirement SHTPS2 states that details, which shall be in accordance with the indicative plan, are to be approved by the local planning authority. We consider that this addresses the Council's concern on this point.
- 8.10 The design principles (APP206.01) seek to establish fixed guidelines for the design of the permanent above-ground elements. They include both generic principles, covering topics such as heritage, landscape and in-river structures, and site-specific matters. In the version of the draft Development Consent Order (DCO) (Doc 3.1) submitted with the application, the design principles were to be secured by Requirement PW7. The Panel questioned that approach on the basis that some design principles are not sufficiently precise to be the subject of requirements.
- 8.11 The Applicant subsequently concluded that a project-wide requirement was not necessary. The Design Principles Route Map shows how the design principles would be secured, in most cases by site-specific requirements (APP106.02). Returning to the example referred to above, Requirement PUTEF4 states that the river wall details shall accord with the design principles for this site. Design Principle PUTEF.19, which deals with the use of natural stone and timber fenders on the face of the river wall, would therefore be secured.

- 8.12 Many Parties stressed the importance of the design principles which reflect matters discussed and agreed during the pre-application stages. By the close of the examination most were satisfied with the revised approach. However, City of Westminster maintained its view that the former PW7 should have been retained or, alternatively, an equivalent site-specific requirement for Victoria Embankment Foreshore should have been introduced (APP116.09, para 3.8.13). In our view the site-specific requirements at Victoria Embankment Foreshore, as they are now drafted, would adequately secure the relevant design principles at this site. Consequently, there is no need for an equivalent site-specific requirement as suggested by City of Westminster.
- 8.13 In assessing the degree of certainty offered by the application documents it is important to bear in mind that the parameter plans are for approval. These would define the location and height of the above-ground structures. Moreover, in the case of the foreshore sites, the maximum extent of the river wall would be defined⁹⁸. This provides a high degree of certainty regarding the extent and shape of the foreshore structures - a matter which we consider to be important to the visual impact of the proposed development. We conclude that, taken together, the parameter plans, indicative and illustrative drawings, design principles and requirements would strike the right balance between certainty and flexibility and now provide a satisfactory basis on which to assess the visual impact of the proposed development.

VISUAL IMPACTS DURING CONSTRUCTION

- 8.14 The visual impacts during construction and operation were assessed in relation to townscape, residential receptors and other sensitive receptors as required by the NPS. As no landscape character assessments had been prepared by others, a townscape character assessment was prepared for the application. This took account of relevant designations such as conservation areas and open spaces. Residential and recreational receptors were regarded as being of high sensitivity (Doc 6.2.02, table 11.3.1 and para 11.4.30).
- 8.15 During construction there would be visual impacts from plant, vehicles, stockpiles of materials and hoardings or security barriers at all sites. At the foreshore sites there would be temporary cofferdams. At the main tunnel drive sites there would be substantial noise enclosures. Lighting would be required and this would be needed all night at sites with 24 hour operations. During the examination higher hoardings were proposed at some sites in order to mitigate noise impacts. These would add to the visual impact of the works. Sites with high hoardings would include Carnwath Road Riverside, Chambers Wharf and King Edward

⁹⁸ DCO-PP-05X-PUTEF-080008-Rev 1 is an example

Memorial Park Foreshore. At Chambers Wharf there would also be a slurry plant.

- 8.16 The ES identifies significant adverse impacts on townscape and/or visual receptors at all but one of the work sites⁹⁹. The townscape impacts include both moderate and major adverse effects on character areas which encompass conservation areas, parks and open spaces. (Impacts on heritage assets are discussed in chapter 10). The visual impacts also include both moderate and major adverse effects. Several of the sites are close to significant numbers of residential properties, including multi-storey flats. Recreational receptors would include users of public open spaces, sports fields and the Thames Path. The impacts at each work site are reported in section 11 of the site-specific volumes of the ES (Doc 6.2.04 to 6.2.26).
- 8.17 Some work sites would fall within protected views identified in the Mayor of London's View Management Framework. The ES does not identify any significant effects in respect of these views. The View Management Framework is discussed further below in relation to the permanent works.
- 8.18 In most cases the ES assessments are not disputed by other Parties. LB Southwark agrees with the assessments and comments that views along the riverfront in the locality of Chambers Wharf are distinctive and characterful. The impact of hoardings and the proposed noise enclosure on the view towards Tower Bridge from the Thames Path is emphasised. LB Southwark argues that these significant visual impacts must be fully taken into account when assessing the cumulative effect of the proposed development on local residents.
- 8.19 By way of mitigation, LB Southwark considers that all hoardings and temporary site structures should be submitted for approval¹⁰⁰ and that s106 funding for landscaping and tree planting in the vicinity of the site should be provided (REP095, section 3.12). LB Southwark's comment regarding views along the riverfront is well illustrated by the photomontage submitted by the Applicant in response to the ExA's Q32.7 (APP59.07.01, figure 3).
- 8.20 LB Lewisham emphasises the visual impact of works at Deptford Church Street on users of the Crossfield Amenity Green, including people passing through the space to reach St Joseph's Roman Catholic Primary School, St Paul's Church and Deptford High Street. It is pointed out that the works would result in the loss of all trees from the site and that it would be several years before any replacements would reach a comparable size. At Earl Pumping Station, LB Lewisham comments on the importance of protecting

⁹⁹ The exception is Beckton Sewage Treatment Works which is a large operational Thames Water site

¹⁰⁰ A similar point is made by LB Hammersmith and Fulham (SOCG, table 4.3 item 80)

mature street trees in Croft Street (REP093, para 8.2.18 and 8.1.34).

- 8.21 LB Tower Hamlets does not agree with the ES assessment of the impact of works at King Edward Memorial Park Foreshore on the River Thames East London Reach townscape character area. It regards the sensitivity of this receptor as high and consequently argues that the impact should be regarded as major adverse, rather than moderate adverse as stated in the ES (REP096, para 5.9.3.1). In response, the Applicant states that it has applied its professional judgement to arrive at what it considers to be a robust conclusion on this matter (APP30.11, table 1.2).
- 8.22 The ES sensitivity criteria include the degree of value attributed to the townscape and its tranquillity (Doc 6.2.02, para 11.4.19). The baseline assessment notes that this reach of the river is regionally valued but ascribes only a moderate level of tranquillity (Doc 6.2.21, para 11.5.9 to 11.5.12). Given that the ES accepts that this part of the river is not currently intensively used, it seems reasonable to regard it as having a high level of tranquillity, as LB Tower Hamlets suggests. On this basis, we agree with the Council that the ES understates the impact of the construction works on the River Thames East London Reach townscape character area.

Mitigation measures

- 8.23 At Acton Storm Tanks, Falconbrook Pumping Station and King George's Park tree planting would be carried out in advance of the commencement of works. These measures, which are detailed in the respective site-specific design principles, would provide some screening at these sites during the works and would also form part of the permanent landscape framework. The Applicant confirms that works have already been carried out, or are about to be carried out, at two of the three sites (APP106.02).
- 8.24 The use of good quality hoardings of appropriate height is another means of mitigating visual impacts during construction. The Code of Construction Practice (CoCP) Part A sets out general principles for the design of hoardings which are to be appropriate to the character of the surrounding townscape. Features that may be incorporated at individual sites include art work or a full cover of climbing plants (APP205.01, para 4.3.4).
- 8.25 The height of hoardings is set out for each site in the CoCP Part B and in some cases there are further stipulations. For example, at Deptford Church Street some of the hoardings would be planted and some would incorporate art work. At some sites, including Carnwath Road Riverside, Chambers Wharf and King Edward Memorial Park Foreshore, the CoCP Part B states that the external appearance of the hoardings should be approved by the local planning authority.

- 8.26 The CoCP Part A also refers to site lighting, requiring the contractors to submit a lighting management plan for each site to the employer for approval. This would have regard to occupied residential properties, the security of those using the public realm and sensitive ecological receptors. With regard to trees, the CoCP Part A states that tree protection measures would be included in the ecology and landscape management plan (APP205.01, sections 4.6 and 11.6).

Conclusions on visual impacts during construction

- 8.27 The ES reports that the proposed development would have widespread significant adverse visual impacts during construction. This is not disputed by other Parties. Further information in the Local Impact Reports (LIRs) referred to above provides some useful local detail and reinforces this broad conclusion. Having regard to the considerations set out in the NPS, we consider that most of the work sites would be highly visible and highly conspicuous due to their locations along the Thames riverfront, in or near public spaces or close to well populated residential areas. The impacts would affect sensitive receptors, including residents and visitors.
- 8.28 The design principles and the CoCP include measures which would offer some beneficial mitigation. The mitigation measures are not generally controversial and we are not aware of suggestions for additional measures other than those referred to above. Turning to the specific points raised in the LIRs, the CoCP has been amended such that the relevant planning authority would approve the external appearance of the hoardings at some sites. Planning obligations in favour of LB Southwark seek to provide mitigation for a range of community impacts. This matter is discussed further in chapter 13. Protection of the trees at Croft Street, referred to by LB Lewisham, would be covered by the terms of the CoCP Part A.
- 8.29 Having regard to all the above factors, we consider that the Applicant has sought to minimise visual impacts during construction as required by the NPS. Even so, the scale and nature of the works would be such that the mitigation measures could only partially mitigate the visual impacts. This is not a controversial finding in that the ES makes clear that there would be significant residual effects.
- 8.30 The effects would be temporary. It also seems inevitable that the construction of a major infrastructure project such as this, in a mature urban environment, would have temporary visual effects of this order (NPS, para 1.4.4). Nevertheless, the nature and extent of the temporary visual impacts, and the sensitivity of the receptors affected, must be fully acknowledged and weighed in the balance against the benefits of the proposed development, as required by the NPS.

DESIGN OF THE PERMANENT ABOVE-GROUND WORKS

- 8.31 The NPS requires consideration of the presence and operation of the project and potential impacts on views and amenity. The visual impacts associated with the operation of the proposed development would be limited and this part of the report will concentrate on the presence of the permanent above-ground works.
- 8.32 The response of consultees to the design of the permanent above-ground works is broadly supportive. The relevant local authorities express support for the proposed designs at Acton Storm Tanks, Albert Embankment Foreshore and Victoria Embankment Foreshore¹⁰¹. CABE welcomes the overarching design vision and the common approach to street level features, such as ventilation columns, commenting that the proposals would create a legacy of valuable new public spaces providing enriched access to and views of the River Thames (REP463). HBMCE is largely satisfied with the proposed designs, subject to some points of detail (APP116.20, para 3.11.1).
- 8.33 The ES identifies negligible or beneficial effects on townscape at all sites except Chelsea Embankment Foreshore. Other than as indicated below, these assessments are not challenged. The impacts at each work site are reported in section 11 of the site-specific volumes of the ES (Doc 6.2.04 to 6.2.26). This section of the report will comment in more detail on Chelsea Embankment Foreshore, on two sites which fall within views identified in the Mayor of London's View Management Framework (Victoria Embankment Foreshore and Blackfriars Bridge Foreshore) and on three sites within public spaces where concerns have been identified in the respective LIRs (King George's Park, Deptford Church Street and King Edward Memorial Park Foreshore). Some parties have criticisms of the design at Putney Embankment Foreshore. That site is discussed in chapter 10.

Chelsea Embankment Foreshore

- 8.34 The site includes an area of foreshore opposite the Bull Ring Gate of the Royal Hospital Chelsea (RHC) South Grounds and sections of the highway and footways at Chelsea Embankment. The DAS identifies that there is an opportunity to open up views between the RHC and the river and to reinstate a link which was lost when the embankment was constructed. The DAS notes that the site is sensitive due to the important heritage assets which surround it and because townscape views of the uninterrupted embankment wall must be protected (Doc 7.04, section 15).
- 8.35 The upper part of the proposed structure would be aligned with the axis formed by Monument Walk and its shape seeks to respond

¹⁰¹ APP116.02, para 3.8.1; APP116.07, para 3.9.2 and APP116.09, para 3.8.1

to the oval shape of the Bull Ring. On the downstream side there would be planted inter-tidal terraces, which would accommodate a connection culvert to the Ranelagh combined sewer overflow (CSO). On the upstream side there would be a similar planted terrace creating a more or less symmetrical layout.

- 8.36 The ES assesses the effect on the River Thames - Royal Hospital and Battersea Park Reach townscape character area as moderate adverse due to the creation of the new foreshore structure projecting into an uncluttered stretch of river. This effect is illustrated by the photomontage at viewpoint 2.2 (Doc 6.2.13, para 11.6.36 and figure 11.6.1). The moderate adverse effects would be experienced by users of the public realm within the townscape character area and by recreational users of Chelsea Bridge. No significant adverse effects on residential receptors are identified.
- 8.37 The Royal Borough (RB) of Kensington and Chelsea's LIR drew attention to the highly prominent location and the continuous nature of the embankment wall. Concern was also expressed regarding the effect of the ventilation columns on the view from Monument Walk (REP091, section 3.2). HBMCE commented that the riverscape is of high significance and that the foreshore structure could not avoid disrupting the tranquil linearity of the river wall (WRR069, para 5.17).
- 8.38 In response to the ExA's Q5.17 (PD008) the Applicant stated that the design principles would be revised to ensure that the ventilation column would not impinge on the view from Monument Walk. Further discussions continued during the examination, culminating in amendments to the design principles and a revised illustrative design¹⁰². Design Principle CHEEF.03 now states that the foreshore structure and the Bull Ring shall be visually conceived as one space and that a sense of enclosure will be created by formalised planting.
- 8.39 Design Principle CHEEF.06 now states that the ventilation columns and control kiosks would be located beyond the width of Monument Walk to maintain clear views. The SoCG between the Applicant and RB Kensington and Chelsea states that the revised illustrative drawing is agreed and that the revised design principles are largely agreed (APP116.10 para 3.8.16 and APP159.10). CABE supports the axial location of the foreshore structure and the concept of introducing an element of formal planting (REP463).
- 8.40 We agree that there would be a significant adverse impact on this sensitive landscape, for the reasons set out above. Although the design for Chelsea Embankment Foreshore is illustrative, we consider that the design intentions set out in the DAS, and refined

¹⁰² The revised illustrative design is at appendix B to APP116.10

during the examination, are likely to be achieved. They would be secured by the design principles and the ability of the local planning authority to approve detailed plans under the requirements in the DCO. From the illustrative material provided, and from what we saw at the site during our site inspections, we consider that the proposed terraces would be effective in helping to integrate the foreshore structure into the river wall. In our view the Applicant has minimised the adverse effect through appropriate siting and design. Nevertheless, an adverse effect would remain which must be taken into account.

Victoria Embankment Foreshore

- 8.41 The site includes an area of foreshore and part of the carriageway and footway of Victoria Embankment. A vessel, the Tattershall Castle, is permanently moored within the site. The DAS notes that the site presents an opportunity to create a new high quality public space enabling views of the river, the Palace of Westminster and the South Bank. The site constraints include its location within designated and protected views, the Grade II listed Victoria Embankment Wall and the presence nearby of other important heritage assets (Doc 7.04, section 19). The effects of the proposals on heritage assets, including the proposed relocation of the Tattershall Castle, are discussed in chapter 11.
- 8.42 The DAS states that the design objective is to create a simple and elegant public space of fitting stature for the monumental context of the site. The design seeks to frame views and to create a visual link between Embankment Gardens and the River Thames. The central viewing platform would be raised to the level of the flood defences. The terraces would step down towards the river and the lowest terrace would flood a few times a year on the highest tides. The terraces are designed to reference other projections such as Whitehall Stairs. The plans for Victoria Embankment Foreshore are indicative (Doc 7.04, section 19).
- 8.43 The ES assesses the effect of introducing the new structure projecting into the river corridor as minor adverse in relation to townscape character areas along both sides of the River Thames (Doc 6.2.17, section 11). Whilst that assessment is not disputed, the design is generally supported by others. The ExA asked for additional evidence about how the design would articulate the scale and mass of the foreshore structure (PD008, Q5.21). In response, HBMCE commented that the proposed layout and variation in levels would break up the structure into three loosely symmetrical parts. HBMCE considers that the design would provide the best level of integration possible (WRR069). The City of Westminster comments that it would be an appropriate response to the strong linear character of the riverfront (REP089). CABE welcomes the strong civic statement the design would make and considers the orthogonal plan to be well judged (REP463).

- 8.44 The site lies within a river prospect view identified within the View Management Framework. The LIR from the Mayor of London confirms that the proposals for Victoria Embankment Foreshore and Blackfriars Bridge Foreshore would comply with the View Management Framework and that any adverse effects would be minimised by the Applicant's commitment to high quality design and the requirements (REP099).
- 8.45 The City of Westminster's LIR raised some concerns about the height and design of the proposed kiosks and the height of the ventilation columns (REP089). The Applicant subsequently reviewed the height parameter for the kiosk which was reduced to 4m and a new design principle was introduced reflecting further discussions with the City of Westminster (APP206.01, VCTEF.17). In response to the ExA's Q27.12 (PD008) the City of Westminster confirmed that these changes resolved its concerns.
- 8.46 We conclude that the design for this site is generally supported by other Parties and see no reason to disagree with those assessments.

Blackfriars Bridge Foreshore

- 8.47 The DAS notes that the design seeks to contribute to the setting of the embankment and Blackfriars Bridge and to create a world-class area of public realm in which to relax and enjoy the views. The main constraint is the diverging levels of the riverside walkway, pedestrian underpass and Blackfriars westbound off-ramp. The design includes a linear promenade linking a new public square to the riverside walkway. A terraced garden would step down from the off-ramp to the square. The square would contain a water feature and an amenity kiosk which could also contain a commercial use. At the western end of the foreshore structure there would be a raised riverfront platform from which people could take in expansive views of the River Thames (Doc 7.04, section 19).
- 8.48 The ES identifies minor adverse effects on townscape resulting from the introduction of a new area of public realm projecting into the river. Minor adverse visual effects on recreational receptors are also identified in relation to views from the south bank of the river. A minor beneficial effect is assessed in relation to the Whitefriars Conservation Area townscape character area due to the removal of existing structures that detract from the setting of the area (Doc 6.2.18, table 11.10.3).
- 8.49 Noting the extended linear form of the proposed structure, the ExA asked for additional information about how the design would create architectural rhythm and visual interest (PD008, Q5.23). The Applicant explains that the design seeks not to complicate, clutter or compete with the existing rhythm of the embankment and the backdrop of listed buildings. A low key treatment of the

new river wall is proposed. A number of steps and terraces, expressed as horizontal planes in elevation, would provide architectural rhythm and visual interest. Seen at close quarters, well-crafted detailing and decorative patterning would provide additional visual interest (APP05, section 23).

- 8.50 CABE considers this to be a simple, functional and elegant design solution (REP463). As noted above, the Mayor of London is satisfied that the proposals accord with the View Management Framework (REP099). Nevertheless, both the City of London Corporation (City of London) and HBMCE expressed some concerns. Responding to the ExA's questions, City of London confirmed that the general shape and levels were accepted and that its concerns related to details such as landscaping and the design of the kiosk (REP101). HBMCE accepted the general size and shape of the structure and was also concerned about detailed design matters (WRR069, para 5.48).
- 8.51 Following further discussion, the amenity kiosk design intent drawing¹⁰³, which was shown as indicative in the application documents, was amended to being illustrative. The SoCG between the Applicant and City of London sets out the matters which remain to be resolved. However, City of London does not object to the concept design and accepts that detailed matters can be agreed through requirements (APP116.08, para 3.8.2).
- 8.52 We note that there is a comprehensive set of design principles for this site and that City of London would have the ability to approve detailed designs. Consequently, we consider that there is a good prospect that the agreed concept design would be delivered.

King George's Park

- 8.53 The landscape plan for this site is indicative. The site is at the northern end of King George's Park and comprises grassland, public footpaths and scattered trees. The DAS states that the main driver for the design is to improve the public open space. Other objectives include forming a new main entrance, making a better link to Wandsworth High Street, and creating a multifunctional public space which would act as a transition between the street and the park (Doc 7.04, section 11). The ES assesses the effect on the townscape of the park as minor beneficial, rising to moderate beneficial after 15 years when new planting is fully established (Doc 6.2.09, table 11.10.3). CABE welcomes the new main entrance and supports the design (REP463).
- 8.54 LB Wandsworth's LIR objects to one aspect of the design - the proposed re-contouring of an area adjacent to the north-west boundary in order to provide flood water storage (REP098). In answer to the ExA's Q5.9 (PD008), LB Wandsworth explains that

¹⁰³ DCO-PP-17X-BLAF-190036 Rev 1

its concern is based on the loss of mature trees in an attractive and well used part of the park, making the area less attractive for informal recreation (REP106). This objection remains unresolved. The Applicant comments that, although seven trees would be removed, having regard to the proposed planting there would be a net gain in the number of trees within the park (APP05, para 11.4.2 and 11.4.3). This matter was also explored orally at the Compulsory Acquisition (CA) hearing on 5 and 6 December 2013 (HEA060 - HEA067).

- 8.55 The ExA also sought information about the multifunctional public space (PD008, Q5.14). The Applicant commented that the space would provide an informal play and meeting area at the entrance to the park, integrated with north/south pedestrian routes. The raised level would afford views over the ornamental lake (APP05, para 14.2.3 and 14.2.4).
- 8.56 Whilst we note that there would be a loss of trees, the area in question is in a peripheral location, partially occupied by an existing entrance which is to be replaced. Moreover, the re-contouring would be relatively shallow, being a maximum of 700mm as confirmed by Design Principle KNGGP.12. Having regard to the overall net increase in planting and the ability of the local planning authority to approve final details of new tree planting under Requirement KNGGP6, we consider that the proposals would not result in material harm to the landscape character of the park.

King Edward Memorial Park Foreshore

- 8.57 The design objectives for King Edward Memorial Park Foreshore seek to create a new area of public realm for sitting and informal recreation, from which to enjoy river views. The space is intended to integrate with the park and extend it into the river and to improve pedestrian access by creating a legible east/west route (Doc 7.04, section 23). The plans for King Edward Memorial Park Foreshore are illustrative. The Applicant and LB Tower Hamlets have entered a Deed of Agreement¹⁰⁴ which would provide funding for LB Tower Hamlets to prepare a landscape masterplan for the park together with additional funding for implementation of the masterplan. A concept masterplan is attached to the Deed of Agreement (APP119.15).
- 8.58 The ES states that the design would have a moderate beneficial effect on the townscape of the site and a minor beneficial effect on adjoining townscape character areas. Minor beneficial effects on visual impacts for residential receptors are also identified (Doc 6.2.21, table 11.10.3). The conclusions of the ES are disputed by LB Tower Hamlets in its LIR which comments that the riverfront is

¹⁰⁴ This is an agreement to enter a s106 Agreement following the grant of a DCO

already well covered with trees and that the proposed planting would not amount to an enhancement. It is also argued that the ventilation columns could not be regarded as an enhancement (REP096, section 5.9.4.1).

- 8.59 Representations from SaveKEMP, Free Trade Wharf Management Company Ltd and several other parties also disagree that the proposals would have a beneficial effect. They argue that numerous mature trees would be lost, opportunities for planting on the foreshore structure would be limited, the structure would appear as an artificial promontory and the combined effect of the ventilation columns, control kiosk and access route would be harmful to the character of the park (RRP1090, RRP1028).
- 8.60 These matters were explored in written and oral questions. The Applicant argues that the proposals would widen the Thames Path, provide a new river wall and railings, remove a park maintenance compound and improve sports provision. The Applicant also argues that the layout would allow greater visual interaction between park users and the river frontage and that large trees would be planted along the line of the river wall, resulting in a net increase in the number of trees and an enhancement to the park (APP05, sections 29 and 30).
- 8.61 We note that the plans are illustrative at this stage. Even so, we consider that they provide a reasonable basis on which to judge impacts because the scale and location of the foreshore structure would be defined by the parameter plan. Moreover, the nature of the structure would reflect the functional components described in the DAS. It can be seen from the illustrative landscape plan¹⁰⁵ that the foreshore structure would be characterised by being relatively open, with hard surfaces and raised planters. Some grass surfaces would be reinforced to enable access by service vehicles and sufficient space would need to be kept available for the cranes, plant and other equipment needed during maintenance operations¹⁰⁶. Although some tree planting is shown on the plan, the Applicant accepted that it would be difficult to plant trees in this location¹⁰⁷.
- 8.62 In our view the foreshore structure would stand in stark contrast to the more sheltered and verdant character of the park. It would be likely to detract from the townscape. Whilst new tree planting within the park could introduce some larger specimens, in terms of townscape character this would essentially restore the character that currently exists and mitigate the impact of new structures such as ventilation columns and the control kiosk. Similarly, the

¹⁰⁵ DCO-PP-24X-KEMPF-250009-Rev1

¹⁰⁶ DCO-SQ-24X-KEMPF-350020

¹⁰⁷ Mr Stride, in answer to questions from the Panel on day 4 of the first IS hearing on the rationale for site selection and drive strategy

current layout already allows visual interaction with the riverfront. The scheme would merely re-provide this in a different form.

- 8.63 We take account of the Deed of Agreement which would enable LB Tower Hamlets to develop and implement landscaping works along the lines suggested in the concept masterplan. There is no reason to think that the proposed access route could not be designed in a way which would be appropriate to the character of the park. Even so, the new landscape works would do no more than compensate for the harm arising from the proposed development and we agree with the Council that the overall effect would be negligible rather than beneficial. Consequently, we attach little weight to the suggested benefits in the overall balance of issues. Ventilation columns are discussed further below.

Deptford Church Street

- 8.64 The site comprises the Crossfield Amenity Green¹⁰⁸. The DAS states that the objective is to create a pleasant area of well-designed open space that would be well used by the community. The design should also respond to the history of the site, specifically St Paul's Church and St Joseph's Roman Catholic Primary School, and should enhance pedestrian routes. The proposals are illustrative and two options are described (Doc 7.04, section 25). The ES assesses the effects on townscape, and on residential and recreational viewpoints, as minor beneficial in year one rising to moderate beneficial in year 15 (Doc 6.2.23, section 11).
- 8.65 LB Lewisham's LIR comments that the site falls within a view corridor defined in the View Management Framework but the permanent above-ground structures are unlikely to have a negative impact. The Council does not consider that the illustrative plans meet its aspirations for the area. The Council's preference is for a scheme to be worked up in consultation with the community and then implemented with funding provided by way of a s106 Agreement. LB Lewisham also comments that the ventilation columns should be limited to 6m in height (REP093, para 8.2.18 to 8.2.27). The importance of community involvement was also emphasised by the representative community group Don't Dump on Deptford Heart in both written and oral submissions.
- 8.66 The Applicant and LB Lewisham have entered into a s106 Agreement whereby the Council would establish a steering group, involving local community groups, to develop a landscaping masterplan for Crossfield Amenity Green and the adjoining public realm. The Agreement would provide funding for the preparation and implementation of the masterplan.

¹⁰⁸ As referred to in the LIR. Referred to as Crossfield Open Space in the DAS

- 8.67 We have no reason to doubt that this process would result in an appropriate design coming forward in due course. However, at this stage there is no commitment to any particular design approach and therefore only limited weight can be attached to the potential townscape enhancement which may be achieved.

Ventilation columns

- 8.68 Other than the proposed river walls, the ventilation columns would generally be the most noticeable element of the permanent works. The DAS explains that the signature ventilation column designs are intended to create a distinctive expression of the project to be used on several sites. The design is intended to evoke patterns of flowing water moving in gentle spirals down the column. Signature columns would be around 5.5m tall. This is above the minimum 4m required for air handling and is intended to generate a more elegant proportion¹⁰⁹ (Doc 7.04, section 5.4).
- 8.69 The design is welcomed by CABE as part of a common approach to street level features (REP463). The concept of a signature design has not generally been controversial although HBMCE and some local planning authorities have questioned the height of columns in particular locations¹¹⁰. Some parties argue that the signature design would not be appropriate at King Edward Memorial Park Foreshore.
- 8.70 In the application documents the designs of the ventilation columns were for approval and the height parameters were in most cases 4 - 8m. The ExA asked whether the design intentions for the columns could be achieved with this wide range of heights (PDO08, Q5.3). The Applicant submitted drawings of the proportions that would result from various heights and concluded that the upper height parameter should be reduced to 6m at most sites (APP05.02.01). The designs are now indicative rather than for approval.
- 8.71 Whilst welcoming this change, HBMCE argues that the height parameters should be further reduced to 5.5m at Putney Embankment Foreshore, Chelsea Embankment Foreshore, Albert Embankment Foreshore, Victoria Embankment Foreshore and Blackfriars Bridge Foreshore and 6.0m at Deptford Church Street. In each case this is 0.5m lower than the limit proposed by the Applicant. The Applicant wishes to retain some design flexibility and points out that the site-specific requirements would now allow local planning authorities to approve the final details. Requirement CHEEF7, which states that details shall be in accordance with the

¹⁰⁹ As the cross sectional area is fixed by the air management strategy varying the height results in different proportions for the columns

¹¹⁰ City of Westminster in respect of Victoria Embankment Foreshore, RB Kensington and Chelsea in respect of Chelsea Embankment Foreshore and LB Lewisham in respect of Deptford Church Street

indicative plans subject to an upper limit of 6m, is a typical example.

- 8.72 We note that the six locations at issue have an open setting, on the riverfront or within a public open space. Determining the final height of these columns would be a matter of fine design judgement. Our view is that these decisions would best be made at a local level in the knowledge of other aspects of the design of the permanent works. We see no need to impose more detailed controls than those set out in the DCO.
- 8.73 With regard to King Edward Memorial Park Foreshore, SaveKEMP states that the signature ventilation column design has evoked a strong response from park users. The modernist design is said to have no place in a distinctly Edwardian park. Inclusion of such structures would be *'tantamount to vandalism for local people'* (WRR084, page 20). Old Sun Wharf Freehold Management Limited does not welcome the concept of linking the surface sites by a common design. It does not see the park as part of the project, rather as *'a local park with a unique character which would be eroded by the proposed ventilation shafts'* (WRR047, para 30). Similar points are made by Free Trade Wharf Management Company Ltd (WRR040).
- 8.74 We note that the concept of the signature design as a means of providing a link between the sites is supported by HBMCE (WRR069, para 5.640) and by CABE (REP463). We also take account of the Applicant's comment that the columns would add additional sculptural features which, in their view, would not be out of place in a park that has developed since the 1920s (APP31.04, para 6.4.14). However, we agree with SaveKEMP that the park has local distinctiveness which is attributable to its Edwardian layout and design. At King Edward Memorial Park Foreshore we consider that this local context should be paramount when considering the detailed design of the columns. In this particular location we see this as a more important consideration than the objective of linking the surface sites by a common design.
- 8.75 Requirement KEMPF4 states that the design of the ventilation column shall accord with the indicative type C signature design. We consider that this degree of prescription is not justified. It would be preferable for the final design to be approved by the local planning authority, having regard to the local context, without any prerequisite to adopt a thematic approach. Accordingly, we recommend an appropriate amendment to the draft DCO to accomplish this.

Lighting

- 8.76 The NPS states that any light pollution effects should be considered. The DAS notes that, in general, no new operational lighting would be provided. Lighting design principles apply to sites

where new public realm would be accessible at night. The general approach to lighting at each site is considered in the relevant sections of the DAS and the photomontages in the ES include night-time views at sensitive locations. At such sites details of operational lighting would be approved by the local planning authority (Requirement VCTEF21 is an example). The Applicant's approach to these matters has not been disputed. We consider that potential light pollution has been considered in accordance with the NPS and that suitable requirements have been suggested.

FUNCTIONAL DESIGN

- 8.77 The NPS requires consideration of the functionality of the design and its fitness for purpose (NPS, para 3.5.2).
- 8.78 In response to the ExA's Q5.5 (PD008), the Applicant explained how technical issues that had been highlighted in the Thames Tideway Strategic Study (Doc 8.1.5) had been resolved (APP05). These issues included:
- *Management of depositions of sediment and screenings in the tunnel:* The Applicant confirmed that the normal cycle of filling, storage and emptying would be sufficient to keep materials in the tunnel progressively moving down the tunnel to Beckton Sewage Treatment Works (STW). Materials collected in the tunnel would be managed at the screens and pumps of the Tideway Pumping Station and handled at Beckton STW. Odour from any isolated deposits of material would be managed by the daily exchange of air in the tunnel to ensure that there would be no odour nuisance (APP5, section 5.2).
 - *The pump regime for the high flow, high lift and unscreened flows:* The Applicant confirmed that the Tideway Pumping Station is currently under construction as part of the Lee Tunnel project. The pumping station includes a grit sump, coarse bar screens and mechanical scrapers to clean the screens. The pumps are purpose-built for waste water and capable of pumping sewage including solids, grit and rag. They are currently undergoing testing for hydraulic and solids handling (APP5, section 5.5).
 - *The risk of choking in the tunnel:* The Applicant confirmed that this risk had been addressed by the design of the angle of connection between connection tunnels and by limiting velocities in the connections to the main tunnel (APP5, section 5.3).
- 8.79 We do not have evidence before us to show that the proposed pump regime would meet the design capacity. However we note that the pumps for lifting the sewage at Tideway Pumping Station will be tested and commissioned as part of the Lee Tunnel project. As the Lee Tunnel is due for completion in December 2015, the pumps will be proven and in use before the proposed development

would be commissioned. We are satisfied by the Applicant's technical explanation on the other functional design points.

- 8.80 As required by the NPS, we also questioned the Applicant on operational safety in terms of how safe access would be ensured for maintenance. The Applicant confirmed that *'safe access, protection of personnel, the public and the physical works were important considerations in the design of the project'* (APP5, section 5.8). The Applicant confirmed that the design of access facilities at each main tunnel or combined sewer overflow (CSO) drop shaft includes sufficient space to lower an inspection vehicle, man-riders and equipment to the bottom of the shaft. Personnel working in the main tunnel would be double protected from inflows by locking down penstocks and other planned operational control of the network.
- 8.81 We note that the design of the tunnel ensures that there would be a maximum distance of 4.5km to a primary egress location so that it would be possible to evacuate any injured person from within the tunnel to the ground surface within 90 minutes (APP31.01, para 5.4.30). Although this time period is not a statutory standard, we are satisfied that the Applicant has considered operational safety in the design.
- 8.82 With regard to the functionality (including fitness for purpose) of the design, we are satisfied that the Applicant has considered and addressed operational and safety matters. We are not able to report with certainty on the high flow, high lift, coarse screened pumps which would lift the flows from the tunnel, as these were still in the manufacturer's testing phase at the time of the examination. However, the Lee Tunnel is due to be complete in December 2015. Therefore we expect that the pumping regime will have been tested, and any problems rectified, before this proposed development would be commissioned.

CONCLUSIONS ON DESIGN, LANDSCAPE AND VISUAL IMPACT

- 8.83 The NPS recognises that it may not be possible for all aspects of a proposed development to have been settled in detail. In this case we consider that the parameter plans, indicative and illustrative drawings and design principles would strike the right balance between certainty and flexibility. The design detail would be appropriately controlled by requirements in accordance with paragraph 3.2.8 of the NPS.
- 8.84 During construction, the proposed development would have widespread significant adverse effects. Most of the work sites would be highly visible and many of them would be in sensitive locations. Although the Applicant has sought to minimise visual impacts through mitigation measures, because of the scale and

nature of the works we consider that such measures could only partially mitigate the adverse effects.

- 8.85 With regard to the permanent works, the Applicant has described the approach to securing good design, including the main alternatives considered at a site-specific level. The DAS demonstrates how an understanding of the townscape context has guided the evolution of the designs at each site. The design of the permanent above-ground works has attracted support from HBMCE and CABE. In our view examples such as Putney Embankment Foreshore and Chelsea Embankment Foreshore illustrate how the Applicant has demonstrated good design in terms of siting relative to existing townscape character and vegetation, in accordance with paragraph 3.5.3 of the NPS.
- 8.86 For those sites where there are indicative designs we consider that the proposed development would contribute to making attractive, useable, durable and adaptable places in accordance with the NPS. Where the designs are still illustrative the design principles, requirements and s106 Agreements would provide a good basis for bringing forward appropriate designs in due course.
- 8.87 The ES contains a landscape and visual assessment, including visibility and conspicuousness during construction, the effect of the permanent works and potential impacts on views and visual amenity. In respect of the permanent works, significant adverse effects are identified at one site, Chelsea Embankment Foreshore. In that case, for the reasons given above, we are satisfied that the adverse townscape effects would be minimised through appropriate siting, design and landscaping in accordance with the guidance in paragraph 4.7.17 of the NPS.
- 8.88 The decision maker will have to judge whether the visual effects outweigh the benefits of the development (NPS, para 4.7.14). At Chelsea Embankment Foreshore, the adverse visual effects would be experienced by users of the public realm rather than residential receptors.
- 8.89 Elsewhere, the ES assesses the townscape and visual impacts of the permanent works as negligible or beneficial. Those assessments have not generally been disputed and in most cases we see no reason to disagree. However, we consider that the ES overstates the benefits at two sites, Deptford Church Street and King Edward Memorial Park Foreshore.
- 8.90 In conclusion, the proposed development would have widespread significant adverse visual effects during construction. We consider that the proposed mitigation measures could only partially mitigate these adverse effects. The extent of the temporary visual impacts on sensitive receptors, including residents or visitors to the local area, must be acknowledged and weighed against the benefits of the proposed development, as required by the NPS.

8.91 In respect of the permanent works, our assessment is that the achievement of good design would minimise adverse effects and result in some beneficial effects. In our view the Applicant has considered the functionality of the design and has addressed operational and safety matters. On balance, design, landscape and visual impact in relation to the permanent works are not matters that should attract significant weight in the decision whether or not to make the Order.

9 FLOOD RISK AND CLIMATE CHANGE

INTRODUCTION

- 9.1 We are advised in the National Planning Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) that the aims of planning policy on development and flood risk are to ensure that flood risk from all sources of flooding is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new development is exceptionally necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and, where possible, by reducing flood risk overall (NPS, para 4.4.3). The following paragraph goes on to state that all projects (of 1 hectare or greater) located in Flood Zone 1 and all projects located in Flood Zones 2 and 3 in England should be accompanied by a flood risk assessment (FRA) (NPS, para 4.4.4).
- 9.2 NPS paragraph 4.4.10 advises that the decision maker should be satisfied that, *'where relevant:*
- *the application is supported by an appropriate FRA;*
 - *the Sequential Test has been applied as part of the site selection;*
 - *the proposal is in line with any relevant national and local flood risk management strategy¹¹¹*
 - *a sequential approach has been applied at the site level to minimise risk by directing the most vulnerable uses to areas of lowest flood risk;*
 - *priority has been given to the use of sustainable drainage systems (SuDS), and the requirements set out in the next paragraph on National Standards¹¹² have been met; and*
 - *in flood risk areas, the project is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed over the lifetime of the development.'*
- 9.3 NPS paragraph 4.4.13 also advises that the decision maker should not consent development:
- in Flood Zone 2 unless it is satisfied that the Sequential Test requirements have been met
 - in Flood Zone 3a unless it is for sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place)

¹¹¹ As provided for in the Flood and Water Management Act 2010

¹¹² The National Standards published by Ministers under paragraph 5(1) of schedule 3 to the Flood and Water Management Act 2010. The National Standards set out requirements for the design, construction, operations and maintenance of SuDS

- in Flood Zone 3b unless it is satisfied that the Sequential and Exception Test requirements have been met.
- 9.4 We are also advised in paragraph 4.4.18 that arrangements are required to manage surface water drainage, and in paragraph 4.4.23, that where waste water infrastructure has to be located in a flood risk area, the infrastructure should *'be designed to be resilient to the effects of flooding (eg adequate measures to control pollution and manage sewage during flooding events are in place).'*'
- 9.5 We are also advised in the NPS that because new infrastructure will typically be a long term investment, which will need to remain operational over many decades, the applicant must consider the impacts of climate change when planning the location, design, build, operation and, where appropriate, decommissioning of new waste water infrastructure (NPS, para 3.6.6).
- 9.6 The decision maker should be satisfied that the proposals have taken into account the potential impacts of climate change using the latest United Kingdom (UK) Climate Projections available at the time the Environmental Statement (ES) was prepared and have identified appropriate mitigation or adaptation measures (NPS, para 3.6.8). The decision maker should be satisfied that there are not critical features of the design which may be seriously affected by more radical changes to the climate beyond that projected in the latest set of UK climate projections. Also, that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime (NPS, para 3.6.10).

ISSUES, QUESTIONS AND RESPONSES RAISED DURING THE EXAMINATION

- 9.7 Only a few Interested Parties raised queries on matters of flooding and climate change. At the outset of the examination we asked for a Statement of Common Ground (SoCG)¹¹³ between the Applicant and the Environment Agency (EA) to address, amongst other things, the matter of flood risk including the effect on settlement on flood defences, and resilience to climate change. However, there were still some matters that we specifically raised in the Examining authority's (ExA's) written questions in relation to the NPS tests.

Flooding

- 9.8 The application includes a flood risk assessment for each site (Doc 6.2.04 to 6.2.27) with a project-wide effects assessment (Doc 6.2.03). Most sites would be located in Flood Zones 3a or 3b and the Applicant's consideration of both the Sequential Test and the Exception Test is presented in the ES (Doc 6.2.03, section 15).

¹¹³ PD003, Rule 6 letter dated 25 July 2103, annex E

- 9.9 The Applicant came to an early agreement with the EA on most matters related to flooding. There were, however, a number of issues that required clarification.
- 9.10 The EA in its relevant representation (RRP710) questioned the need for a project-wide risk assessment that took into account effects along the tunnel route. We also noted that appendix M2 of the ES identified significant impacts along the section of the tunnel under Limehouse Cut (an asset of the Canal and River Trust). These did not appear to have been included within the impact assessment.
- 9.11 In the ExA's Q7.1 to 7.3, we asked the Applicant to provide a project-wide FRA which considered the flood defence structure as an integrated system, to report on the impacts on the assets of the Canal and River Trust and to provide mitigation proposals. In answer to the EA's relevant representation and our questions, the Applicant provided the Flood Defence Assets Interpretive Report (FDAIR) (Doc 9.17) and assessment reports on the Canal and River Trust's assets (APP07.02.02 and APP07.02.03).
- 9.12 We asked the EA to comment on the adequacy of the FDAIR and to advise us of any outstanding matters (Q26.1). The EA confirmed that it was satisfied that the FDAIR adequately addresses its concerns (REP234).
- 9.13 The Canal and River Trust also agreed the terms of a formal Asset Protection Agreement with the Applicant before the end of the examination. This Agreement is not before us; however the Trust did formally withdraw its representations (REP467), and we have a signed SoCG which confirms that *'there are no outstanding matters between the parties and they are working together to document their agreement'* (APP116.22, para 4.1.1).
- 9.14 Other matters which were of concern to the EA during the examination were:
- sustainable drainage and site drainage principles
 - flood defence access at the Barn Elms site during construction.
- 9.15 The EA's concern on sustainable drainage and site drainage principles related to the reference in the design principles to the National Standards for sustainable drainage systems (SuDS), which currently *'does not have status as policy and has to date only been issued as a draft for comment'* (APP215.03, table 3.6.5). This was resolved by an amendment to design principle SDNR.01 to clarify the issue.
- 9.16 The Applicant had agreed to provide the EA with signed heads of terms with LB Wandsworth concerning provision of access for the EA to carry out scheduled and unscheduled maintenance to the flood defences at Barn Elms. These are referred to in the SoCG

between the EA and the Applicant (APP215.03, table 3.6.7). The heads of terms are not before us, but we have no reason to expect that there would be any issue with this matter.

- 9.17 These matters were satisfactorily resolved between the Applicant and the EA and, shortly before the close of the examination, an agreed SoCG was submitted that covered all matters with regard to flooding (APP215.03).

Climate Change

- 9.18 The application included a statement on the proposed development's Resilience to Change from climate change (UKCP09 projections) and population growth (Doc 7.23). The report concludes that there would be *'feasible adaptations to the LTI¹¹⁴ that could be implemented in a timely and incremental way. These include: further incremental STW¹¹⁵ improvements which could be undertaken to treat projected additional flow; integration with possible flood alleviation tunnels; and catchment scale implementation of Sustainable Drainage Systems (SuDS) or green infrastructure. SuDS is not a feasible response to deal with current or future CSO¹¹⁶ discharges. SuDS could, however, augment the CSO control achieved by the project and partially mitigate against climate change'* (Doc 7.23, para 1.1.11).
- 9.19 We received few representations specifically regarding climate change (eg REP152). The ones that we did receive were focused on the use of SuDS as an alternative to the proposed development rather than the ability of the proposed infrastructure to address climate change issues (eg WRR096). As stated in chapter 3, the use of alternative solutions to a tunnel is outside the framework of this examination.
- 9.20 However, we wanted to ensure that the design of the proposed development would be resilient to the latest UK climate projections (ExA's R54.1) and the Infrastructure Carbon Review in 2013 (ExA's Q26.2). We are satisfied with the answers the Applicant gave to our questions (APP53, answer to Q26.2 and APP164, answer to R54.1).
- 9.21 The SoCG concluded by the EA and the Applicant (which covered all matters with regard to climate change) states that *'water quality modelling has adequately considered the parameters likely to be affected by climate change: rainfall intensity and patterns, freshwater flow, air and water temperatures, solar radiation, sea levels, as determined by UKCP09 products. Coupled with this, the best estimates of population growth provided by the Greater London Authority and Office of National Statistics have been used.*

¹¹⁴ LTI : London Tideway Improvements

¹¹⁵ STW: sewage treatment works

¹¹⁶ CSO: combined sewer overflow

As such, the likely effects of climate change and population growth on the objectives of the project have been taken into account. This helps to demonstrate that the scheme has been designed to be resilient to both climate and population change' (APP215.03, para 3.6.8).

- 9.22 The impacts of climate change during decommissioning were not addressed; our view is that this is reasonable and appropriate given the nature of the proposed development and its long anticipated design life.

FLOOD RISK AND CLIMATE CHANGE COMMITMENTS

- 9.23 The draft Development Consent Order (DCO) disapplies the Flood Defences Consent. This has been agreed with the EA and is confirmed in the SoCG (APP215.03, para 3.2.4). The EA's agreement to the disapplication was conditional on the agreement of adequate protective provisions. These have been agreed and are included in the draft DCO, (APP204.02, schedule 16, part 3).

- 9.24 In addition, requirements are included at most sites stipulating that surface water drainage details must be approved by the relevant planning authority in consultation with the EA (eg Requirement ACTST10). The only sites without a surface water drainage requirement are Shad Thames Pumping Station and Bekesbourne Street (where the works would be located in public highways) and Beckton Sewage Treatment Works.

CONCLUSIONS ON FLOOD RISK AND CLIMATE CHANGE

- 9.25 We are satisfied that the application has had regard to the NPS tests for flooding, and the sequential and exception tests have been applied. We are also satisfied that the design of the proposed development has taken into account the potential impact of climate change. This position is also agreed by the EA.
- 9.26 Although there is a risk of flooding at most sites, the design of the above-ground infrastructure has taken into account the predicted flood levels. We are satisfied that this would ensure that the designs are resilient to flooding as required by the NPS.
- 9.27 Having regard to the submitted documentation (including the SoCGs, requirements and the protective provisions for the EA), it is our view that the Secretaries of State can have confidence that the proposed development has properly taken into account flooding and climate change. In our view there is no reason to refuse the Order on this account.

10 HISTORIC ENVIRONMENT

INTRODUCTION

- 10.1 When considering the historic environment the decision maker must have regard to the duties set out in The Infrastructure Planning (Decisions) Regulations 2010. When deciding an application which affects a listed building or its setting, the decision maker must have regard to the desirability of preserving the listed building or its setting or any features of special architectural or historic interest which it possesses. When deciding an application relating to a conservation area, the decision maker must have regard to the desirability of preserving or enhancing the character or appearance of that area¹¹⁷.
- 10.2 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) states that, as part of the Environmental Statement (ES), the Applicant should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of setting to that significance¹¹⁸. Where there is archaeological potential the Applicant should carry out appropriate desk-based assessment and, where that is insufficient to properly assess the archaeological interest, a field evaluation. The Applicant should ensure that the impact on the significance of any heritage asset can be understood from the application and the decision maker should identify and assess the particular significance of any heritage asset that may be affected (NPS, section 4.10).
- 10.3 The decision maker should take into account the particular nature of the significance of the heritage assets and the value they hold for this and future generations. The desirability of sustaining, and where appropriate enhancing, the significance of heritage assets, the contribution of their settings and the contribution they can make to sustainable communities and economic vitality should also be taken into account. There should be a presumption in favour of the conservation of designated heritage assets (NPS, section 4.10).
- 10.4 Substantial harm to or loss of a Grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, including Grade I and II* listed buildings and registered parks and gardens and World Heritage Sites should be wholly exceptional. Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of the development, recognising that the greater the harm the greater the justification will be needed. Development consent should be refused where the

¹¹⁷ The Infrastructure Planning (Decisions) Regulations 2010, section 3(1) and 3(2)

¹¹⁸ 'Heritage assets' and 'significance' are defined in para 4.10.2 of the NPS

application would result in substantial harm to, or total loss of, the significance of a designated heritage asset unless the harm or loss is necessary to deliver substantial public benefits that outweigh the harm or loss. Decision makers should consider the need for requirements to prevent any loss of significance until it is certain the development will proceed. Requirements may also be needed in relation to the recording of any assets which may be lost and in relation to undiscovered heritage assets which may be discovered during construction (NPS, section 4.10).

- 10.5 There is information on the heritage assets in the Heritage Statement and the ES. These documents describe the wide range of impacts on the historic environment that would result from the proposed development. There would be 15 sites where the proposed works would affect listed buildings or conservation areas. A summary table is provided in the Heritage Statement (Doc 5.3, table 4.1).
- 10.6 The ES assesses the significant effects of the proposed development on the historic environment. It includes statements of significance for both buried and above-ground heritage assets. We consider that these statements of significance, which include the contribution of setting, meet the requirements of the NPS. Moreover, they are sufficiently detailed to enable us to take into account the particular nature of the significance of the heritage assets and to understand the impacts of the proposed development on that significance. The statements of significance have not generally been disputed by other parties¹¹⁹ (site-specific volumes of the ES, Doc 6.2.04 to 26, section 7).
- 10.7 The Heritage Statement (Doc 5.3) describes the effects on heritage assets having regard to the criteria in the NPS. An assessment of an effect as major adverse in the ES equates to substantial harm in NPS terms. Moderate adverse effects in the ES equate to harm which is less than substantial in NPS terms.
- 10.8 This chapter of the report will discuss the historic environment under the following headings:
- Archaeology
 - Effects of settlement on heritage assets
 - Effects on the setting of heritage assets during construction
 - Other effects on heritage assets.

ARCHAEOLOGY

- 10.9 River regimes have affected patterns of settlement from earliest times and were a principle factor in the development of London. Built and buried heritage assets associated with development

¹¹⁹ One exception is at King Edward Memorial Park Foreshore where LB Tower Hamlets disagrees with the ES assessment

along the river are present along the route of the proposed development and within some of the work sites. The general types of asset anticipated within the river and foreshore include features from prehistoric and later periods, structures such as jetties, stairs or mooring posts, evidence of past industry and environmental indicators such as plant and animal remains. On land-based sites buried assets may include evidence of trackways, agriculture, settlements and industry. In our view a project such as this, which involves deep excavations along the River Thames, is very likely to encounter buried heritage assets which are as yet unknown.

- 10.10 The ES identifies significant impacts on buried heritage at several work sites. These are generally described in terms of the potential for remains to be affected or removed based on desk studies. Known assets, such as a Roman boat at Blackfriars Bridge Foreshore¹²⁰, are also included. After mitigation, no significant residual effects are identified. The approach to archaeological mitigation is described in the Overarching Archaeological Written Scheme of Investigation (OAWSI) submitted with the application (Doc 7.13). The document is intended to provide engineers, contractors, archaeological contractors and consultees with the information needed to carry out archaeological mitigation.
- 10.11 The OAWSI states that the majority of archaeological impacts would occur during construction. No assets warranting preservation in-situ have been identified and the primary mitigation strategy is preservation by record, involving investigation, recording and dissemination (Doc 7.13, section 5.1). The objectives for evaluation at each site would be defined in Site-Specific Archaeological Written Schemes of Investigation (SSAWSI) which would be submitted to the relevant local planning authority for approval pursuant to a site-specific requirement.
- 10.12 Four sites of high or medium-high significance are identified. These are Albert Embankment Foreshore, Chambers Wharf, King Edward Memorial Park Foreshore and Barn Elms. A further 13 sites are identified as having medium significance (Doc 7.13, section 8.4).
- 10.13 The SSAWSI would be informed by the project-wide research framework, described in appendix B to the OAWSI, which is structured around five research themes:
- palaeoenvironment and prehistory
 - settlement patterns and boundaries
 - river management, transport, infrastructure and trade
 - London's water systems and public health
 - industries associated with the Thames and its tributaries.

¹²⁰ The boat would not be physically affected - ES vol 18 section 7 (Doc 6.2.18)

- 10.14 The Historic Buildings and Monuments Commission for England (HBMCE) stated, in its relevant representation, that it remained concerned about the evaluation and mitigation of archaeological impacts across the Tunnel route (RRP1041). The London Borough of (LB) Southwark's Local Impact Report (LIR) commented that archaeology at Chambers Wharf had not been adequately assessed via on-site fieldwork (REP095). The Examining authority (ExA) sought greater clarity about the approach to site-specific evaluation in Q8.1 (PD008). In response, the Applicant referred to Information Regarding Archaeological Evaluation (Doc 9.10.02). This document provides an overview of the discussions which were continuing at that time with HBMCE, City of London Corporation (City of London) and LB Southwark¹²¹ and describes the Applicant's approach to evaluation.
- 10.15 For land-based sites, boreholes and trenches are envisaged. Within the foreshore, techniques could include 3D topographical survey, monitoring the foreshore, vibrocore analysis, finds recovery and environmental sampling. Mitigation would be carried out in advance of construction where possible. Alternatively, excavation could be carried out during construction, for example within cofferdams. In inaccessible locations it is envisaged that there would be archaeological scanning of the arisings from the works.
- 10.16 During the course of the examination discussions have continued between the Parties and site-specific data has been shared. A revised version of the OAWSI was submitted in February 2014 (APP153). This describes a staged approach to evaluation. Areas that would be subject to deep excavation during construction would be investigated first. This would inform the approach to evaluation in other areas where deposits may survive at a shallow depth.
- 10.17 The requirement for a staged approach would be considered for each site and the stages would be set out in the SSAWSI (APP153, section 6.1). The approach to consultation and engagement during construction is also described. Progress on archaeological work planned and undertaken would be reported to statutory consultees on a monthly basis and an Archaeological Forum would be established to provide updates on findings (APP153, section 11.2).
- 10.18 Archaeological mitigation would be secured in the draft Development Consent Order (DCO) and Code of Construction Practice (CoCP). Site-specific requirements state that no excavation shall be carried out until a SSAWSI has been approved by the local planning authority (Requirement BAREL4 is a typical example). Section 12 of the CoCP Part A states that the contractor

¹²¹ City of London and LB Southwark have in-house archaeological services. Other local authorities rely on the Greater London Archaeological Advisory Service, within HBMCE, for advice (APP151, para 1.1.3 and footnote)

shall prepare a site-specific heritage management plan which will indicate how the OAWSI and SSAWSI would be implemented at that site (APP205.01).

- 10.19 Known heritage assets are referred to in the relevant CoCP Part B. For example, the contractor would be required to avoid Mesolithic timbers in the foreshore at Albert Embankment Foreshore and to minimise risk to the Roman boat at Blackfriars Bridge Foreshore. In addition, a 4 Way Legal Agreement (4WLA) between the Applicant, Marine Management Organisation (MMO), Environment Agency (EA) and Port of London Authority (PLA) includes a provision for the MMO to consult with HBMCE on marine archaeological matters associated with the conditions of the Deemed Marine Licence (DML) (APP183, clause 12.2).
- 10.20 A joint letter from the Applicant and HBMCE provides an update on the SoCG between those parties. The letter refers to the revised OAWSI and confirms that the matters contained within it are now agreed (APP151, para 2.5.1). HBMCE also confirms that, insofar as the 4WLA refers to its interests, those matters are agreed (REP485). The SoCG with LB Southwark records meetings to discuss the template for the SSAWSIs, proposed trial trenches at Chambers Wharf and the methodology for evaluation in the foreshore. These matters are now agreed (APP116.14, section 3.5 and paragraph 4.1.1d and APP159.02).
- 10.21 In conclusion, we consider that the Applicant has carried out appropriate desk-based assessment which has identified archaeological potential at several work sites. The approach to field evaluation has been clarified during the course of the examination. Although this was initially of concern to HBMCE and LB Southwark additional information has been provided and those concerns have been resolved.
- 10.22 The NPS states that where desk-based assessments are insufficient to properly assess the archaeological interest, a field evaluation should be carried out. In this case the approach to field evaluation has been described but the field evaluations themselves will continue after the end of the examination. However, the nature of this project, which involves deep excavations along the River Thames, is such that it is very likely to encounter as yet unknown buried heritage assets.
- 10.23 We attach significant weight to HBMCE's agreement to the procedures set out in the revised OAWSI because it is the Government's principal adviser on the historic environment. We conclude that the proposed mitigation measures would be an appropriate and practical response to the particular circumstances of this project.

EFFECTS OF SETTLEMENT ON HERITAGE ASSETS

- 10.24 The proposed development would generate ground movement from tunnelling and shaft construction. This has the potential to affect heritage assets through settlement. The methodology followed by the Applicant is described in the Building Damage Assessment Stage 3 - Listed Buildings (Doc 6.2.03, appendix E). Listed buildings within a projected 1mm settlement contour¹²² were identified. They were then assessed having regard to the projected risk of damage and the sensitivity of the buildings in terms of structure, condition and heritage considerations.
- 10.25 Most buildings were found to be at risk of only negligible damage but in two cases (Greenwich Pumping Station and Lots Road Pumping Station) the damage was assessed as likely to be slight to moderate (Doc 6.2.03, appendix E, section 9). Further comments in relation to these buildings are set out below, together with comments on some other heritage assets where particular concerns have been raised during the examination.
- 10.26 In addition to the listed buildings, there are several listed bridges spanning the river. These are described in the same appendix to the ES. The ExA requested that detailed Tunnel and Bridge Assessments¹²³ be submitted to the examination (Doc 9.15.48 to 9.15.63). The Applicant also submitted Corrections to the Assessment of Settlement on the Historic Environment (Doc 9.04.05)¹²⁴. During the examination this material was the subject of detailed discussions between the Applicant and HBMCE.
- 10.27 HBMCE's relevant representation identified the methodology and mitigation measures for determining settlement impacts on heritage assets as an outstanding concern (RRP1041). However, matters progressed and at the close of the examination the SoCG between the Applicant and HBMCE records that the methodology and baseline information is agreed to be adequate for the assessment of settlement impacts (APP116.20, section 3.9). Table 4.1 in the same document records some outstanding queries regarding the updated assessments but it is not suggested that these are matters of sufficient importance to weigh against the grant of development consent.
- 10.28 The issue of mitigating settlement impacts from tunnelling and shaft construction was explored at hearings and followed up in the ExA's questions (PD017, Q27.2). The Applicant's response explained that the assumptions used for the settlement assessments are conservative when compared with actual outcomes on other tunnelling projects. Contractors would be

¹²² The effect of the methodology is to exclude from further consideration those buildings predicted to experience settlement of less than 1mm

¹²³ These assessments had been referred to in the Settlement Information Paper (Doc 7.21)

¹²⁴ The assessments in the ES had been based on an earlier alignment of the Tunnel. The corrections changed some of the values for predicted settlement but not the overall significance of impacts

required by the CoCP Part A to select high performance tunnel boring machines (TBMs) (APP54, section 2).

- 10.29 Contractors would have to validate the Applicant's settlement assessment and would undertake a further assessment and pre-construction condition survey for all listed structures in the zone of influence. Baseline monitoring would be undertaken to determine the normal behaviour of the structures, for example in relation to changing temperatures, and continuous monitoring would take place during tunnelling operations (APP54, section 2).
- 10.30 The contractors would prepare an emergency response plan which would define trigger levels typically set at 50%, 75% and 100% of the allowable movement of the structure. The plan would set out the actions to be taken at each trigger level. Prior to passing under a critical asset, a TBM 'hold point' would be established providing an opportunity to review monitoring data and confirm that results were in line with predictions. If the need arose, the TBM could be stopped and additional mitigation measures deployed (APP54, section 2).
- 10.31 The CoCP contains a list of nine heritage assets which the HBMCE considers may be vulnerable to the effects of construction¹²⁵. This list is to be taken into account by contractors when completing the impact assessments (APP205.01, paragraph 13.1.12).

Lots Road Pumping Station

- 10.32 The pumping station is a Grade II listed building forming part of the Cremorne Wharf Depot work site. The Royal Borough of (RB) Kensington and Chelsea's LIR identified a concern about the effect of settlement on the listed building (REPO91). The updated Building Damage Assessment noted that cracks up to 5mm wide might be expected although these cracks would be in areas of brickwork which are of lesser significance towards the back of the building¹²⁶.
- 10.33 On the basis that intrusive mitigation in advance of the proposed works would result in a similar level of damage, the document recommends that any cracks should be allowed to form and repairs carried out after the works have been done. The ES assesses this as a moderate adverse impact on the listed building, reducing to minor adverse once repairs have been completed using appropriate conservation techniques.

¹²⁵ Four of the nine are discussed further below, being assets where particular concerns were raised during the examination. The other five are: Battersea Road Bridge, Putney Bridge, Limehouse Library, 777 - 783 Commercial Road and 227 Deptford High Street

¹²⁶ The ES assessment was revised in Doc 9.04.05 - Corrections to the effect of settlement on the historic environment

Greenwich Pumping Station

- 10.34 The pumping station is a Grade II listed building forming part of the Greenwich Pumping Station work site. The updated Building Damage Assessment predicts differential settlement of up to 28mm resulting in cracking of typically 5 - 15mm wide. However, the wall finishes are plain brickwork which can accommodate some movement and can be repaired. The ES assesses this as a moderate adverse impact, reducing to minor adverse once repairs have been done.

Hammersmith Bridge

- 10.35 The Grade II* listed suspension bridge was built in 1884 to the designs of Sir Joseph Bazalgette. The ES comments on its flamboyant, bold and highly ornate design and describes it as one of the most distinctive bridges on the Thames. The tunnel would pass close to the southern anchor chamber. However, on the basis of the predicted settlement at this point, the ES concludes that the bridge would be unaffected (Doc 6.2.03, appendix E.3).
- 10.36 The LIR from LB Hammersmith and Fulham (REP090) referred to an engineering report prepared for the Council. The Council's consultants were concerned that the limits of deviation allowed for in the DCO could enable the tunnel to pass closer to the anchor chamber. The SoCG between the Applicant and the Council noted that a detailed assessment report for the bridge was being updated and an Asset Protection Agreement needed to be drafted (APP116.03, para 3.12.17).
- 10.37 The ExA sought additional information on this matter (PD031, R55.1) and the Applicant responded that to minimise the risk of harm to the bridge a restriction had been placed on the tunnel alignment such that it would not deviate northwards (towards the bridge) from the centreline shown on the plans for a distance of 50m either side of the bridge. This is now reflected in the CoCP Part B for Carnwath Road Riverside¹²⁷ (APP165, section 2).
- 10.38 The final comments from LB Hammersmith and Fulham state that the Council's consultants agree with the Applicant regarding the likely magnitude of settlement but are concerned that the potential effects of long term settlement have not been fully taken into account. There remain some concerns regarding the precise location of the tunnel and agreement has not yet been reached on the extent of monitoring required. The Asset Protection Agreement is not yet agreed (REP490). In the event that this position moves on before a decision is taken, the Secretaries of State may wish to take account of any further agreements that are reached.

¹²⁷ Although Hammersmith Pumping Station is the nearest work site Carnwath Road Riverside is the relevant tunnel drive site

- 10.39 Given the high significance of the bridge, it is unfortunate that these matters remain unresolved at the close of the examination. Nevertheless, we note that the CoCP has been amended to restrict the alignment of the tunnel in the vicinity of the bridge which we consider would address LB Hammersmith and Fulham's principal concern. On the available evidence it appears unlikely that there would be material harm to the significance of the heritage asset.

Tower Bridge

- 10.40 Tower Bridge was built between 1886 and 1894. It is a Grade I listed building and an internationally recognised landmark. The ES notes that it is of historic and architectural significance due to its striking design, its technical innovation as one of the finest examples of a bascule bridge and its association with Sir John Wolfe Barry. It has group value with numerous other heritage assets including the Tower of London World Heritage Site. During the examination we carried out an accompanied site visit which included both the exterior and the interior of the bridge.
- 10.41 The tunnel would pass under the central span of the bridge and the inner side of the north and south piers are predicted to experience a settlement of 4.6mm. The outer side of the piers would settle less, causing the piers to rotate inwards, resulting in a reduction in the gap between the two bascule leaves. This could require mitigation by adjustments to the nosings of the bascule leaves, works which are considered by the Applicant to be relatively minor. The ES concludes that there would be no harm to the special interest or significance of the structure (Doc 6.2.03, appendix E.3).
- 10.42 The detailed assessment for Tower Bridge comments on the effects of predicted settlement on various elements of the structure. The report states that the gap between the bascule leaves could reduce by 15mm and recommends monitoring of the bridge for at least one year prior to the works to assess its behaviour over a range of temperatures. It also comments that it may be necessary to significantly reduce volume loss above the tunnel¹²⁸ (Doc 9.15.51).
- 10.43 Responding to the ExA's Q27.2 (PD017), the Applicant explained that, for a conservative approach, the settlement assessment had assumed a tunnelling ground volume loss of 1.7%, whereas experience from HS1 and Crossrail shows that volume loss in the range 0.5% to 1.0% can be achieved. The specified volume loss for Tower Bridge would be reduced and agreed with the asset owner (City of London). Monitoring instruments would be fixed to the bridge, in agreement with City of London, and would provide continuous real time information (APP54, section 2).

¹²⁸ Volume loss depends on the performance of the TBM. The lower the volume loss, the less settlement will be caused

- 10.44 Following that response there were further discussions between the Applicant, HBMCE and City of London. It was agreed that the CoCP would be amended to ensure that the tunnel route would follow the centreline shown on the plans for 75m upstream and downstream of the bridge, that volume loss would be limited to a maximum of 0.85% and the contractor would use reasonable endeavours not to exceed 0.5% (APP205.01, para 13.1.13). The SoCG between the Applicant and HBMCE and City of London welcome this approach and confirm that it would significantly contribute to the mitigation of potential effects on the bridge (APP116.20, para 4.5.14 and APP116.08, para 3.12.7).
- 10.45 The ExA sought further information on the risk of mitigation measures being required and the likely scope of such works, if needed (PD031, R55.4). The Applicant's updated estimate of the likely gap reduction is 7.5mm. The gap exists to accommodate thermal expansion of the bascule leaves. Current monitoring results indicate that, if the gap were to be reduced by 7.5mm, the bridge would remain serviceable up to a temperature of 41degrees Celsius¹²⁹. The Applicant regards this as a remote risk. If any trimming back of the nosings were needed, the works would be minor and not unduly disruptive to use of the bridge (APP165, sections 7 and 8).
- 10.46 HBMCE confirms its understanding that the agreement to 0.85% volume loss should avoid harm and that mitigation works may not be necessary. That conclusion could not be confirmed until a full monitoring cycle has been completed. In the event that mitigation works were needed, these would be supported subject to agreement on details of working methods (REP423). City of London confirms that the agreed volume loss reduces the risk of many of its concerns. Although, in City of London's view, it is not possible to confirm that there would be no operational risks it states that the Parties would work together to minimise and mitigate these risks (REP435, COL23).
- 10.47 Schedule 16 Part 7 of the DCO contains provisions for protection of assets owned by City of London, including various bridges. The undertaker would submit, for the agreement of City of London, updated technical assessments, emergency preparedness plans, risk assessments, monitoring proposals and mitigation measures for each bridge. The Applicant confirmed in a letter of 11 March 2014 that amendments to the protective provisions (which were attached to the letter) had been substantially agreed (APP216). (This matter is discussed further in chapter 20). We consider that these provisions, which are set out in full in appendix F to this report, offer further protection in relation to Tower Bridge.

¹²⁹ That is, the bascule leaves could still be raised to allow the passage of river traffic

10.48 We note the further measures now included in the CoCP to minimise the risk of works to the bridge itself becoming necessary. We attach significant weight to the agreements reached with HBMCE and City of London because both bodies have had an opportunity to review the detailed bridge assessment report and the subsequent monitoring information. Monitoring is ongoing and the risk of mitigation works to the bridge becoming necessary as a result of settlement cannot be excluded. However, the likely scope of any such works has been investigated and HBMCE states that they would be supported. There is nothing before us to suggest that, if such works were needed, there would be material harm to the significance of the heritage asset. The likely scope of any works would not be such as to have any material impact on the setting of the Tower of London World Heritage Site.

St Paul's Church, Deptford

10.49 The Grade I listed church was built between 1713 and 1730. It is described in the listing description as an outstanding early 18th century parish church, one of the finest achievements of Thomas Archer. It is said to display both great power and erudition in its design and to be emblematic of the English Baroque movement. The interior is described as well preserved and well restored with excellent plasterwork by James Hands and 18th century painted decoration in the apse. LB Lewisham's LIR emphasises the significance of the church which it describes as the most significant listed building in the Borough (REP093). During the examination we carried out an accompanied site visit which included both the exterior and the interior of the church.

10.50 The building damage assessment notes that the internal plasterwork finishes are very brittle and even the slightest of cracking could be detrimental and costly to repair. A maximum settlement of 4mm is predicted and the building is assessed to be in damage risk category 0 (negligible damage) (Doc 6.2.03, appendix E.1). The ES comments that this risk category could include the possibility of hairline cracks up to 0.1mm in width. This is assessed to be a minor adverse effect (Doc 6.2.23, section 7).

10.51 Following discussions at the hearing of 22 January 2014, the Applicant asked an independent consultant (Dr Barry New) to review the building damage assessment. Dr New agreed that the impact of settlement on the church would be negligible. He further commented that the assessment had assumed a ground volume loss of 1%. As the geology here is chalk, the ground loss would be significantly less and, in his view, the expected settlement would be barely measurable (APP102.03, appendix D).

10.52 The ExA then asked whether it would be appropriate to employ pre-emptive mitigation measures, having regard to the brittle nature of the plasterwork and the importance of the interior finishes to the overall significance of the listed building (PD031,

R55.5b). The Applicant responded to the effect that ground treatments, such as injecting grouts, would be likely to result in ground movements greater than those caused by tunnelling. To address the sensitivity of the interior, there would be further investigation of the plasterwork as part of the pre-condition survey required for all affected listed buildings by the CoCP Part A. This could include raising floorboards in the roof space to inspect the plaster keys attaching the plasterwork to the lathes. If found to be necessary, remedial works would be carried out to strengthen the plasterwork before construction started (APP165, section 12).

- 10.53 The Applicant's commitment to investigate the need for preventative remedial measures within the church is secured by the CoCP Part B for Greenwich Pumping Station¹³⁰ (APP178.43, section 12). The owners of the church have confirmed that they have reached an agreement with the Applicant in relation to their concerns and all previous representations from these parties have been withdrawn¹³¹. Having regard to all the above factors, and in particular to the responses to our oral and written questions, we conclude that it is unlikely that the proposed development would result in material harm to the significance of the listed building.

Conclusions on settlement of heritage assets

- 10.54 The Applicant's baseline and methodology has been agreed by HBMCE and we therefore attach significant weight to the findings of the Building Damage Assessments and the Tunnel and Bridge Assessments. Most of the designated heritage assets affected by tunnelling would be at risk of only negligible damage. Having regard to the general mitigation measures set out in the CoCP Part A and Part B, we consider that it is unlikely that there would be material harm to the significance of these assets.
- 10.55 Mitigation measures at Hammersmith Bridge, Tower Bridge and St Paul's Church Deptford have been the subject of discussions during the course of the examination and additional mitigation measures have been proposed for each asset. Having regard to the proposed mitigation, which would be secured through the CoCP, we consider that it is unlikely that there would be material harm to the significance of these heritage assets.
- 10.56 The ES identifies potential harm in relation to two listed buildings - Lots Road Pumping Station and Greenwich Pumping Station. The residual effect, following repair of any damage, is assessed as minor adverse. In NPS terms, the harm to significance would be less than substantial. Having regard to the predicted extent of damage, together with the nature of the construction of the

¹³⁰ Although Deptford Church Street is the nearest work site, Greenwich Pumping Station is the relevant tunnel drive site

¹³¹ Diocese of Southwark, Parochial Church Council of the Parish of St Paul with St Mark, Fr Paul Butler, incumbent of St Paul's Deptford (Winckworth Sherwood letter of 28 February 2014 REP425)

buildings, we agree with that assessment. Moreover we would characterise the degree of harm as minor. Nevertheless, the NPS requires any harm to the significance of a designated heritage asset to be weighed against the benefits of the proposed development and this will be taken into account in our overall conclusions.

EFFECTS ON THE SETTINGS OF HERITAGE ASSETS DURING CONSTRUCTION

- 10.57 This section of the report deals with the temporary effects of construction works on the settings of heritage assets. Physical impacts on heritage assets, through removal, partial demolition or alteration are covered in the next section. Also covered in the next section are the proposed relocation of the moored vessel Tattershall Castle at Victoria Embankment Foreshore, which combines physical effects and effects on setting, and the cumulative effect of impacts (including setting) on St Paul's Church, Deptford during construction.
- 10.58 In chapter 8 we note that the ES identifies significant adverse impacts on townscape and/or visual receptors at all but one of the work sites. The factors resulting in adverse visual impacts during construction, and the proposed mitigation measures, are described in that section and are not repeated here. These visual impacts would affect the settings of a large number of heritage assets. The individual heritage assets, their significance and the effects of the proposed works are described in the site-specific volumes of the ES (Doc 6.2.04 to 6.2.26) and the Heritage Statement (Doc 5.3). The heritage assets referred to in the following paragraphs are examples and are intended to give an overview of the nature and extent of impacts on setting during construction.
- 10.59 The ES identifies a number of conservation areas where there would be moderate adverse effects. These include Putney Embankment Conservation Area at Putney Embankment Foreshore; Sands End Conservation Area at Carnwath Road Riverside; Thames Conservation Area and Royal Hospital Conservation Area at Chelsea Embankment Foreshore; Albert Embankment Conservation Area at Albert Embankment Foreshore; Whitehall Conservation Area at Victoria Embankment Foreshore; Whitefriars Conservation Area, Temple Conservation Area and South Bank Conservation Area at Blackfriars Bridge Foreshore; Tower Bridge Conservation Area at Shad Thames Pumping Station; St Paul's Conservation Area at Deptford Church Street and Wapping Wall Conservation Area at King Edward Memorial Park Foreshore. There are several other conservation areas along the route where minor adverse effects on setting are identified in the ES.
- 10.60 The conservation areas typically contain assemblages of heritage assets, designated and non-designated, the settings of which

would also be affected to varying degrees. There are also examples of heritage assets which do not fall within area designations, such as the Grade II listed coal sheds at Greenwich Pumping Station, where there would be an adverse impact on setting during construction. Some of the assets affected would have the highest statutory grades. The ES identifies moderate adverse effects on setting at the Royal Hospital, Chelsea and St Paul's Church, Deptford (both Grade I listed) and at Vauxhall Bridge (Grade II* listed).

- 10.61 The affected heritage assets include registered parks and gardens. At Chelsea Embankment Foreshore, the ES identifies a moderate adverse effect on the Grade II Royal Hospital Grounds/Ranelagh Gardens and a minor adverse effect on the Grade II* Battersea Park. At Victoria Embankment Foreshore, the ES assesses the effect on the Grade II* Victoria Embankment Gardens as minor adverse. The setting of the Palace of Westminster World Heritage Site would be affected by the works at Victoria Embankment Foreshore. The ES assesses this as a minor adverse effect because there would be a low magnitude of change seen from limited viewpoints.
- 10.62 The impacts on the setting of heritage assets during construction have not been disputed by other Parties and we see no reason to disagree with the assessments contained in the ES and Heritage Statement. In all cases the degree of harm, in NPS terms, is described as less than substantial. As noted above, the NPS requires any harm to heritage assets to be weighed against the public benefit of the development. In carrying out that exercise, we consider that the fact that the impacts described in this section would be temporary is an important consideration.

OTHER EFFECTS ON HERITAGE ASSETS

- 10.63 This section of the report considers the physical effects of the proposed development on heritage assets and the effects of the permanent works on the settings of heritage assets. The assets, their significance and the effects on them are described more fully in the site-specific volumes of the ES (Doc 6.2.04 to 6.2.26) and the Heritage Statement (Doc 5.3).
- 10.64 HBMCE comments that it was involved in the project from an early stage in the site selection process. From this preliminary stage HBMCE opposed the use of five foreshore sites unless shown to be unavoidable for the viability of the project as a whole and unless substantial potential adverse impact on the historic environment was sufficiently mitigated. The five sites are Putney Embankment Foreshore, Chelsea Embankment Foreshore, Albert Embankment Foreshore, Victoria Embankment Foreshore and Blackfriars Bridge Foreshore. In addition, HBMCE concentrated on Deptford Church Street because it is in the setting of the Grade I listed St Paul's

Church. These are described by HBMCE as its 'Top 6' sites (WR069, section 4).

- 10.65 The following paragraphs discuss the top 6 sites in more detail and also comment on four other sites where works to listed buildings are proposed or where particular concerns have been raised during the examination.

Putney Embankment Foreshore

- 10.66 The proposed development at Putney Embankment Foreshore includes a foreshore structure, an interception structure beneath Putney Bridge, a ventilation column on the bridge and a kiosk on Waterman's Green. The site is within the Putney Embankment Conservation Area. The ES refers to the Putney Embankment Conservation Area Appraisal which describes the Lower Richmond Road Character Area as having buildings of outstanding quality, rich in architecture and of diverse ages¹³². Attention is drawn to a number of undesignated 19th century mansion flats, the locally listed Star and Garter mansions and the undesignated Bricklayers Arms (Doc 6.2.07, section 7).
- 10.67 In addition, Putney Bridge is Grade II listed and the site is within the setting of the Grade II* listed St Mary's Church. A cobbled slipway and the University Boat Race Stone are undesignated heritage assets. The foreshore structure would be in front of the University Boat Race Stone which marks the start line for the race.
- 10.68 The physical impact of the works would include the removal of the sewer outfall and apron forming part of the listed bridge. The ES identifies this as a major adverse impact, reduced to minor adverse by proposed mitigation through recording of those parts of the listed bridge that would be removed. There would also be effects from the temporary removal and reinstatement of some listed bollards and part of the slipway. The ES states that the effect of the permanent works on the character of the conservation area and the settings of the heritage assets within it would be minor adverse. Minor adverse effects on Putney Bridge, the setting of St Mary's Church and the setting of two adjoining conservation areas are also identified (Doc 6.2.07, section 7).
- 10.69 LB Wandsworth's LIR commented on the foreshore structure and expressed concern about the interception structure. It also questioned the location of the kiosk (REP098). In response to the ExA's Q8.7 (PD008) LB Wandsworth comments that the foreshore structure would be a large intervention in a sensitive environment and that a high quality design would be required.
- 10.70 Capitalstart Ltd comments that Putney Pier is not sufficiently taken into account in the ES, especially in comparison with other

¹³² The site is mainly within Area 3 (Lower Richmond Road), with part in Area 2 (Putney High Street)

heritage assets. The point is made that the Heritage Statement does not assess the pier as a heritage asset in its own right. Capitalstart does not agree with the ES assessment that the new elements would be of appropriate scale, resulting in a low magnitude of adverse change to the character of the conservation area. It considers that the foreshore structure would have a major adverse effect on the setting of the pier, the river wall and the conservation area as a whole by introducing a modern and unsympathetic structure into a well preserved Victorian ensemble (WRR052, section 6.4). These points were also made orally on behalf of Capitalstart¹³³.

- 10.71 The Putney Society comments that the shape and design of the foreshore structure is of concern (WRR048). The design was also criticised by a party at an OF hearing¹³⁴. However, other representations are supportive. The development of the design in response to pre-application engagement is described above in chapter 8. The Design Council CABE (CABE) supports the simple orthogonal geometry of the promontory and its position in relation to listed buildings (REP463). The SoCG between the Applicant and LB Wandsworth records that the design principles relating to this site are now agreed (APP116.06, para 3.1.1).
- 10.72 The relationship between the foreshore structure and its setting can be seen in a photomontage (Doc 6.2.07, figure 11.6.1). In our view this shows how the structure would be seen in the context of the pier and slipway, forming a focus of riverside activity with appropriate separation from Putney Bridge. We consider that the simple plan form would be an appropriate response to the setting and would not be out of scale. It would allow for flexibility of use, for example in connection with events on the river. Design details and materials would be important and would be subject to the approval of the local planning authority. These matters are adequately described on the illustrative plans and in the design principles and would be secured through the requirements in the DCO.
- 10.73 With regard to the matters raised by Capitalstart, we note that the ES includes an assessment of the significance of the pier (Doc 6.2.07, para 7.4.58). It comments that the pier appears to have been rebuilt or modified in the early 20th century in place of an earlier structure. It is said to be of medium significance for its historical and evidential value. We agree and, in our view, those values would be unaffected by the proposed foreshore structure. Putney Pier is not a designated heritage asset and it would not be directly affected by the proposed works. For the reasons given in the preceding paragraph, we do not consider that there would be material harm to its setting.

¹³³ Allan Ledden, on behalf of Capitalstart at the IS hearing on 11 November 2013

¹³⁴ First OF hearing, 19 November 2014, John Parmiter

- 10.74 In conclusion, we agree with the ES assessments of the effects on the character and setting of the conservation area and the settings of heritage assets associated with it.
- 10.75 The ExA sought additional information regarding the relationship between the interception structure and Putney Bridge which was provided in the form of a photomontage (APP08, figure 6.2). Design Principle PUTEF.01 states that the interception chamber would sit below the springing point of the bridge arch. We consider that the photomontage shows how this design principle, together with the use of sympathetic materials and detailing, would minimise the impact on the bridge and its setting.
- 10.76 The SoCG between the Applicant and LB Wandsworth records that agreement was not reached in relation to the proposed kiosk (APP116.06, table 4.3). However, this small structure would be set against a high wall retaining Lower Richmond Road in line with an adjoining structure enclosing a flight of stairs. We consider that it would have a minimal impact on the character and appearance of the conservation area.

Chelsea Embankment Foreshore

- 10.77 The proposed development at Chelsea Embankment Foreshore has been referred to above in chapters 6 and 8. Those descriptions will not be repeated here. In those chapters it was explained that the design at Chelsea Embankment Foreshore seeks to respond to its location on the axial view known as Monument Walk, an important feature within the setting of the Grade I listed Royal Hospital Chelsea.
- 10.78 The river wall in this locality is characterised by an unusually uncluttered appearance. RB Kensington and Chelsea's LIR drew attention to the highly prominent location and the continuous nature of the embankment wall, concluding that the impact would be negative. Concern was also expressed regarding disruption to the boundary wall of Ranelagh Gardens (REP091). HBMCE commented that the riverscape is of high significance and that the foreshore structure could not avoid disrupting the tranquil linearity of the river wall (WRR069).
- 10.79 The discussions, which continued during the examination and culminated in amendments to the design principles and a revised illustrative design, have also been described above. Agreement was reached between the Applicant and RB Kensington and Chelsea on a revised illustrative drawing and the revised design principles were largely agreed (APP116.10, section 3.8).
- 10.80 The ES states that the change in the line of the river wall would result in an adverse effect on the Thames Conservation Area. This would be partially offset by the creation of a public space above the drop shaft which would highlight the axis of Monument Walk,

such that the overall effect would be minor adverse. There would be a moderate adverse effect on the setting of the Grade II listed Chelsea Bridge, the projection into the river being readily apparent from this point, and minor adverse effects on the settings of Battersea Park (a Grade II* registered park and garden) and the Grade II listed section of the river wall¹³⁵ (Doc 6.2.13, section 7).

- 10.81 The ES also identifies beneficial effects on some heritage assets. The effect on the setting of the Grade I listed Royal Hospital is assessed as moderate beneficial because there would be an improved public space from which to view the building, emphasising the main axis of the site. For the same reasons, minor beneficial effects are identified in relation to the Royal Hospital South Grounds and Ranelagh Gardens, (a Grade II registered park and garden), the Royal Hospital Conservation Area, the Chilianwalla Memorial Obelisk and the Bull Ring Gate (both Grade II listed).
- 10.82 We agree with the above assessments which were not disputed by other Parties. During the examination the illustrative landscape proposals were amended, omitting a gate previously proposed in the boundary wall to Ranelagh Gardens. This matter had been the subject of discussions at the Compulsory Acquisition (CA) hearing on 10 December 2013 (HEA068 to HEA071). We consider that this amendment resolves RB Kensington and Chelsea's concern on that point.
- 10.83 In chapter 8 we conclude that, although the design for Chelsea Embankment Foreshore is illustrative, the design intentions set out in the Design and Access Statement (DAS) would be secured by the design principles and the DCO. We also conclude that the proposed terraces would be effective in helping to integrate the foreshore structure into the river wall, thereby minimising the adverse effects on townscape. For the same reasons, the design would minimise the impact on the historic environment. Nevertheless, the adverse effects identified in the ES must be taken into account.

Albert Embankment Foreshore

- 10.84 The permanent above-ground structures at Albert Embankment Foreshore would comprise a foreshore structure above a drop shaft, to the east of Lack's Dock, and an interception structure which would link two combined sewer overflows (CSOs) located either side of the Grade II* listed Vauxhall Bridge. There would be no loss of historic fabric from the listed bridge although the interception structure would be built up to the abutment. The interception structure would incorporate a series of flowing

¹³⁵ The foreshore structure would not be attached to the listed section of the wall

stepped inter-tidal terraces. The site is within the Albert Embankment Conservation Area.

- 10.85 LB Lambeth, in its LIR, comments that the works would enhance the conservation area (REP092). HBMCE considers that the innovative design of the interception structure would provide a compelling new juxtaposition adding to the variety and texture of the setting of Vauxhall Bridge (WRR069, para 5.26). CABE welcomes the way the design would terminate the embankment and supports the idea of conveying changing water levels through the architecture of the inter-tidal terraces (REP463).
- 10.86 The ES notes that the design of the interception structure would contrast with the line of the bridge. However, on the basis that the setting of the bridge would not be significantly affected this is assessed as a minor adverse effect. The effects on the Albert Embankment Conservation Area and the Millbank Conservation Area are also assessed as minor adverse (Doc 6.2.16, section 7).
- 10.87 Design Principle ALBEF.03 states that the top of the interception structure should be below the springing point of the bridge arch, in order to respect the character and setting of the bridge. The Applicant provided photomontages, taken from foreshore level, in response to the ExA's request for additional information to inform its assessment of this matter (APP08, figures 9.1 to 9.4). Having considered the photomontages the ExA asked for further comments from the parties and asked the Applicant to review the design, considering particularly whether the bulk of the structure might be reduced¹³⁶ (PD017, Q27.7 and Q27.8).
- 10.88 The Applicant responded by explaining that the area of the top of the structure, and hence its bulk, had been reduced by locating some engineering components at a lower level contained by the stepped terraces. Omission of the inter-tidal terraces would not therefore have the effect of reducing the overall bulk of the structure. The Applicant accepted that the structure would obstruct part of the clear view through the arch. The Applicant also commented that the bridge is seen in a modern context and that this particular view contributes little to its overall significance (APP54, sections 7 and 8).
- 10.89 When the application was submitted, Design Principle ALBEF.06 stated that there would be no public access to the top of the interception structure¹³⁷. HBMCE objected to this design principle, to the extent that it withdrew its support for the design as a whole (WRR069, para 5.30). LB Lambeth had similar concerns. The matter was resolved during the course of the examination in that

¹³⁶ At this stage of the examination HBMCE had withdrawn its previous support for the design which had been predicated on public access to the structure being available. At this point it seemed that public access would not be possible

¹³⁷ ALBEF.06 had been drafted to reflect concerns expressed by the occupiers of No 85 Albert Embankment

the occupiers of No 85 Albert Embankment agreed to public access to the structure provided that it could be closed off in the event of a security incident (APP144, para 3.1.1). This position is agreed by HBMCE (REP423) and LB Lambeth (REP422) and is reflected in the revised wording of ALBEF.06.

- 10.90 We note that the innovative design for Albert Embankment Foreshore has attracted support from consultees. Insofar as there would be adverse effects on heritage assets, we consider that those effects would be minimised by the proposed design.

Victoria Embankment Foreshore

- 10.91 The site includes the Grade II listed Victoria Embankment river wall and is located within the Whitehall Conservation Area. HBMCE draws attention to City of Westminster's conservation audit which comments on the significance of the Conservation Area. It describes the area as containing an exceptional concentration of listed buildings of particularly high quality and importance, the majority being Grade I and II*. The river frontage is said to provide an impressive diversity of building styles and ages forming a rich and cohesive townscape. The National Liberal Club and Whitehall Court (both Grade II* listed), the Royal Air Force Memorial and the Golden Jubilee Footbridge are identified as landmarks (WRR069, para 5.36).
- 10.92 The significance of the river wall relates to the fact that it is part of the centrepiece of Sir Joseph Bazalgette's sewerage system. The wall therefore has evidential value in that it demonstrates the civic will to clean up the river in the 19th century. It also has group value with other parts of Bazalgette's system. The unified design of the wall with its granite facing and its rhythm of piers, sturgeon lamp standards and lion's head mooring rings adds to its significance. Decorative benches and catenary lamp standards (both Grade II listed), have significance in their own right but also form a group with the embankment structures. The grand sweep of the river wall, with its orthogonal projections, contributes to its monumentality. The setting of the wall, in the foreground of views from the south bank, contributes strongly to its significance (Doc 6.2.17, section 7 and APP08, section 11).
- 10.93 The design of the proposed foreshore structure, the way in which it would be integrated with its surroundings, detailed design issues raised by City of Westminster and the issue of the height of the ventilation columns have been discussed in chapter 8. In that chapter it was noted that the design is supported by City of Westminster, the Mayor of London, HBMCE and CABE. Those matters will not be repeated here. Although there is general agreement on the design merits of the proposed foreshore structure, there is disagreement on the degree of harm that would be caused to the listed river wall and the effects of relocating the

moored vessel Tattershall Castle. These matters are discussed in the following paragraphs.

- 10.94 The ES states that the removal of part of the river wall and parapet would have a major adverse effect. However, this is described as a local effect and the Heritage Statement assesses the harm to the significance of the asset as a whole as less than substantial. The removal of lamp standards and removal of benches would also have adverse effects. With regard to the permanent works, taking account of the design, use of materials and low height of the foreshore structure the ES assesses the effect on the setting of the conservation area and of the listed buildings near the site as minor adverse. The effect on the setting of the Palace of Westminster World Heritage Site is also assessed as minor adverse, as is the effect on the setting of the river wall (Doc 6.2.17, section 7).
- 10.95 In relation to the river wall, City of Westminster considers that the construction of the new foreshore structure would result in the demolition of a substantial section of the listed embankment wall and permanently interrupt its linear character resulting in substantial harm (REP239). HBMCE takes the same position (REP233). In response to the ExA's Q8.11 (PDO03) the Applicant comments that 91m of wall would be removed, of which approximately 51m would be removed permanently¹³⁸. This would amount to 4.7% and 2.6%, respectively, of the entire length of the listed embankment. No unique features would be lost and only a small proportion of the wall would be removed. In the Applicant's view this would result in less than substantial harm (APP08, section 11).
- 10.96 The terms of paragraph 4.10.14 of the NPS lead us to consider whether the harm to the significance of the designated heritage asset would amount to 'substantial harm'¹³⁹. The designated heritage asset is the whole of the embankment which extends from Westminster Bridge almost to Blackfriars Bridge. There would be some loss of significance arising from the removal and reinstatement of around 40m of parapet. However, in our view the greatest impact would be from the permanent loss of around 51m of wall including three piers with their characteristic lamp standards and mooring rings.
- 10.97 The fact that the length of wall in question would be small in proportion to the whole is an important consideration, but not determinative. It is necessary also to consider what contributes to the heritage significance of the river wall and how that significance

¹³⁸ The temporary removal would affect only the parapet level, which would be reinstated. The permanent removal would affect the whole river wall which would be replaced by the permanent foreshore structure

¹³⁹ Substantial harm is not defined in the NPS. The Applicant has drawn our attention to one interpretation which has been found to be reasonable (APP08, section 11). We have also had regard to guidance in the NPPG (para 018, reference ID 18a-018-20140306)

would be affected. We consider that the impact on the evidential value of the wall, and its group value with other parts of Bazalgette's system, would not be greatly harmed. Moreover, the unified design could still be readily appreciated because only three out of a great many repeated design elements would be removed.

- 10.98 We consider that harm would arise from the interruption to the grand sweep of the river wall which would diminish its monumental quality. In that respect, the design merits of the proposed foreshore structure, which would also have a monumental quality, would offer partial mitigation. Our overall assessment is that the degree of harm to the significance of the heritage asset would be less than substantial in the terms of the NPS.
- 10.99 The proposals would involve moving the Tattershall Castle twice - once to a temporary location during construction and then to a permanent mooring closer to the foreshore structure. HBMCE considers that the embankment has a linear, dignified, formal and uncluttered nature. The boats moored permanently in this part of the river are already regarded as detrimental to the setting of the heritage assets described above. In HBMCE's view, relocation of the Tattershall Castle would exacerbate a moderate adverse effect on the setting of the Whitehall Conservation Area. Concerns are also expressed about the need to make 'permanent' fixings to the embankment wall in both the temporary and permanent locations (REP231, section 6). City of Westminster takes a similar view, drawing attention to the impact of the vessel on views down Horse Guards Avenue towards the river and South Bank and the visual clutter arising from two access brows, one of which would feature an access ramp on the pavement and a canopy (REP239).
- 10.100 Neither HBMCE nor City of Westminster argues that the relocation of the Tattershall Castle would result in substantial harm to the listed river wall or the conservation area. However, both question whether there would be sufficient public benefits arising from the relocation to justify the harm that would occur.
- 10.101 HBMCE and City of Westminster regard the existing vessel as a feature which detracts from the character and appearance of the conservation area. City of Westminster would have preferred its relocation (either at Victoria Embankment Foreshore or elsewhere) to be dealt with by a separate planning application. However, we must consider the application before us which includes relocation of the vessel. The Tattershall Castle is an established feature of the riverfront and, in the absence of the proposed development, there is no evidence that it would not continue to be so. For the purposes of the examination it is necessary to compare the current situation with the situation as it would be if all the proposals at Victoria Embankment Foreshore were carried out.

- 10.102 The Applicant has provided a series of visualisations including views from Horse Guards Avenue and the south bank (APP54.13.01)¹⁴⁰. We comment first on the construction phase. We agree with City of Westminster that the view from Horse Guards Avenue towards the river, flanked by the Grade I listed Ministry of Defence and the Grade II* listed Whitehall Court, is an important view within the conservation area.
- 10.103 The visualisations show that the impact of the relocated vessel would vary with the tide. At high tide the vessel would effectively close off the open vista towards the river, which would be harmful to the character and appearance of the conservation area. The Applicant states that the vessel would be about 30m from the Grade II listed RAF Memorial. As seen from the south bank, we consider that this proximity would detract from the uncluttered setting of this landmark memorial, which would also be harmful. That said, the ES recognises that there would be a moderate adverse effect on the conservation area during the construction phase and we do not consider that the effects described above would elevate that level of impact.
- 10.104 With regard to the physical works to the listed river wall to accommodate the access brows, the Applicant describes how these temporary works could be made good in a sympathetic manner using matching materials (APP54, section 13). Details of these measures would be controlled by Requirement VCTEF8.
- 10.105 In the operational phase the impact on views from Horse Guards Avenue would be much less harmful because the bow of the relocated vessel would be set to one side of the vista. The vessel would change the view at some states of tide but, even at high tide, it would not be as dominant as in the construction phase. As seen from the south bank there would be sufficient separation between the vessel and the RAF Memorial to avoid unduly detracting from the uncluttered setting of the latter.
- 10.106 We note that the access brows would need to span the river wall and that this would introduce new elements within the street scene. However, the existing access brows also have an impact on the street scene. The detailed design for the new access brows would need to be approved by City of Westminster, in accordance with Requirement VCTEF10.
- 10.107 In conclusion, having regard to the combined effect of the foreshore structure and the relocation of the Tattershall Castle, we agree with the assessment in the ES that the proposals for Victoria Embankment Foreshore would result in a minor adverse impact on the Whitehall Conservation Area and the settings of the listed buildings near the site. In the terms of the NPS this would amount

¹⁴⁰ These supplement the photomontages contained in the ES at Doc 6.2.17

to less than substantial harm. We will return to the weighing of public benefits against the harm in chapter 18.

Blackfriars Bridge Foreshore

- 10.108 The work site would lie partly within the Whitefriars Conservation Area and partly within the Temple Conservation Area. It would extend under the Grade II listed Blackfriars Bridge. The works would include a foreshore structure to the west of the bridge, removal and replacement of modern stairs leading down to the river walk on either side of the bridge and the relocation of the Millennium Pier to the east of the bridge.
- 10.109 The listed section of the Victoria Embankment wall ends within the work site where it meets a section of river wall constructed in the 1960s. Within the listed section, around 40m of parapet would be permanently removed and a further 114m would be temporarily affected and could be removed and reinstated. Around 149m of granite facing would be permanently removed at the base of the wall (APP08, sections 14 and 15).
- 10.110 The design of the foreshore structure is discussed in chapter 8. The design is supported by the Mayor of London and CABE. HBMCE and City of London accept the general concept of the design and agree that matters of detail can be resolved through appropriate requirements.
- 10.111 In terms of physical impacts on heritage assets, the ES states that local demolition of the river wall would amount to a major adverse effect although with mitigation through recording the residual effect would be moderate adverse. There would also be adverse effects from the temporary removal of listed lamp standards and benches. However, there would be negligible effect on the Grade II listed bridge because only modern fabric would be removed.
- 10.112 The foreshore structure would change the historic character of the Whitefriars Conservation Area, although this effect would be minimised by the proposed design. This is assessed as a moderate adverse effect, as are the effects on the settings of the embankment wall and Blackfriars Bridge. The effects on Temple Conservation Area and South Bank Conservation Area are stated to be minor adverse (Doc 6.2.18, section 7).
- 10.113 We agree that there would be no material harm to the significance of the Grade II listed bridge itself (other than its setting) because no historic material would be lost. For the reasons given in chapter 8, we consider that the proposed design would be well related to its surroundings and would mitigate the adverse effects of the proposed development on the setting of the river wall, the bridge and the three conservation areas. The assessments in the ES are not disputed by any other Parties and we see no reason to disagree. We conclude that the harm to the embankment wall and

its setting, the harm to the three conservation areas and the harm to the other heritage assets referred to above should be characterised as less than substantial.

Deptford Church Street

- 10.114 The work site would be within the Crossfield Amenity Green. The green is an open space which makes a positive contribution to the character and appearance of the St Paul's Conservation Area. It is also within the setting of the Grade I listed St Paul's Church. The significance of the church is referred to in the section on the effects of settlement on heritage assets. The ES states that there would be a moderate adverse effect on the conservation area and the setting of the church during construction. Minor adverse effects are identified in relation to Deptford High Street Conservation Area and the setting of the Grade II listed viaduct which passes close to the site (Doc 6.2.23, section 7). In chapter 11 we refer to the importance placed by local residents on the open character of the Green. Residents consider that the views of the church, as seen from the Green, contribute to that importance.
- 10.115 The LIR from LB Lewisham emphasised the high significance of the church and the need to mitigate impacts during construction (REPO93). HBMCE describes the church as one of Deptford's, London's and England's highly significant heritage assets. As well as being a place of worship and a centre for community activities, the church is much used for commercial activities such as music recording. HMBCE is concerned that the combined effects of noise, visual impact and dust could threaten the understanding, enjoyment and use of the church during construction. Moreover, that a loss of income from commercial activities could threaten the viability of the church and maintenance of the cultural asset. HBMCE considers there to be a risk of a severe adverse synergistic impact (WRR069, para 4.30 to 4.37).
- 10.116 The SoCG between the Applicant and HBMCE sets out an approach to mitigating these effects which would involve the appointment of a St Paul's project officer. The intention is to develop measures to avoid reduced spiritual and commercial use of the church during construction and to revive and sustain income streams in the longer term after the completion of construction works. The project officer job description is appended to the SoCG (APP116.20, section 4.10 and appendix F).
- 10.117 The subsequent update to the SoCG confirms that this matter is to be included within an Asset Protection Agreement with the Diocese of Southwark. Subject to that agreement being signed, HBMCE confirms that its objection to the use of Deptford Church Street would be removed (APP151, para 2.9.1). Confirmation has since been received on behalf of the Diocese of Southwark that an agreement has been reached on its objections.

- 10.118 The agreement reached between the Applicant and the Diocese of Southwark is not before the examination. Nevertheless, given that the Diocese of Southwark has confirmed that an agreement is in place, we are satisfied that mitigation measures relating to the synergistic impacts during construction identified by HBMCE have been adequately secured (REP425).
- 10.119 Turning to the effects of the permanent works, the ES states that there would be moderate beneficial effects on the conservation area and the setting of the church arising from landscape works to Crossfield Amenity Green and the adjoining public realm. The process for securing those works is described in chapter 8 where we say that we have no reason to doubt that this process would result in an appropriate design coming forward in due course. However, at this stage there is no commitment to any particular design approach and therefore only limited weight can be attached to the potential townscape enhancement which may be achieved. For the same reason we consider that only limited weight can be attached to potential future heritage benefits.

Sites in LB Hammersmith and Fulham

- 10.120 LB Hammersmith and Fulham makes a general point about the submission of illustrative and indicative plans at Hammersmith Pumping Station, Carnwath Road Riverside and Acton Storm Tanks¹⁴¹, which are either in or near conservation areas. It is suggested that full details should be submitted to allow heritage impacts to be assessed (REP090, para 6.6). The balance between flexibility and certainty is discussed in the section on design, landscape and visual impact and those points are not repeated here. The Applicant's approach is widely accepted, including by consultees who are concerned with the historic environment.
- 10.121 LB Hammersmith and Fulham's comments on Carnwath Road Riverside refer to the Sands End Conservation Area but are also concerned with effects on the development potential of adjoining land - matters which are covered in chapter 11 in the section on 'Effects on regeneration'. For reasons set out in that section, we do not consider that the permanent works proposed at Carnwath Road Riverside would be harmful to the Conservation Area.
- 10.122 At Hammersmith Pumping Station, LB Hammersmith and Fulham is concerned that the replacement of the screen house building and the introduction of ventilation columns and a ventilation building could be harmful to the Fulham Reach Conservation Area (REP090, para 6.8). These works would be within the existing Thames Water compound, seen in the context of the 1960s pumping station building. The height and location of the ventilation structure and the ventilation columns would be controlled by the

¹⁴¹ Acton Storm Tanks is in LB Ealing but is close to the boundary with LB Hammersmith and Fulham

parameter plans. Design Principle HAMPS.03 requires boundary treatments to be sympathetic to the site context. Design Principle HAMPS.07 states that the height and footprint of any replacement screen house building should not exceed the height and footprint of the existing building.

- 10.123 Construction of the above-ground elements would be subject to approval by LB Hammersmith and Fulham of design, external appearance and materials in accordance with Requirement HAMPS8. We consider that, together with the parameter plans and design principles, this would adequately address the Council's concerns. The ES states that the permanent works would result in a minor beneficial effect. Whilst we agree that there would not be any adverse effect on the historic environment, we do not consider that a beneficial effect has been demonstrated.

Cremorne Wharf Depot

- 10.124 Most of the proposed development would be within an area occupied by a modern depot building. However, some control equipment would be located within the Grade II listed Lots Road Pumping Station. These are works for which listed building consent would normally be required. We were able to see both the interior and the exterior of the pumping station during an accompanied site inspection. The listed building interface drawing defines the extent of intervention in the fabric of the listed building. The degree of intervention would be slight and in our view would not affect any features which are important to the significance of the pumping station. No concerns have been raised by RB Kensington and Chelsea in relation to these works. The effects of settlement on this building have been considered earlier in this section.

Greenwich Pumping Station

- 10.125 The Greenwich Pumping Station site includes a number of listed buildings. The East Beam Engine House is a Grade II listed building forming part of this complex. It was not in use at the time of our accompanied site inspection. It is proposed that ventilation equipment would be located in the building, resulting in the need for changes to the fenestration to increase airflow. HBMCE welcomed the principle of bringing the building back into use but expressed some concerns about the extent of changes to the windows (WRR069, para 5.72). During the examination revised plans were submitted which would confine the proposed changes to the side and rear elevation. A revised Design Principle GREPS.12 states that the lantern shall be either refurbished or replaced with a replica to form part of the ventilation system for the building. These changes resolve HBMCE's concerns (APP116.20, para 3.11.54).

- 10.126 There would be localised modifications to the building and an external set of stairs would be temporarily removed and

reinstated. However, in our view any adverse effects to the building would be minor and would be outweighed by the longer term benefit of bringing a vacant listed building back into appropriate use.

King Edward Memorial Park Foreshore

- 10.127 King Edward Memorial Park Foreshore is located within the Wapping Wall Conservation Area. The Grade II listed Rotherhithe Tunnel Air Shaft is located on the riverfront within the park. The park itself is a non-designated heritage asset which the ES states has medium significance. This is not agreed by LB Tower Hamlets which considers the park to be of high significance because it is an example of Edwardian landscaping and city planning and because of its association with Edward VII (REPO96, para 5.5.4.2). We note the features of the park highlighted by LB Tower Hamlets in its LIR and we take them into account in our assessment of the effects of the proposed development. However, we agree that medium significance is reasonable because the heritage asset is non-designated.
- 10.128 The ES states that the permanent works would result in a moderate beneficial effect on the park and a minor beneficial effect on the conservation area (Doc 6.2.21, section 7). In chapter 8 we discuss the widely differing views we received on the effects of the permanent works on the townscape of the park. In that chapter we conclude that the foreshore structure would be likely to detract from the townscape of the park and that the proposed new landscape works would do no more than compensate for the harm arising from the proposed development. For the same reasons, we consider that the overall effect of the permanent works on the park, as a heritage asset, and on the character and appearance of the conservation area would be negligible rather than beneficial.

MITIGATION MEASURES

- 10.129 Mitigation for effects on the historic environment is embedded in the design of the proposed development. HBMCE describes how heritage considerations have been taken into account in site selection (WRR069). In chapter 8 we discuss how the designs for individual work sites have evolved with the benefit of input from consultees. This process has taken heritage considerations into account.
- 10.130 The CoCP Part A includes the preparation of site-specific heritage management plans. The CoCP Part B includes additional site-specific measures. Mitigation measures in respect of archaeology, settlement effects and effects on the setting of heritage assets during construction are discussed earlier in this section. Where works are proposed to listed buildings, the maximum extent of loss of historic fabric is defined on plans which would be approved as part of the DCO. Full details of works to designated heritage

assets and protective works during construction would need to be submitted for the approval of the relevant local planning authority, in consultation with HBMCE, under site-specific requirements (Requirements PUTEF5 and PUTEF6 are typical examples).

10.131 In addition to dealing with buried heritage assets, the OAWSI sets out the approach to recording those above-ground heritage assets that would be removed (APP153, section 8.5). Appendix C to the OAWSI identifies the proposed level of recording for each affected asset. Implementation of built heritage recording would be secured by Requirement PW9. We consider that this approach would accord with the NPS guidance that, where loss of part of a heritage asset's significance is justified, the Applicant should record and advance understanding of the significance of the asset before it is lost (NPS, para 4.10.20).

10.132 The NPS states that decision makers should consider the need for requirements or obligations to prevent any loss of significance of heritage assets until it is reasonably certain that the relevant part of the development will proceed (NPS, para 4.10.16). This application relates to a tunnelling project which would need to be completed as a whole. Consequently, we do not think that such requirements or obligations would be appropriate in this case.

CONCLUSIONS ON HISTORIC ENVIRONMENT

10.133 The Applicant has provided, as part of the ES, descriptions of the significance of the heritage assets affected by the proposed development. These include statements of significance for both buried and above-ground heritage assets. Information has also been provided in the Heritage Statement. We consider that these statements of significance, which include the contribution of setting, meet the requirements of the NPS. Moreover, they are sufficiently detailed to enable us to take into account the particular nature of the significance of the heritage assets and to understand the impacts of the proposed development on that significance.

10.134 In relation to archaeology, we consider that the Applicant has carried out an appropriate desk-based assessment which has identified archaeological potential at several work sites. The approach to field evaluation has been clarified during the course of the examination. The NPS states that where desk-based assessments are insufficient to properly assess the archaeological interest, a field evaluation should be carried out.

10.135 In this case the approach to field evaluation has been described but the field evaluations themselves will continue after the end of the examination. Nevertheless, we attach significant weight to HBMCE's agreement to the procedures set out in the revised OAWSI. For the reasons given above, we consider that the approach set out in the revised OAWSI would provide appropriate mitigation in relation to impacts on archaeological resources.

- 10.136 The proposed development has the potential to affect heritage assets through settlement resulting from shaft excavation and tunnelling. Adverse effects are predicted at two listed buildings - Greenwich Pumping Station and Lots Road Pumping Station. In both cases the effect would be minor adverse once appropriate repairs have been carried out. The likely harm to the significance of both buildings would be less than substantial and we would characterise it as minor.
- 10.137 The approach to mitigation in relation to settlement at some particularly sensitive assets has developed during the examination. Additional measures have been specified in the CoCP in relation to Hammersmith Bridge, Tower Bridge and St Paul's Church, Deptford. Whilst the risk of some harm to these assets cannot be excluded, on the evidence before us it appears unlikely that there would be material harm to their significance as heritage assets.
- 10.138 During the construction phase there would be widespread adverse effects on the settings of heritage assets. The ES identifies a number of conservation areas where there would be moderate adverse effects and there are several other conservation areas along the route where minor adverse effects on setting are identified. The impacts assessed in the ES have not generally been disputed and we see no reason to disagree with them.
- 10.139 Some of the assets affected during construction would have the highest statutory grades. The ES identifies moderate adverse effects on setting at the Royal Hospital, Chelsea and St Paul's Church, Deptford (both Grade I listed) and at Vauxhall Bridge (Grade II* listed). The setting of the Palace of Westminster World Heritage Site would be affected by the works at Victoria Embankment Foreshore. The ES assesses this as a minor adverse effect. The affected heritage assets also include registered parks and gardens.
- 10.140 Mitigation in relation to the adverse synergistic effects of construction on the Grade I listed St Paul's Church, Deptford have been developed during the course of the examination. Agreement has been reached between the Applicant and the Diocese of Southwark. Although the agreement itself is not before us, given that the representations of the asset owners are now withdrawn, we are satisfied that mitigation measures are adequately secured.
- 10.141 The permanent works would bring about changes to the historic environment in parts of London which are particularly sensitive in heritage terms. These include Putney Embankment Foreshore, Chelsea Embankment Foreshore, Albert Embankment Foreshore, Victoria Embankment Foreshore and Blackfriars Bridge Foreshore. In each case the design of the proposed development would offer significant mitigation. However, residual adverse impacts would remain in relation to conservation areas, listed river walls, listed

bridges and other heritage assets. We have considered other sites where there would be works to listed buildings, or where particular concerns have been raised, but have not identified significant adverse effects on the historic environment.

10.142 The ES states that there would be benefits to the historic environment at some sites. We do not agree in relation to Deptford Church Street and King Edward Memorial Park Foreshore. At Deptford Church Street there may be benefits in due course but little weight can be attached at this early stage in the development of the design of the future landscape works. At King Edward Memorial Park Foreshore the proposed landscape works would, in our view, do no more than compensate for the adverse effects of the proposed development on the park.

10.143 The NPS states that there should be a presumption in favour of the conservation of designated heritage assets. It follows that particular importance attaches to situations where the proposed development would result in harm to designated heritage assets. In this case there would be harm to a wide range of heritage assets:

- *Archaeology:* Although there is potential for impacts at several work sites, we consider that appropriate mitigation has been identified and secured through the OAWSI¹⁴².
- *Settlement:* There is potential for harm to several designated heritage assets. However, appropriate mitigation has been identified and in the case of the most sensitive assets it is unlikely that there would be material harm to significance. Adverse impacts are predicted at two Grade II listed buildings. The harm to their significance is likely to be less than substantial and we would characterise it as minor.
- *Setting of heritage assets during construction:* There would be widespread harm to the settings of designated heritage assets, including assets of the highest statutory grades. That said, it is necessary to bear in mind that these impacts would be temporary.
- *Effect of permanent works on above-ground heritage assets:* Although there would be changes to the historic environment in parts of London which are particularly sensitive in heritage terms, the design of the proposed development would offer significant mitigation. However, residual adverse impacts would remain in relation to conservation areas, listed river walls, listed bridges and other heritage assets.

10.144 We have not identified any instances, during construction or operation, where the proposed development is likely to result in substantial harm to or loss of the significance of a listed building

¹⁴² Buried heritage assets may be undesignated because they are as yet unknown. It may be that undesignated buried heritage assets are discovered which, as a matter of policy, should be afforded the same protection as designated heritage assets (NPS, para 4.10.5)

(of any grade), a conservation area or a registered park and garden. Nor would there be substantial harm to the significance of the Palace of Westminster World Heritage Site or the Tower of London World Heritage Site.

10.145 Nevertheless, such harm to the significance of heritage assets as we have identified above should be weighed against the public benefit of the development, recognising that the greater the harm the greater the justification will be needed. We return to that balance in chapter 18. This balance informs the broader balance of impacts and benefits required by s104 of PA 2008.

11 LAND USE, INCLUDING REGENERATION AND OPEN SPACE

INTRODUCTION

- 11.1 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) requires applicants and decision makers to have regard to a range of direct and indirect impacts on existing and planned land uses. It states that the re-use of previously developed land for new development can make a major contribution to sustainable development whilst noting that this may not be possible for some forms of infrastructure (NPS, section 4.8).
- 11.2 The NPS refers to national policy on Green Belts and states that there is a general presumption against inappropriate development within them. Waste water projects may comprise inappropriate development which is by definition harmful to the Green Belt. Such development should not be approved except in very special circumstances. The decision maker will attach substantial weight to the harm to the Green Belt when considering an application for such development (NPS, section 4.8). Although the proposed development would not be located in the Green Belt, part of it would be within Metropolitan Open Land (MOL). The London Plan states that MOL should receive the same level of protection as Green Belt.
- 11.3 The Government's policy is to ensure that there is adequate provision of high quality open space and sports and recreation facilities to meet the needs of local communities. The decision maker should not grant consent for development on existing open space, sports and recreational buildings and land unless an assessment has shown that the open space or the buildings and land are surplus to requirements or the decision maker determines that the benefits of the project outweigh the potential loss of such facilities. The loss of playing fields should only be allowed where they will be replaced with facilities of equivalent or better quantity or quality. In making a judgement the decision maker should consider whether any adverse effect is temporary and should also have regard to any exchange land offered (NPS, section 4.8).
- 11.4 The NPS states that the Environmental Statement (ES) should identify existing and proposed land uses near the project together with any effects of replacing an existing development or use with the proposed project, or preventing an existing development or use from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. Where a project conflicts with a proposal in a development plan, the decision maker should take account of the stage which the development plan has reached (NPS, section 4.8).

- 11.5 This chapter considers effects on land use under the following headings:
- Use of previously developed land
 - Metropolitan Open Land
 - Open space, sport and recreation
 - Safeguarded wharves
 - Effects on regeneration.
- 11.6 Effects on employment uses are considered in chapter 13 and effects on existing public rights of way are discussed in chapter 14.

USE OF PREVIOUSLY DEVELOPED LAND

- 11.7 Many of the proposed work sites would occupy previously developed land including Thames Water operational sites, vacant land awaiting redevelopment and industrial and commercial land and buildings. The exceptions are sites within, or partly within, parks and open spaces and sites within or partly within the tidal Thames. The site at Barn Elms is currently playing fields and King George's Park is a public park. The site at Falconbrook Pumping Station would be partly within a park and small elements of the works at Putney Embankment Foreshore and Chelsea Embankment Foreshore would be in open spaces. The site at King Edward Memorial Park Foreshore would be partly within the park although most of the permanent works would be within the river. The effects on open spaces are discussed later in this chapter.
- 11.8 In addition to Putney Embankment Foreshore and King Edward Memorial Park Foreshore there would be five other sites with permanent works in the tidal river. The NPS states that open space should be taken to mean all areas of public value, including areas of water such as rivers. The site selection process took account of a wide range of factors, as described in chapter 17. These included a preference for previously developed land over land which has not previously been developed.
- 11.9 We conclude that the greater part of the proposed development would be located on previously developed land. Whilst some of the sites would not be on previously developed land, we consider that the Applicant has taken reasonable steps to minimise the use of such land in accordance with the NPS.

METROPOLITAN OPEN LAND

- 11.10 Policy 7.17 of the London Plan states that the Mayor strongly supports the current extent of MOL and its protection from development having an adverse effect on its openness. Part B of the policy states that the strongest protection should be given to London's MOL and inappropriate development refused, except in very special circumstances, giving the same level of protection as in the Green Belt. In response to the ExA's Q9.2 (PD008) the

Applicant and the Mayor agree that the effect of Policy 7.17 is that in this case the NPS advice on Green Belt should apply to MOL. Paragraph 7.56 of the London Plan, and paragraph 4.8.4 of the NPS, refer to advice on Green Belt in the former Planning Policy Guidance 2¹⁴³. National policy on Green Belt is now contained in the National Planning Policy Framework (NPPF)¹⁴⁴.

- 11.11 The proposed work sites at Barn Elms, in LB Richmond upon Thames, and King George's Park in LB Wandsworth are in MOL. The Mayor of London is of the view that the proposed engineering works, at both sites, would amount to inappropriate development. However, he considers the permanent works to be relatively minor and does not think that they would affect the openness of the MOL. Moreover, the Mayor of London feels that the need to deliver the Thames Tideway Tunnel results in very special circumstances which justify the harm to MOL in these specific locations (REPO99, paragraph 92).
- 11.12 The Applicant considers that the proposed development would comprise engineering operations that would preserve the openness of MOL and avoid conflict with the purposes of including land in it. On that basis, having regard to paragraph 90 of the NPPF, the Applicant concludes that the proposals would not be inappropriate development.
- 11.13 The works at King George's Park would include a ventilation column up to 6m in height and an electrical and control kiosk up to 3m in height. There would also be a substantial area of hardstanding raised up above the natural level of the park. Whilst we appreciate that these elements have been carefully designed and sited to minimise their visual impact, we do not consider that they would preserve openness. To this extent we disagree with the Mayor of London. Having regard to paragraph 90 of the NPPF we conclude that the proposals at King George's Park would amount to inappropriate development.
- 11.14 At Barn Elms there would be an integrated electrical kiosk and ventilation structure, contained within habitat enclosure cladding, up to 6m in height. As at King George's Park, the structure has been carefully designed and sited to minimise its visual impact but would nevertheless have some impact on openness. It would not preserve openness and would therefore amount to inappropriate development.
- 11.15 Barn Elms is subject to Policy DM OS 2 of LB Richmond upon Thames' Local Development Framework. This policy seeks to protect and maintain the open character of MOL. However, it allows for small scale development for essential utility infrastructure where no alternative locations are available and

¹⁴³ The NPS also refers to 'any successor to it'

¹⁴⁴ NPPF, para 79 to 92

where there is no adverse impact on the character and openness of MOL. LB Richmond upon Thames considers that the proposed development at Barn Elms would accord with that policy (APP116.05, appendix C).

- 11.16 We conclude that the proposed development at Barn Elms and King George's Park would be inappropriate development in MOL. Having regard to paragraph 4.8.18 of the NPS, inappropriate development is by definition harmful. Very special circumstances to justify inappropriate development will not exist unless the harm by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations. In assessing the degree of harm to openness we take account of the Mayor of London's view, and that of LB Richmond upon Thames in respect of Barn Elms CSO site, and we would characterise the degree of harm to openness as relatively minor in both locations. The NPS requires the decision maker to attach substantial weight to harm to Green Belt and, by virtue of Policy 7.17, MOL should have the same level of protection. We return to the issue of whether or not very special circumstances exist in chapter 18.

OPEN SPACE, SPORT AND RECREATION

- 11.17 The Applicant has prepared an Open Space Assessment which considers the function, quality and value of open spaces affected by the proposed development. This covers both direct impacts, such as loss of open space, and indirect impacts such as loss of amenity to open spaces in the vicinity of construction sites. The river foreshore is included where there is public access. Assessments carried out by local authorities are described and taken into account (Doc 7.06). The effects of the loss of open space on the community are reported in the socio-economic chapters of the ES site-specific volumes (Doc 6.2.04 to 6.2.26).
- 11.18 None of the open space that would be lost, temporarily or permanently, is considered to be surplus to requirements. No exchange land is to be provided. It follows that the decision maker will need to consider, in accordance with the NPS, whether the benefits of the proposed development would outweigh the potential loss of open space. In making that judgement the duration of any temporary loss will be relevant as will any other mitigation offered. Consideration of the certificates required under s131 and s132 is not within the remit of the ExA. So far as the Compulsory Acquisition (CA) of open space land is concerned this is dealt with in chapter 19.
- 11.19 There are a number of sites where impacts would be relatively minor. At Putney Embankment Foreshore a public slipway giving access to the river and foreshore would be unavailable during construction but a temporary equivalent slipway would be provided. Also at Putney Embankment Foreshore, a kiosk would be

located on Waterman's Green. The area of land affected here would be relatively small.

- 11.20 At Chelsea Embankment Foreshore a small element of the works would affect Ranelagh Gardens and at Falconbrook Pumping Station part of the works would be in York Gardens. The areas affected are small in relation to the open spaces in question. At both sites the ES assesses the temporary impact on these open spaces during construction as minor adverse.
- 11.21 The open spaces which we consider would be affected the most are Barn Elms, King George's Park, Deptford Church Street and King Edward Memorial Park Foreshore. Those sites are discussed further in the following paragraphs. We then go on to comment on the duration of temporary impacts, the effect of permanent works in public spaces and the creation of new areas of public realm. The effect of construction noise on public open spaces is discussed in chapter 12.

Barn Elms

- 11.22 Barn Elms would be located within the Barn Elms School Sports Centre (BESSC). BESSC is within LB Richmond upon Thames and is owned by LB Wandsworth. It is an outdoor sports centre which has sports pitches, track and field facilities and changing rooms. The proposals include the replacement of the changing rooms and the track and field facilities in advance of any other construction works. The Applicant considers that there would therefore be no impact on the quality of provision. A total of 3.1ha would be affected during construction potentially affecting a number of pitches (APP15, section 3). A significant proportion of the land area would be for the access route to the construction site. This would follow the eastern boundary of BESSC, seeking to avoid existing landscaping¹⁴⁵.
- 11.23 The ExA sought further information about the effect on playing pitch provision and the Applicant provided illustrative pitch layouts for the construction and operational phases¹⁴⁶. These demonstrate that the pitch layout could be adjusted to limit the loss of playing pitches to a single pitch during construction. The ES assesses this as a minor adverse effect. In the operational phase the layout could be adjusted such that there would be no loss of playing pitches.
- 11.24 The re-provision of the changing rooms and the track and field facilities would be secured by Requirements BAREL10 and BAREL11. The design principles for this site would require the permanent works to be located as close as possible to the south-eastern perimeter to allow flexibility in the layout of pitches. They

¹⁴⁵ This matter was discussed at the CA hearing on 3 December 2013 (HEA054 to HEA056)

¹⁴⁶ DCO-PP-04X-BAREL-07036 and 07037

also state that the maintenance access road should be surfaced in reinforced grass and located to avoid impacts on mature trees. The indicative design intent plan shows how the control kiosk and ventilation equipment could be combined within a single structure contained within habitat enclosure cladding¹⁴⁷. Final details of landscape and the above-ground structures would be approved by the local planning authority.

- 11.25 LB Richmond upon Thames confirms in its LIR that the temporary impact on open space would be acceptable and could be mitigated by altering the pitch layout (REP094, para 2.17). LB Richmond upon Thames's outstanding concerns relate to the fencing of the access route during construction and whether construction should be permitted on Saturday mornings (APP116.05, table 4.1 items 2 and 3). LB Wandsworth agrees with the alternative provision of changing rooms and track and field facilities (REP098, para 4.2.4). LB Wandsworth also agrees that no replacement open space is needed (APP116.06, para 3.1.1).
- 11.26 We attach significant weight to the agreement of LB Richmond upon Thames and LB Wandsworth to the mitigation proposed during construction and we agree that the temporary loss of one playing pitch would be a minor adverse effect. Mitigation for the permanent effects is embedded in the design of the proposed works which would be in a peripheral location in the south-eastern tip of the BESSC. In our view the sympathetic design and siting proposed would avoid significant harm to either the functional or the amenity value of BESSC. This would be adequately secured through the DCO.
- 11.27 With regard to LB Richmond upon Thames's outstanding concerns, Saturday working is discussed in chapter 14. The fencing to the access route is a matter of detail which we regard as best resolved locally. This would be covered by Requirement BAREL12.

King George's Park

- 11.28 King George's Park is a District Park. Its overall quality is assessed as good, with good provision of informal and active sports facilities including tennis, bowls and children's play. The park has an ornamental lake. Neither the lake nor the sports facilities would be directly affected although there may be impacts on amenity value during construction (APP15, section 3). The construction works would occupy 0.34ha out of the 22ha of the park. The ES assesses this as a minor adverse effect. Moreover, as noted in chapter 12, around 10% of the park would be significantly affected by noise during construction. Mitigation would include advance planting, proposals for which have been developed in consultation with LB Wandsworth. The Open Spaces Society raised concerns about the

¹⁴⁷ DCO-PP-04X-BAREL-070017

impact of the proposed works on the park (REP280) which were discussed at the CA hearing on 17 January 2014.

- 11.29 The permanent works would create 0.07ha of new hard surfaced area which the Applicant considers would perform a public open space function¹⁴⁸. The ExA asked how the new hard surfaced area would be used (PD008, Q5.14). The Applicant responded that it would be a multifunctional space which would provide an attractive and welcoming gateway into the park integrated with north/south pedestrian routes. It would also provide an area for informal play and a meeting point. Being slightly raised, it would afford views southwards over the lake (APP05, section 14). LB Wandsworth commented that it had promoted the idea of a new entrance aligning with a new route for pedestrians and cyclists which is being provided by development to the north (REP106, response to Q5.14).
- 11.30 Responding to the concerns raised by the Open Spaces Society, the Applicant stated that location was chosen to be the least sensitive because it is a discrete area at the northern periphery of the park, close to busy roads, rather than in the more tranquil area in the heart of the park (APP90.04, section 3.4). LB Wandsworth is in agreement with the extent of the construction working area and the principle of advanced planting. LB Wandsworth also agrees that no replacement open space is needed (APP116.06, para 3.1.1). In chapter 8 we comment on LB Wandsworth's outstanding concerns in relation to the re-contouring of part of the park and we conclude that, in our view, the proposals would not result in material harm to the landscape character of the park. We also note that the provision of a new main entrance is welcomed by CABE (REP463), a view which we share.
- 11.31 We agree that the temporary loss of open space during construction would be a minor adverse impact. Final details of the permanent works and landscaping would be approved by LB Wandsworth, in accordance with the indicative plans for this site. We do not consider that there would be any material harm to the quality or value of the park as a result of the permanent works.

Deptford Church Street

- 11.32 Crossfield Amenity Green¹⁴⁹ is an area of open space located between Deptford Church Street and Deptford High Street. It adjoins the Grade I listed St Paul's Church and St Joseph's Roman Catholic Primary School and is within the St Paul's Conservation Area. It is designated as a Site of Interest for Nature Conservation. Other open spaces nearby include the Sue Godfrey

¹⁴⁸ As some hard surface would be removed elsewhere in the park the net increase in hard surface would be 0.04ha

¹⁴⁹ Crossfield Amenity Green is the name used in the LIR. Various names are used in the documents

Local Nature Reserve to the east of Deptford Church Street and open space to the east and north of St Paul's Churchyard.

- 11.33 The Open Space Assessment refers to LB Lewisham's Leisure and Open Space Study (2010). Deptford Church Street is in Evelyn Ward which, the study notes, has 0.91ha of parks and gardens per 1,000 population which is significantly below the Borough-wide standard of 1.41ha per 1,000 population. Crossfield Amenity Green is assessed as below average in terms of quality (Doc 7.06, section 5.10).
- 11.34 The Open Space Assessment states that the open space has low value due to the limited range of functions it supports. It is also said to be of low amenity value and to detract from its setting in its current state (Doc 7.06, para 6.3.138 to 6.3.140). The ES notes that the whole of the space would be required for construction, the temporary closure lasting for three and a half years. Given the usage survey findings, the number of users impacted is said to be low, with activities such as sitting on the grass and dog walking being displaced to other open space areas¹⁵⁰. The ES concludes that there would be a minor adverse effect during construction. The effect of the permanent works is stated to be beneficial due to the provision of improved open space.
- 11.35 LB Lewisham draws attention to the level of new development taking place in the locality which will place increasing pressure on the limited remaining open space. It considers that the loss of Crossfield Amenity Green would concentrate use on nearby open spaces, which would be to their detriment (REP093, para 8.2.41).
- 11.36 Written representations and submissions made at hearings indicate that local residents attribute a much greater level of amenity to Crossfield Amenity Green than that stated in the ES. Nick Williams¹⁵¹ commented that this is one of the few leafy open spaces of its type in Deptford's urban environment. Neighbouring open spaces have different functions and are not available for informal ball games. Moreover, it is in the conservation area and provides views of the listed church and listed railway viaduct which are central to the history and beauty of the area (WRR054).
- 11.37 We held an OF hearing in Deptford on 5 February 2014 at which we heard oral evidence about an initiative to establish a community garden at Crossfield Amenity Green. The local MP and local residents also spoke about the value of this green space in a densely populated area where open space is at a premium¹⁵². It is clear to us from the written and oral representations that the value

¹⁵⁰ The results of the user surveys are in appendix H to Volume 23 of the ES (Doc 6.2.23)

¹⁵¹ Nick Williams was speaking in his own right and as a member of Don't Dump on Deptford Heart community representative group

¹⁵² Harry Richardson, of Deptford High Street Community Garden Association, Joan Ruddock MP, Samantha Hunt, Alex Rudman

placed on the Green by the community goes beyond its utility as a place for recreation. It is regarded as being in the heart of the community and its proposed use for the project is seen by many as an affront.

- 11.38 The Applicant and LB Lewisham have entered into a s106 Agreement which would make provision for financial contributions intended to mitigate the loss of open space during construction. These would provide funding towards improved and/or alternative play and amenity facilities, sport and activity days and events for children living in the vicinity of Deptford Church Street and additional maintenance costs associated with increased use of nearby spaces. With regard to the reinstatement of the Green, LB Lewisham would establish a steering group to develop a landscaping masterplan for Crossfield Amenity Green and the adjoining public realm. The Agreement would provide funding for the preparation and implementation of the masterplan (APP119.13).
- 11.39 We note from the user surveys that the Green is reported as being lightly used. However, we see no justification for the assertion in the ES that the Green detracts from its setting. Seen in isolation it is a pleasant, if unremarkable, area of grass and trees. However, its value must be considered in the context of a densely developed urban area which is lacking in parks and gardens. Moreover, its central location in the conservation area close to the High Street gives it a civic and cultural value which is strongly felt by local residents. For these reasons we consider that the value of the open space is understated in the ES.
- 11.40 We take account of the s106 contribution towards increased maintenance of nearby spaces during the construction phase. We regard this as being directly related to the proposed works and reasonable. However, this measure would only offer a small degree of mitigation in relation to the magnitude of the impact. We comment further on some of the other s106 contributions relating to Deptford Church Street in chapter 13.
- 11.41 As noted above, in chapter 8, we have no reason to doubt that the s106 process for securing the reinstatement of the Green after the works would result in an appropriate design coming forward in due course. However, at this stage there is no commitment to any particular design approach and therefore only limited weight can be attached to any enhancement to the quality of open space which may be achieved.
- 11.42 A further consideration is the likely duration of work in the open space. For reasons discussed below, we are not confident that the Green would only be out of use for the period assumed in the ES. Having regard to all the above matters, our overall conclusion is that the ES understates the likely effect of the proposed development on open space at Deptford Church Street. We

consider that the use of Crossfield Amenity Green as a work site would be a serious loss to the local community which must be fully acknowledged in the balance of impacts and benefits required by s104 of PA 2008.

King Edward Memorial Park

- 11.43 King Edward Memorial Park is a District Park which provides a wide range of recreational facilities including a multi-use games area (MUGA), tennis courts, bowls, children's play area, sitting out areas, a nature conservation garden and a riverside esplanade. The Open Space Assessment refers to the Tower Hamlets Open Space Strategy (2006) which notes that Tower Hamlets is deficient in open space against the National Playing Fields Association standard of 2.4ha per 1,000 population. King Edward Memorial Park is in Shadwell Ward where there is 0.8 - 1.2ha of open space per 1,000 population. King Edward Memorial Park scored 80.3 out of 100 for overall quality - one of the highest scores in the Borough. It is also one of the most visited parks in the Borough and has a Green Flag award (Doc 7.06, sections 5.11 and 6.3).
- 11.44 The construction area within the park would occupy 0.87ha. Of this, 0.35ha would be required for the relocation of the MUGA and re-provision of the children's play area at the outset. These areas would be part of the useable open space for most of the construction phase. The Applicant states that around 0.37ha of the park would be unavailable for three and a half years. A further area of around 0.26ha on the riverfront would be separated from the rest of the park by the construction access route. It is acknowledged that this would affect a high number of park users and users of the riverfront walk, although the rest of the park (around 89%) would remain available (APP31.04, para 5.3.11 to 5.3.14).
- 11.45 The upper terrace and tennis courts, and most of the main lawn areas and wildflower garden, would not be directly affected although the amenity of these areas would be indirectly affected by noise and other construction impacts. (The effect of construction noise on public open spaces is discussed further in chapter 12). The ES assesses the impact during the construction phase as moderate adverse. The provision of new public space on the completed foreshore structure is assessed as a moderate beneficial effect (Doc 6.2.21, section 10).
- 11.46 LB Tower Hamlets does not agree with this assessment. Its LIR states that a key feature of the recreational use of the park is its location by the river which affords a sense of space and tranquillity. This view is supported by a Community Profiling Report¹⁵³ which demonstrates that the majority of park users are

¹⁵³ Appendix A to REP097

concentrated in the riverside section of the park. The research found that the park is highly valued by park users because it affords access to the river and because there is a lack of similar green spaces in the locality. LB Tower Hamlets considers that the overall impact on the park would be major adverse for the period of construction. LB Tower Hamlets agrees that the additional public realm created on the foreshore structure should be regarded as a benefit in terms of open space provision (REP097).

- 11.47 Many of the relevant representations included comments about King Edward Memorial Park Foreshore. Of these, a significant number made comments about the quality and value of the park and some common themes emerged. These include the point that this is the only riverfront park between Tower Bridge and the Isle of Dogs. It is said to be much loved by local people and much used for social and family events. Many representations stressed the particular value of the park in a part of London which has a very high population density and where most people live in flats. One such representation described the park as a *'rare and precious place of peace and quiet in a busy city'* (RRP120).
- 11.48 The written representation from SaveKEMP describes King Edward Memorial Park as a relatively small park made larger by the open vista to the river. The representation comments that the park serves one of the most deprived areas in London, offering opportunities for outdoor recreation and for access to nature. The environmental qualities of the park are emphasised, including the wildflower meadow and other environmental initiatives (WRR084).
- 11.49 The Applicant and LB Tower Hamlets have entered a Deed of Agreement¹⁵⁴ relating to works at King Edward Memorial Park Foreshore. The Agreement would provide financial contributions for improvements to Brussels Wharf, which is part of the public realm at Shadwell Basin, and the Glamis Road Adventure Playground. There would be a separate contribution for enhancements to other open spaces in the locality. These contributions are intended to provide mitigation for the loss of part of the park during construction (APP119.15).
- 11.50 The Agreement would also provide a mechanism for securing the reinstatement of the park following the works. A financial contribution would be provided for the development of a landscaping masterplan, to be agreed by the Council, the undertaker and the contractor with the assistance of a steering group established by LB Tower Hamlets. A financial contribution would then be made towards the implementation of the landscape masterplan (APP119.15).

¹⁵⁴ The Deed is an agreement to enter a s106 Agreement, in the form annexed to the Deed, following the grant of the DCO. Planning obligations are discussed in chapter 1 in the section on 's106 obligations given to support the application'

- 11.51 When assessing the impact of the proposed development it is necessary to consider the range of functions the park performs. The tennis courts and bowling green would not be directly affected. The MUGA would be reconfigured¹⁵⁵ and the play area relocated but these works would be carried out before the main works started so the facilities would be available for use for most of the construction phase. This phasing would be secured by Requirement KEMPF7. Consequently, we consider that the impact on these facilities would be relatively minor.
- 11.52 It is clear to us from the many representations we have received that the characteristics of the park which are particularly valued by the community are its connection with the river and its tranquillity. We noted on our site inspections to the park that the sense of tranquillity increases towards the river as one moves further from the heavily trafficked A1203 (The Highway). The proposed works would take up around three quarters of the river frontage. Whilst part of the river frontage would remain available to the public, this would be separated from the main body of the park by the construction access from Glamis Road.
- 11.53 We appreciate that a point for crossing the access route would be provided and that the access route could be bounded by an open mesh fence to allow views. Even so, the sense of a direct connection between the park as a whole and the riverfront would be severely diminished. The combined effect of the much reduced access to the river, the visual impact of the works and the associated noise and disturbance would detract significantly from the very qualities, namely connection to the river and tranquillity, which are so valued by the community.
- 11.54 LB Tower Hamlets identified a number of open spaces in the locality where some mitigation could be provided and we were able to visit these during the examination¹⁵⁶. These suggestions were discussed with the Applicant, resulting in the Agreement referred to above. Brussels Wharf is close to King Edward Memorial Park Foreshore and offers an opportunity to provide an alternative toddlers' play facility in an attractive setting away from construction activity. Glamis Adventure Playground is an existing facility which could be enhanced for greater use by older children. Wapping Woods, to the west of Shadwell Basin could also be enhanced for passive recreational use. It offers a sense of greenness and tranquillity although it is not in a waterside setting. We consider that these contributions would be directly related to the proposed development and necessary to mitigate its impacts. We therefore take them into account.

¹⁵⁵ The MUGA would be reduced in size but the Applicant states that it would still meet the relevant standard for a pitch of this type

¹⁵⁶ These were unaccompanied site inspections

- 11.55 One form of mitigation discussed during the examination but not offered by the Applicant is avoiding construction work on Saturday mornings at King Edward Memorial Park Foreshore. The ExA asked about the programme implications at each work site (other than drive sites) if Saturday working were not permitted. The Applicant's response was that the works at King Edward Memorial Park Foreshore would need to start sooner and finish later, extending the construction period at this site by 3.7 months but with no impact on the overall project programme (APP52, section 8). LB Tower Hamlets submitted that the benefits of precluding Saturday working would outweigh the increased construction period (REP447, section 4).
- 11.56 There is inevitably a trade-off between limiting construction hours, to reduce the impact of noise and disturbance, and completing construction projects in a shorter timeframe. The working hours proposed by the Applicant are broadly consistent with those often adopted by local authorities for construction work. That said, there are particular circumstances at King Edward Memorial Park Foreshore which in our view call for a different approach. Given the importance to the local community of access to, and quiet enjoyment of, the riverfront we consider that allowing some respite on Saturday mornings, when the park is likely to be well used, would be a valuable addition to the overall approach to mitigation.
- 11.57 In chapters 12 and 17 we conclude that a restriction on Saturday working at King Edward Memorial Park Foreshore would be beneficial for the residents of Free Trade Wharf, and for users of the park, by providing respite from noise. That finding adds weight to our conclusions in the preceding paragraph. We recommend accordingly in relation to the draft DCO in chapter 20.
- 11.58 Our overall assessment is informed by the context in which the park is located. The Borough has an overall shortage of open space, this part of the Borough is particularly densely developed with many residents living in flats and there are high levels of deprivation which may limit opportunities for residents to access alternative facilities. In conclusion, in the light of the evidence before us, we agree with LB Tower Hamlets that the ES understates the effect on the community of the construction impacts on the park. We take account of the s106 obligations which would provide some useful mitigation by way of enhancements to nearby spaces. Even so, we consider that the use of part of King Edward Memorial Park would be a serious loss to the local community which must be fully acknowledged in the balance of impacts and benefits required by s104 of PA 2008.
- 11.59 With regard to the permanent works, we agree with the Applicant and LB Tower Hamlets that the additional public realm created on the foreshore structure should be regarded as a benefit in terms of open space provision.

Duration of works in public spaces

- 11.60 The duration of works in public spaces was discussed during the examination. The application sets out the anticipated programme and period of the works at each site, for example three and a half years at Deptford Church Street and at King Edward Memorial Park Foreshore. However, because the timing of these works would be dependent on tying in with the progress of the tunnel, works would end well before the project as a whole would be completed and commissioned - perhaps by as much as two to three years. The ExA sought to understand whether the work sites in public spaces would be landscaped and made available for public use in the period between completion of works at any given site and commissioning of the tunnel.
- 11.61 At the IS hearing of 6 February 2014 the Applicant explained that its intention is that completion of the works at any site would include landscape works and removal of hoardings. The contractor would return to the site at a later date for commissioning¹⁵⁷. On 3 March 2014 the Applicant submitted drafting notes with the revised DCO which explained its approach to removing any uncertainty on the point (APP177.01).
- 11.62 Requirement PW4 now requires the submission of site-specific details of the phasing of the works, including the removal of temporary construction areas and works. The landscaping requirements include approval of details of restoration of landscaping after commissioning and a programme for implementation of all landscape works (eg Requirement BAREL5). Commissioning requirements would require temporary enclosures to be removed and sites made available for use within one month of the completion of the landscaping works (eg Requirement BAREL13).
- 11.63 We note that the CoCP Part A states that plant and temporary buildings should be removed as soon as practicable on completion of a construction activity and all land is to be made good in accordance with the approved landscaping scheme and timetable for that site (APP205.01, para 4.16.2).
- 11.64 Whilst we appreciate the Applicant's intentions, we are mindful that, in practical terms, the timing of the works would be in the control of the appointed contractors. The overall phasing, to be submitted under PW4, would be for information not approval. In our view it could not be otherwise because it would not be reasonable or practical to seek to control under a requirement the time construction may take. If the contractor's chosen phasing did not allow for landscaping to take place between completion of works and commissioning we do not see that the landscaping

¹⁵⁷ Mr Arnold, for the Applicant, in response to questions from the ExA at the third IS hearing on the DCO on 6 February 2014

condition would enable a local planning authority to change that position. On the information before us, we cannot be confident that the work sites in public spaces would be made available for public use in the timescales set out in the ES.

- 11.65 This matter is of particular concern to LB Tower Hamlets in relation to King Edward Memorial Park Foreshore. The Council suggests alternative wording for Requirements KEMPF6 (landscaping) and KEMPF17 (commissioning). The suggested wording is intended to ensure that *'once the main construction works have been completed, the Park should be fully reinstated; as much landscaping as possible provided; hoardings removed completely; and the Park be made fully accessible for public use. Only at such time as the commissioning notice is approved by the council should any hoardings be erected and the necessary part of the park closed to the public'* (REP492).
- 11.66 Whilst we share the Council's concern on this point, for the reasons given above we do not think that changing the drafting of Requirements KEMPF6 and/or KEMPF17 (or any equivalent requirements at other sites) could provide certainty in relation to the duration of works in public spaces.

The effects of locating permanent works in public spaces

- 11.67 The visual impacts of items such as ventilation columns are dealt with in chapter 8. In this section of the report we consider the implications for the public use of open spaces of locating infrastructure within them. The land taken up by the permanent works would be acquired by the Applicant and retained in its ownership thereafter. Most of the infrastructure would be below ground and the surface would be made available for public use on a permissive basis. Consequently, the ES does not treat this as a permanent loss of public open space. The detailed arrangements would be governed by planning obligations.
- 11.68 The areas in question would be closed off at intervals so that the undertaker could carry out maintenance. The ExA asked about the likely frequency and duration of closures (PD017, Q21.1 to Q21.3). The Applicant explained that there would be two types of planned maintenance. Inspection and maintenance of equipment in the shallower chambers would take place every three to six months and would take several hours. The ten-yearly internal inspection of the tunnel and shafts would involve the use of two cranes and a range of vehicles and equipment. The expected duration of this operation would be 10 - 15 days at any work site. If significant pockets of sedimentation were discovered this could add a further 10 days. In the unexpected scenario of a serious problem with the tunnel the closure period could be very much longer - perhaps several months (APP51, sections 1-3).

- 11.69 LB Wandsworth has requested that the undertaker should give six months notice to the local authorities in advance of carrying out ten-yearly maintenance operations. This is to ensure that local residents and other users of land within the vicinity of the works receive advance notice of such impacts and that resultant disruption is kept to a minimum. The Council has drafted a suggested DCO requirement PW18 (REP448, 3 March 2014). The Applicant has responded that without prejudice, *'if the Secretary of State is minded to include a requirement for the undertaker to give notice to the relevant planning authorities before major maintenance works are carried out, we consider that the appropriate notice period should be 28 days, which is in line with the notice period under the Water Industry Act 1991'* (APP198.26).
- 11.70 This exchange occurred at the end of the examination, so we do not have any response from the Council. However, as the ten-yearly maintenance operation would be a major exercise typically lasting up to 15 days, we consider that it would be appropriate for notice to be given to the relevant local authority so that conflict with other operations, activities or events in the park could be minimised and so that the local community could be notified. We agree with the Applicant that the notice period should be not less than 28 days, which would be consistent with the Water Industry Act 1991. We recommend accordingly in chapter 20.
- 11.71 Our overall assessment is that the longer inspections would be infrequent and the more regular inspections would be of short duration. Even allowing for some additional unplanned inspections, it is likely that in most years there would be only a few days when public access would be restricted. In our view this would not amount to a significant impact.

The creation of new public realm

- 11.72 We have referred above to the creation of new public realm at King Edward Memorial Park Foreshore. New public realm would be created at all of the foreshore sites and in some other locations. Public access would be on a permissive basis, subject to the same temporary closures for maintenance described above in relation to works in existing open spaces¹⁵⁸. We consider that the new public realm would be a benefit of the proposed development, particularly at Victoria Embankment Foreshore and Blackfriars Bridge Foreshore where it would adjoin well used parts of the Victoria Embankment, providing new opportunities for experiencing river prospect views in central London.

¹⁵⁸ The new public realm at Blackfriars Bridge Foreshore is intended to be designated as a City Walkway

SAFEGUARDED WHARVES

- 11.73 The London Plan states that water transport is recognised as one of the most sustainable modes of transport, particularly for bulk movements. Policy 7.26 of the London Plan seeks to increase the use of the Blue Ribbon Network to transport freight. It goes on to state that safeguarded wharves should only be used for water-borne freight handling and the redevelopment of such wharves for other land uses should only be accepted if the wharf is no longer viable, or capable of being made viable, for water-borne freight handling. Development adjacent to safeguarded wharves should be designed to minimise the potential for conflicts of use and disturbance.
- 11.74 The Mayor of London's LIR identifies four work sites which contain safeguarded wharves:
- Hurlingham Wharf (Carnwath Road Riverside)
 - Cremorne Wharf (Cremorne Wharf Depot)
 - Kirtling Wharf (Kirtling Street)
 - Middle Wharf (Heathwall Pumping Station).
- 11.75 The Mayor of London's LIR comments that the designation of all four wharves is given effect by Directions which have been in place since 1997. During 2011-13 the Mayor of London undertook a review of the safeguarded wharves. He concluded that the designation of the four wharves affected by the application should remain unchanged because of the continuing commercial demand for wharves in west London. A report recommending in these terms has been submitted to the Secretary of State for confirmation (LIR, para 104-159).
- 11.76 The availability of river transport has been an important factor in site selection. The Applicant stated that the Mayor of London encouraged the use of safeguarded wharves at the pre-application stage¹⁵⁹. In the application scheme two of the main tunnel drive sites include safeguarded wharves (Kirtling Street and Carnwath Road Riverside) and the third is an existing wharf which is not safeguarded (Chambers Wharf). The Applicant considers that use of the safeguarded wharves in connection with the construction of the tunnel would be consistent with the objectives of London Plan Policy 7.26. Having regard to the River Transport Strategy, which is discussed further in chapter 14, we share that view.
- 11.77 The Mayor of London seeks to have a role in agreeing any permanent structures or landscaping at the safeguarded wharves, post construction, to ensure that they remain viable. This is now reflected in site-specific requirements under which restoration schemes for the wharves would be submitted for the approval of

¹⁵⁹ Mr Rhodes, for the Applicant, at the first IS hearing on the rationale for site selection and drive strategies, 11 November 2013

the Mayor of London in consultation with the PLA and the relevant planning authority (Requirement CARRR14 is a typical example). This approach is not agreed by LB Hammersmith and Fulham. The Council considers that it would amount to an unwarranted extension of the Mayor's planning powers.

- 11.78 In our view the suggested requirements are reasonable. They would enable the Mayor of London to take account of the strategic role of the wharves when considering restoration schemes. The DCO would create a new planning regime for the sites in question, in circumstances that are unlikely to be often repeated. No general precedent would be set in relation to the respective roles of the Mayor of London and the Boroughs.

EFFECTS ON REGENERATION

- 11.79 The NPS states that applicants should assess any effects of precluding development proposed in a development plan (NPS, para 4.8.4). Delay to proposed development is not specifically referred to but in our view it is an impact which should be taken into account. Particular concerns have been raised regarding potential impacts on planned regeneration at Carnwath Road Riverside and Kirtling Street. We discuss those sites first before commenting on some other sites where potential impacts have been referred to in the evidence.

Carnwath Road Riverside

- 11.80 Carnwath Road Riverside is within an area known as South Fulham Riverside (SFR). Borough-wide Strategic Policy H1 of LB Hammersmith and Fulham's Core Strategy (CS) states that the Council will exceed the proposed London Plan target of 615 additional dwellings per year up to 2021 and will continue to seek at least 615 additional dwellings per year up to 2032. The indicative housing target for SFR is 1,600 up to 2022 and a further 600 up to 2032. Strategic Policy SFR states that the Council will work with landowners and other partners to secure the regeneration of the SFR area. Most sites should be developed predominantly for residential purposes to contribute to the SFR target of 2,200 dwellings by 2032 (APP116.03, appendix D).
- 11.81 The South Fulham Riverside Supplementary Planning Document (SPD) was adopted in January 2013. The Applicant made representations on the content and legitimacy of the document as an SPD. Be that as it may, the document has been adopted and the Applicant accepts that it now forms part of the planning framework for the Borough, although it is not part of the development plan (APP116.03, para 3.14.8).
- 11.82 The site is also within the Sands End Conservation Area. The ES notes that the conservation area was created with the intention of *'protecting the riverside from unsympathetic development and to*

encourage the preservation and enhancement of the riverside itself, ensuring that new development is of a good and appropriate design'. This part of the conservation area is characterised by late 20th century retail, light industrial and residential development (Doc 6.2.10, para 7.4.38 and 7.4.39).

11.83 In January 2013 three planning applications relating to Carnwath Road Riverside were reported to LB Hammersmith and Fulham's planning committee. The officer's report states that the proposed developments could be implemented either as one comprehensive masterplan or as individual schemes. In response to the ExA's Q9.5 (PD008) LB Hammersmith and Fulham confirms that the committee has resolved to approve the applications subject to s106 agreements which are under negotiation (REP104, response to Q9.5). All three applications propose mixed uses with a substantial residential element as follows:

- Whiffin Wharf - 70 dwellings
- Hurlingham Wharf - 148 dwellings
- Carnwath Road Industrial Estate - 257 dwellings.

11.84 The sites are subject to a Direction in relation to the Thames Tideway Tunnel. If it were not for the Tunnel, the application at Hurlingham Wharf would need to be referred to the Mayor of London because the site is a safeguarded wharf.

11.85 One of LB Hammersmith and Fulham's objections to the use of Carnwath Road Riverside is the impact on regeneration and housing delivery at SFR. Its written representation argued that over 600 dwellings would be delayed for over 10 years or not built at all. This was based on the number of dwellings proposed for the Carnwath Road Riverside site itself and at a site known as Baltic Sawmill. In respect of Whiffin Wharf, it was argued that the presence of the permanent works would preclude any viable development of the remainder of the site (WRR073, para 2.68).

11.86 The Applicant has provided information on the broader land supply position, based on documents published by LB Hammersmith and Fulham. The Council's identified five year land supply for the Borough, which does not rely on sites at Carnwath Road Riverside, is more than double the London Plan and CS target of 615 dwellings per year. Those elements of the five year supply related to SFR, when taken together with other sites identified in the Strategic Housing Land Availability Assessment, show that there is sufficient supply to comfortably exceed the SFR target of 1,600 dwellings by 2022 without any reliance on sites at Carnwath Road Riverside (APP168, section 1.6). LB Hammersmith and Fulham do not dispute these figures.

11.87 In its final written submission LB Hammersmith and Fulham draws attention to the draft further alterations to the London Plan which suggests an increase in the Borough target to 1,031 dwellings per

year (REP490). The Applicant comments that this increase is accounted for by the inclusion of the updated Earls Court and West Kensington Opportunity Area and is therefore irrelevant to the examination. Whether or not the Applicant is right on that point, we consider that the further alterations are at an early stage and the figures in the London Plan and adopted CS should carry greater weight in our assessment.

- 11.88 The permanent works at Carnwath Road Riverside would be located primarily within Whiffin Wharf. Hurlingham Wharf and Carnwath Road Industrial Estate would be required during construction but would be made available for alternative uses thereafter. Thus it is only on Whiffin Wharf that any future housing would be precluded. The Applicant prepared feasibility studies to explore the capacity of Whiffin Wharf for housing following completion of the proposed development. These were revised in the light of comments from LB Hammersmith and Fulham.
- 11.89 Agreement was not reached on this matter and, at the close of the examination the Applicant's assessment was that the site could accommodate around 50 dwellings whereas LB Hammersmith and Fulham suggested a figure of around 20. In the broader context of likely housing provision at SFR we do not think that this difference of opinion is significant. On either analysis it can be concluded that the balance of Whiffin Wharf could accommodate some development, albeit less than in the planning application scheme (APP168, section 1.6, REP444 and REP490). It must also be taken into account that any housing which is delayed or precluded would have included an element of affordable housing.
- 11.90 LB Hammersmith and Fulham consider that Hurlingham Wharf is no longer viable as a wharf and that the current planning application for redevelopment would therefore accord with the viability criteria of London Plan Policy 7.26¹⁶⁰. At the IS hearing of 11 November 2013 the Mayor of London's representative stated that there is a shortfall of wharf capacity in the west of London in relation to future projections of need¹⁶¹. As noted above, the Mayor's review of safeguarded wharves recommends retention of the designation at this site.
- 11.91 It is not for us to pre-judge either the Secretary of State's consideration of the safeguarded wharves review or the Mayor of London's future consideration of an application which might be referred to him. For the purposes of this examination, it seems to us important that:
- Hurlingham Wharf is currently designated as a safeguarded wharf

¹⁶⁰ The matter is discussed at paragraphs 3.10 to 3.30 of the committee report relating to the current planning applications. The report is attached as annex 3 to REP104

¹⁶¹ Kevin Reid, on behalf of the Greater London Authority

- The Mayor of London's view is that the designation is still needed
 - Hurlingham Wharf is not the subject of any site-specific development plan allocation for alternative development.
- 11.92 On balance, notwithstanding the SFR SPD and LB Hammersmith and Fulham's committee resolution to grant permission for alternative development, we do not consider that the application scheme would be likely to delay housing at Hurlingham Wharf because of its status as a safeguarded wharf.
- 11.93 The proposed development would have the effect of delaying 257 dwellings at Carnwath Road Industrial Estate although there is no evidence to suggest that this site could not contribute to the SFR housing target in the latter part of the period 2022 - 2032. The Baltic Sawmill site is not part of Carnwath Road Riverside and it has not been shown that housing delivery here would be materially affected.
- 11.94 LB Hammersmith and Fulham is also concerned that the layout of the permanent works would not enable adjoining land to be developed in accordance with the urban design principles contained in the SFR SPD (REP090, para 6.15). It comments that the ventilation column would be highly visible and that development on Whiffin Walk could be restricted. Moreover, the Council considers that the ventilation building has been designed as a buffer to Hurlingham Wharf. It would prefer to see a more open edge to the new public space to facilitate permeability with future mixed use development on the adjoining site.
- 11.95 The concept of a free-standing ventilation column at this location is supported by CABE (REP463). Its location on the riverfront adjacent to Hurlingham Wharf, as shown on the indicative plans, would minimise its impact on the development potential of Whiffin Wharf. Design Principle CARRR.11 states that the ventilation column should be a local landmark which enhances the local townscape (APP206.01). Whilst it would no doubt create a prominent new feature on the riverfront, this would be seen in the context of new development on Whiffin Wharf and the use of Hurlingham Wharf for river transport.
- 11.96 It is fair to say that the indicative designs for the ventilation building and the landscaping would create a buffer on the eastern boundary to Whiffin Wharf. Indeed, this is the design intent, as stated in Design Principle CARRR.05 (APP206.01). In our view this approach accords with London Plan Policy 7.26 which requires that development adjacent to safeguarded wharves should be designed to minimise the potential for conflicts of use and disturbance. Design Principle CARRR.05 also allows the possibility of the above-ground structures being integrated into the redevelopment proposals for Whiffin Wharf, should those proposals come forward in a compatible timescale. As noted above, LB Hammersmith and

Fulham now accept that the balance of Whiffin Wharf could be developed.

- 11.97 Final details of the permanent above-ground structures and the landscaping would be approved by the local planning authority, in accordance with the indicative plans and the design principles for this site. Consequently, we see no reason to think that the permanent works proposed at Carnwath Road Riverside would be harmful to the future use and/or development of adjoining land or to the character and appearance of the Sands End Conservation Area¹⁶².
- 11.98 On 12 February 2014 the Mayor of London suggested that further consideration should be given to locating the permanent above-ground structures at Carnwath Road Riverside on Hurlingham Wharf, to enable Whiffin Wharf to be developed for housing. The Mayor of London accepts that he has not raised this point previously and that the application proposals accord with the London Plan (REP358, para 4.1.3 to 4.1.6). This suggestion is not one that could be accommodated within the submitted parameter plan for this site. Given the Mayor's stated view that the application scheme accords with the London Plan we attach little weight to this suggestion.

Kirtling Street

- 11.99 LB Wandsworth comments in its LIR that Kirtling Street is located within the Vauxhall Nine Elms Battersea Opportunity Area (VNEBOA), one of 33 opportunity areas identified in the London Plan. The Wandsworth part of the opportunity area has the potential to deliver around 13,400 new homes and 20,000 jobs over a 20 year period. LB Wandsworth recognises the importance of the Thames Tideway Tunnel but considers that it must be implemented in a way which does not put at risk long term regeneration on a scale which is of national significance. LB Wandsworth is particularly concerned about the delivery of affordable housing which, it considers, would be delayed to the end of the development (REP098, section 9).
- 11.100 The Battersea Power Station Owning Group (BPSOG) states that Battersea Power Station (BPS) is the focal point of the VNEBOA and will provide over 3,400 homes (including 503 - 517 affordable homes¹⁶³) and 15,000 jobs. Safeguarding Directions in respect of the Thames Tideway Tunnel include land that is to form phases 5 and 7 of the BPS development. BPSOG has concerns about impacts on the delivery of the BPS development including issues in relation to the delivery of affordable housing and the relocation of the CEMEX concrete batching plant (WRR062).

¹⁶² In chapter 10 we note that there would be harm to the setting of the conservation area during construction

¹⁶³ The precise number depends on whether student accommodation is included in one of the phases

- 11.101 The ExA asked for additional information about how effects on the delivery of affordable housing might be mitigated (PD017, Q28.3). The Applicant comments that under the s106 Agreement for BPS affordable housing must be provided within phase 4 (310 units in total) and phase 5 (160 units in total). The estimated start date for phase 5 is June 2019. The site is expected to be required as part of the Kirtling Street work site until 2022, although there may be potential to release it sooner, by the end of 2020. The impact on affordable housing delivery could potentially be mitigated through provision within other development zones, subject to agreement with LB Wandsworth and BPSOG (APP55, section 3).
- 11.102 BPSOG agrees with the above comments and adds that a key consideration in providing affordable housing in phase 5 was that the land value there is lower. Moving provision to other phases could significantly reduce the number of affordable units delivered, although it is difficult to be definitive regarding impacts because there are multiple factors affecting each phase (REP235, response to Q28.3). LB Wandsworth emphasises the importance of the issue in that BPS will contribute nearly a quarter of the affordable housing in the VNEBOA (REP238, response to Q28.3).
- 11.103 We understand that the Applicant has been in discussions with BPSOG with a view to reaching agreement on a mechanism for minimising the effects of the project on housing delivery. At the close of the examination the Applicant advised that there is a binding Memorandum of Understanding with BPSOG regarding phase 5 and a further agreement is under discussion. The Applicant also commits to continuing dialogue with LB Wandsworth. However, no further information on mitigation is before the examination (APP116.06, table 4.7, item 13). We must therefore assume that 160 affordable units could be delayed for up to around three years. Alternatively, the consequence of avoiding delay may be to reduce the number of affordable units.
- 11.104 The position in respect of phase 7 is that the BPSOG anticipated start date is the second quarter of 2022 (WWR062). Thus it is possible that some delay would arise as a result of the use of the site as part of Kirtling Street, but this is unlikely to be for an extended period.
- 11.105 BPSOG also expressed concern about construction impacts on other parts of the BPS development. Phase 6 would be closest to Kirtling Street although there is a substantial waste transfer station between much of phase 6 and the proposed work site. In response to the ExA's questions, BPSOG states that the accommodation in phase 6 would be orientated away from the wharves and facades would be sealed in sensitive areas. Moreover, occupation of phase 6 is not expected to be until 2022 (REP235, responses to Q28.5 to Q28.7).

- 11.106 Relocation of the CEMEX concrete batching plant forms part of the application and was of concern to BPSOG¹⁶⁴. However, during the course of the examination LB Wandsworth has granted a separate planning permission for the relocated batching plant subject to conditions which are, no doubt, intended to protect the amenity of adjoining occupiers. The drafting of the DCO has been amended to ensure that there would be no inconsistency between that permission and any consent granted under the DCO.
- 11.107 Having regard to all the above factors, we do not consider that the proposed development would have a significant impact on the delivery of BPS other than the direct impacts of occupying phases 5 and 7. This would result in delay to these two phases, including to the affordable housing proposed in phase 5.

Other sites

- 11.108 At Hammersmith Pumping Station the drop shaft would be located within a site which is currently being redeveloped by St George Central London Ltd. The design has taken account of the proposed layout and the drop shaft cover would be incorporated into the public realm of the new development. The developer has reached an agreement with the Applicant and does not oppose the application (RRP684).
- 11.109 The LIR from LB Southwark comments that use of Chambers Wharf would delay the delivery of 400 dwellings. Planning permission has been granted for development on both sides of Chambers Street and that part to the south of the street is currently under construction (REP095, para 3.9.52). The Applicant comments that the permanent works have been designed to be compatible with the approved development, that the number of units is small in relation to the housing requirements of the Core Strategy and that, in any event, the dwellings could be completed towards the end of the plan period (APP116.14, section 3.9). We accept the Applicant's response on these points.
- 11.110 The LIR from LB Lewisham states that use of two plots in connection with Earl Pumping Station would delay or prevent the provision of affordable housing at Cannon Wharf, part of a strategic housing site. On 11 March 2014 solicitors for Cannon Wharf LLP, which had previously objected to the application, advised that it had reached an agreement with the Applicant. This caused it to withdraw its objections (REP480). As this was at the end of the examination LB Lewisham has not had an opportunity to comment. Nevertheless, from the information before us it appears likely that a resolution of the issue has been reached.

¹⁶⁴ Relocation of the batching plant was also of concern to Cory Environmental (WRR068)

CONCLUSIONS ON LAND USE, INCLUDING REGENERATION AND OPEN SPACE

- 11.111 The Applicant has had regard to direct and indirect impacts on existing and planned land uses, as required by the NPS. We conclude that the greater part of the proposed development would be on previously developed land and that the Applicant has sought to minimise the use of land that is not previously developed.
- 11.112 The proposed development at Barn Elms and King George's Park would be inappropriate development in MOL, which is by definition harmful. We would characterise the degree of harm to openness as relatively minor in both locations. Nevertheless, the NPS requires the decision maker to attach substantial weight to any harm to Green Belt and, by virtue of London Plan Policy 7.17, MOL should have the same level of protection. We will return to the issue of whether or not very special circumstances exist in chapter 18.
- 11.113 The NPS states that consent for development on existing open space, sports and recreational buildings and land should not be granted unless an assessment has shown that the open space, or the buildings and land, are surplus to requirements or the decision maker determines that the benefits of the project outweigh the potential loss of such facilities. In this case none of the open space that would be lost, temporarily or permanently, is considered to be surplus to requirements and no exchange land is to be provided. It follows that it is the second of these tests which is to be applied.
- 11.114 We note that the NPS states that the loss of playing fields should only be allowed where they will be replaced with facilities of equivalent or better quantity or quality. Nevertheless, the loss of a single playing pitch at Barn Elms would be temporary and we consider that this temporary loss would be a minor impact. The temporary loss of part of the park at King George's Park would also be a minor impact. In both cases the permanent works would be well designed and would avoid significant harm to the open spaces.
- 11.115 We consider that the ES understates the likely effect of the proposed development on open space at Deptford Church Street and King Edward Memorial Park Foreshore. In our view the use of these spaces, albeit temporary, would be a serious loss to the local communities concerned which must be fully recognised in the balance of impacts and benefits required by s104 of PA 2008. With regard to the permanent works, we consider that the additional public realm created on the foreshore structure at King Edward Memorial Park Foreshore should be regarded as a benefit in terms of open space provision.
- 11.116 The ES describes the anticipated duration of works at each site. However, the phasing of works would be determined by the

contractors. Consequently, notwithstanding the suggested requirements, we are not confident that the work sites in public spaces would be made available for public use in the timescales set out in the ES. In the operational phase parts of some public spaces would occasionally be closed off for maintenance. We do not regard this as a significant impact.

- 11.117 The proposed development would result in the provision of new public realm at a number of sites. This would be a benefit in terms of public open space provision, particularly at Victoria Embankment Foreshore and Blackfriars Bridge Foreshore.
- 11.118 The Applicant has assessed the effects of precluding new development proposed in development plans. Delay to planned development has also been considered. Some planned housing would be precluded at Carnwath Road Riverside because the future housing capacity of Whiffin Wharf would be reduced.
- 11.119 Planned housing would be delayed at Carnwath Road Riverside, Kirtling Street and Chambers Wharf. This would include delay to affordable housing. At Kirtling Street affordable housing forming part of the planned development of the VNEBOA would be delayed; alternatively the amount of affordable housing may be reduced. Overall, we consider that the impacts would be minor because the number of dwellings precluded would be low and there is no evidence that the delay to some dwellings would have a significant impact on strategic housing delivery.
- 11.120 We conclude that the use of previously developed land, the loss of open space, including playing fields, during construction (other than at Deptford Church Street and King Edward Memorial Park Foreshore) and impacts on planned development are not matters which should attract significant weight in the decision as to whether or not to make the DCO. The matters weighing significantly against making the DCO are the fact that the proposed development would include inappropriate development in MOL and would result in the loss of open space during construction at Deptford Church Street and King Edward Memorial Park Foreshore. The provision of new public realm and public open space is a factor weighing significantly in favour of making the DCO.

12 NOISE AND DISTURBANCE

INTRODUCTION

- 12.1 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) specifically requires the decision maker to consider the impacts of noise and vibration and the potential for adverse impacts on amenity, health and quality of life from the proposed development.
- 12.2 The impacts of noise and disturbance would mainly occur during the construction phase of the project, which has an overall construction phase expected to be six years. A number of the surface construction work sites would be located within residential areas and close to other noise sensitive receptors such as schools. As stated in chapter 1, there were over 1,200 relevant representations many of which raised issues on the potential impacts on homes and businesses from noise and disturbance during construction. Particular repeated mention was made of Carnwath Road Riverside, Kirtling Street, Chambers Wharf and King Edward Memorial Park Foreshore.
- 12.3 This concern was echoed in the Local Impact Reports (LIRs), including:
- London Borough of (LB) Hammersmith and Fulham, with regard to Carnwath Road Riverside
 - LB Wandsworth, with regard to Kirtling Street and Heathwall Pumping Station
 - LB Southwark, with regard to Chambers Wharf
 - LB Tower Hamlets, with regard to King Edward Memorial Park Foreshore.
- 12.4 The volume of errata and new material submitted by the Applicant and referred to in the Introduction to this report (chapter 1, under the heading 'the examination and procedural decisions'), came into particular focus when dealing with the issue of noise.

Issues raised during the examination

- 12.5 Noise is a subject that was frequently raised at the Issue Specific (IS) hearings on the rationale for the selection of the sites and the draft Development Consent Order (DCO) and related matters. The issues raised cover the whole spectrum of the noise assessment, including:
- baseline noise surveys
 - methodology used for the assessment of significant effects
 - assessment of significant effects from construction sites, road and river transport
 - on-site mitigation measures
 - control of noise from work sites

- off-site mitigation measures including noise insulation, temporary rehousing and trigger levels for eligibility
- health impacts on the communities living around the sites
- selection of the sites (which we consider in chapter 17).

12.6 We received many written submissions on these matters, both from the local authorities and other Interested Parties. These included:

- Carnwath Road Coalition (WRR010)
- Arhag Housing Association (WRR035) regarding Carnwath Road Riverside
- Assael Architecture (REP375) regarding impacts on non-residential properties at Carnwath Road Riverside
- Mark and May Hale (WRR077) regarding houseboats at Nine Elms Pier, Kirtling Street
- St James Group Ltd (RRP700) regarding Kirtling Street and the Riverlight development
- David Starkie (WRR037) regarding Elms Quay Court near to Heathwall Pumping Station
- Save Your Riverside (WRR085) regarding Chambers Wharf
- Downings Roads Moorings regarding Chambers Wharf (WRR081)
- Free Trade Wharf Management Company Ltd (WRR040) regarding King Edward Memorial Park Foreshore
- Save KEMP (WRR084) regarding King Edward Memorial Park Foreshore.

Noise data submitted

12.7 The data on noise in the Environmental Statement (ES) as submitted with the application is spread across numerous volumes (Doc 6.2.02 to 6.2.27). The methodology applied for the environmental assessment of noise and vibration is given in section 9 of Volume 2 of the ES (Doc 6.2.02) and the environmental noise assessments themselves are set out site by site in chapter 9 and appendix G of each site-specific volume (Doc 6.2.04 to 6.2.27). Noise contours for the project-wide effects from tunnelling are given in the ES (Doc 6.2.03, Volume 3, figures 9.5.1 to 9.5.11). Several sets of errata at different stages of the examination were also issued (eg Doc 9.04.01 series, Doc 9.04.04, APP123, and APP200).

12.8 In addition to the significant number of errata, additional mitigation measures were introduced and further surveys were undertaken during the course of the examination. During the examination it became clear from the volume of errata and new material that there was a risk, both during the examination and subsequently, of a 'paper chase'. A number of Interested Parties made this point during hearings (for example Free Trade Management Company Ltd, Save Your Riverside and Mr Hale of Nine Elms Pier). In response we asked that the Applicant address

these issues and clarify the environmental information to be relied upon. The Applicant issued a draft ES Update Report on 14 February 2014 which was then updated and finalised on 11 March 2014 (APP208.01 with appendices APP208.01.01 to 208.01.33). The ES Update Report is intended to bring the data and referencing together.

12.9 For ease of reference we have set out below the main sets of data (relating to noise) submitted by the Applicant and considered during the examination, in addition to that contained in the ES and errata. These include:

- noise contours for the work sites showing a snapshot of the construction noise for a typical construction year, $dBL_{Aeq,T}$ (Doc 9.11.01 to Doc 9.11.24)
- plans showing a summary of significant effects on residential and non-residential receptors by site (Doc 9.11.01 to Doc 9.11.24)
- answers to the ExA's Q11.1 to Q11.40 (APP11, with appendices APP11.01.01, 11.09.01 and 11.41.01)
- IS hearing on the rationale for site selection and drive strategies (11 November 2013 to 15 November 2013), audio tapes and written summaries (APP31.01 to APP31.04)
- answers to the ExA's Q29.1 to Q29.19 (APP56 with appendices APP56.04.01 to APP56.04.13)
- IS hearing on the rationale for site selection and drive strategies (22 January 2014 to 23 January 2014), audio tapes and written summaries (APP102.03 and APP102.04). APP102.03, appendix B includes noise hierarchy table
- answer to ExA's Q29.2 - Supplementary information (APP97, dated 24 January 2014)
- APP111, APP112 and APP113 issued 3 February 2014
- IS hearing on noise 4 and 5 February 2014, audio tapes and written summary (APP115.01) and resumed IS hearing on noise 20 February 2014, audio tape and written summary (APP157)
- Noise Limits Discussion paper (APP150, issued 19 February 2014)
- Off-site Mitigation Discussion paper (APP152, issued 19 February 2014)
- answers to the ExA's R57.1 to R57.16 (APP167)
- a summary of additional mitigation measures and revisions to compensation policies (APP185)
- Off-site Mitigation Paper update (APP187, dated 3 March 2014)
- Noise Limits Paper update (APP188, dated 3 March 2014)
- Non-statutory off-site mitigation and compensation policy (final version APP210.01, dated 11 March 2014)
- the Legal Agreement for Securing of Off-site Mitigation Policies and Resources for Local Planning Authorities (APP209.03), which include the properties, premises and buildings in respect of which Trigger Action Plans (TAPs)

would be prepared (appendix 1) and the Non-statutory off-site mitigation and compensation policy (appendix 3).

- 12.10 There were a great number of written submissions from other Parties regarding noise and disturbance, which included data. These include:
- St James Group Ltd (WRR087, includes suggested noise limits and two reports on noise and vibration impacts on the Riverlight development by Robert Bird Group and WSP)
 - St James Group Ltd (REP457, includes suggested noise limits)
 - LB Southwark (WRR075 includes Bureau Veritas noise assessment)
 - LB Southwark (REP491, includes suggested noise limits)
 - Save Your Riverside (WRR085 includes Rupert Taylor's report on noise and vibration at Chambers Wharf, November 2013)
 - Downings Roads Moorings (REP194, includes Rupert Taylor's report on noise impacts on houseboats 2 December 2013)
 - Save Your Riverside (REP496 includes feedback on TAPs)
 - LB Tower Hamlets (REP096, includes Report on Baseline Survey at King Edward Memorial Park (KEMP) and Free Trade Wharf by 7th Wave Acoustics, November 2013)
 - Carnwath Road Coalition (REP186 to REP189, which include reports on noise pollution and non-auditory effects on health).

STRUCTURE OF THE NOISE AND DISTURBANCE CHAPTER

- 12.11 This chapter of the report addresses the noise and disturbance impacts of the construction phase of the proposed development assessed against the relevant government policy and other guidance documents. Noise matters relating to the operational phase of the project were examined and we are satisfied that, with the current drafting on the DCO, they have been adequately dealt with. Noise matters which relate to the consideration of alternative sites, or to alternative tunnel drive strategies, are considered in chapter 17.
- 12.12 We begin by setting out the policy context for the decision maker and then the Applicant's approach to both the examination and its interpretation of noise policy.
- 12.13 We then consider the issues that have arisen from the Applicant's:
- Baseline surveys
 - Predictions of noise and vibration levels
 - Methodologies used for the assessment of significant effects.
- 12.14 We then outline the Applicant's assessment of significant effects, with the issues that arise from that assessment, in the following categories:
- Ground-borne noise and vibration from tunnelling

- Noise and vibration from the construction work sites
- Noise from road and river transport
- Effects on open space from noise during construction.

12.15 We then go on to consider the proposed mitigation measures and in particular:

- whether significant impacts would be avoided, and what on-site mitigation measures have been put forward to avoid and minimise adverse impacts.
- what measures would be in place on-site to control the levels of noise from the surface construction sites.
- the Applicant's off-site noise mitigation proposals for noise insulation and temporary rehousing.

12.16 As required by the NPS, we then consider the impact on health and quality of life from noise.

12.17 We end this chapter of the report with our conclusions against the NPS tests.

POLICY AND GUIDANCE CONTEXT

The NPS

12.18 In accordance with s104 of the Planning Act 2008 (as amended) (PA 2008) the starting point for the consideration of this application is the NPS unless any of the exceptions under s104 (4)-(8) apply.

12.19 With regard to noise, paragraph 1.4.4 of the NPS begins by recognising the following:

'the main negative effects of the NPS are related to noise, landscape/townscape and visual effects and archaeology and cultural heritage. These reflect the fact that the population equivalent threshold in the Planning Act 2008 is likely to limit the geographical location of potential projects to very large conurbations. In consequence, the sustainability effects of the NPS have been considered in the context of new waste water NSIPs [nationally significant infrastructure projects] within a mature urban environment. The development of waste water NSIPs is consequently likely to result in adverse townscape and visual effects within a built up environment with many possible receptors, and in the short term, noise disturbance during construction'.

12.20 The potential for noise and disturbance (including vibration) to have adverse impacts upon health and the need for any such effects to be assessed individually and on a cumulative basis is also recognised under section 3.10. In addition section 3.11 refers to s158 of PA 2008 which confers statutory authority for carrying out development consented by, or doing anything else authorised

by, a Development Consent Order, providing a defence in any civil or criminal proceedings for nuisance. This is only to the extent that the nuisance is the inevitable consequence of what has been authorised. In this connection, paragraph 3.11.2 states that it *'is very important that, at the application stage of an NSIP, possible sources of nuisance under section 79(1) of the 1990 Act and how they may be mitigated or limited are set out by the applicant and considered by the examining authority so that appropriate requirements can be included in any subsequent order granting development consent'*.

- 12.21 Chapter 4 of the NPS addresses generic impacts which will be relevant to any waste water infrastructure. Section 4.9 specifically addresses noise and vibration. It makes it clear that references to noise *'apply equally to assessment of impacts of vibration'* (NPS, para 4.9.1).
- 12.22 Paragraph 4.9.9 under the heading 'Decision making' identifies specific aims that need to be met. It states that the *'decision maker should not grant development consent unless it is satisfied that the proposals will meet the following aims:*
- *avoid significant adverse impacts on health and quality of life from noise;*
 - *mitigate and minimise adverse impacts on health and quality of life from noise; and*
 - *where possible, contribute to improvements to health and quality of life through the effective management and control of noise'.*
- 12.23 Prior to this, at paragraph 4.9.4, the NPS provides guidance to applicants as to what should be included in noise assessments. It directs them with regard to the prediction, assessment and management of construction noise to make reference to *'any relevant British Standards and other guidance which also give examples of mitigation strategies'* (NPS, para 4.9.6).
- 12.24 Under the heading 'Mitigation' the NPS advises at paragraph 4.9.11 that the decision maker should consider whether the applicant's *'proposals for mitigation measures needed both for operational and construction noise (over and above any which may form part of the project application) are acceptable. The decision maker may wish to impose requirements to ensure delivery of these mitigation measures'*. In addition at paragraph 4.9.13 the NPS states that *'In certain situations, and only when all other forms of noise mitigation have been exhausted, the applicant may consider it appropriate to provide noise mitigation through improved sound insulation to dwellings, or, in extreme cases, through compulsory purchase of affected properties in order to gain consent for what might otherwise be unacceptable development.'*

Noise Policy Statement for England

- 12.25 The NPS at paragraph 4.9.1 refers to the Noise Policy Statement for England 2011 (NPSE) and states that it sets out Government's policy on noise. The aim of the NPSE is to *'provide clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion'*. It sets out the Government's long term noise policy vision supported by noise policy aims. These noise policy aims accord precisely with the three aims set out above under paragraph 4.9.9 of the NPS.
- 12.26 The Explanatory Note to the NPSE at paragraph 2.9 under the heading *'How should the Noise Policy Statement for England be used?'* notes that noise is complex and that *'there are currently no European or national noise limits which have to be met, although there can be specific local limits for specific developments ...Unlike many other pollutants, noise pollution depends not just on the physical aspects of the sound itself, but also the human reaction to it. Consequently, the NPSE provides a clear description of desired outcome from the noise management of a particular situation'*.
- 12.27 The Explanatory Note at paragraph 2.20 under the heading *'What do the aims of the Noise Policy Statement for England mean?'* refers to two established concepts from toxicology that are being applied to noise as a means of measuring its impacts upon health and quality of life and refers as an example to their use by the World Health Organisation (WHO). They are:
- *NOEL - No observed effect level. This is the level below which no effect can be detected.*
 - *LOAEL - Lowest observed adverse effect level. This is the level above which adverse effects on health and quality of life can be detected.*
- 12.28 The NPSE then extends these concepts for its own purpose which it states *'leads to the concept of a significant observed adverse effect level'*:
- *SOAEL - Significant observed adverse effect level. This is the level above which significant adverse effects on health and quality of life occur.*
- 12.29 The NPSE states that it is not possible to give a single objective noise-based measure that defines a SOAEL that is applicable to all sources of noise for all situations. It acknowledges that the SOAEL is likely to be different for different noise sources, for different receptors and at different times.

National Planning Practice Guidance

- 12.30 The National Planning Practice Guidance¹⁶⁵ (NPPG) was published by the Government in its final form on 6 March 2014.
- 12.31 This gives some guidance as to how planning authorities should take account of the acoustic environment and as to the mitigation strategies which should be applied in the levels of the noise hierarchy (ie NOEL, LOAEL and SOAEL).
- 12.32 The NPPG at paragraph 003¹⁶⁶ states that in determining a noise impact authorities should *'take account of the acoustic environment and in doing so consider:*
- *whether or not a significant adverse effect is occurring or likely to occur;*
 - *whether or not an adverse effect is occurring or likely to occur; and*
 - *whether or not a good standard of amenity can be achieved'.*
- 12.33 As to mitigation strategies or actions, the NPPG at paragraph 005¹⁶⁷ under the heading *'How to recognise when noise could be a concern?'* provides a description of the noise exposure hierarchy and how different perceptions of noise have different impacts on behaviour and advises the actions that ought to be taken in each scenario. This is reflected in a table which sets out the following actions when levels of noise could generate adverse effects.
- **Mitigate and reduce** to a minimum where noise is between LOAEL and SOAEL. Noise is described in this category as an **observed adverse effect** which is noticeable and intrusive. *'Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up the volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life'.*
 - **Avoid** where noise is over SOAEL. Noise is described in this category as a **significant observed adverse effect** which is noticeable and disruptive. *'The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep.*

¹⁶⁵ NPPG, published 6 March 2014. The final version was not materially different to the Beta version; there were some changes in the text but no material changes to the noise exposure hierarchy (refer APP197)

¹⁶⁶ Paragraph: 003 Reference ID: 30-003-20140306

¹⁶⁷ Paragraph: 005 Reference ID: 30-005-20140306

Quality of life diminished due to change in acoustic character of the area'.

- **Prevent** noise which is at a further level over SOAEL. Noise is described in this category as an **unacceptable adverse effect** which is noticeable and very disruptive. *'Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory'* (NPPG, table in para 005).

12.34 Like the NPSE, the NPPG does not define the level of LOAEL and SOAEL by reference to objective measures but does state that factors could combine in any particular situation (eg the source and absolute level of the noise together with the time of day (and night), the number of noise events, the frequency and pattern of occurrence of noise, the tonal characteristics of the noise and the existing and planned character of the area).

12.35 It is noted that the NPPG in the subsequent paragraph¹⁶⁸, when considering what factors influence where noise could be a concern, advises that a factor that should be considered is whether closing windows would completely remove adverse internal effects. If this is the case, the NPPG states that a suitable alternative means of ventilation is likely to be necessary when windows have to be kept closed.

12.36 We also note that NPPG paragraph 009¹⁶⁹, states that the noise impact *'may be partially off-set if residents have access to:*

- *a relatively quiet façade (containing windows to habitable rooms) as part of their dwelling, and/or;*
- *a relatively quiet external amenity area for their sole use, (e.g. garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced with increasing noise exposure and could be such that significant adverse effects occur, and/or;*
- *a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings, and/or;*
- *a relatively quiet, protected, external publically accessible amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minute walking distance)'.*

World Health Organisation

12.37 The WHO goes further than the NPSE and NPPG in seeking to provide some guidance as to suitable internal and external noise

¹⁶⁸ Paragraph: 006 Reference ID: 30-006-20140306

¹⁶⁹ Paragraph: 009 Reference ID: 30-009-20140306

levels. In its document Guidelines for Community Noise (April 1999) looking at noise levels in and around residential properties the WHO state under section 3.4 (page 46): *'if negative effects on sleep are to be avoided the equivalent sound pressure level should not exceed 30 dBA indoors for continuous noise. If the noise is not continuous, sleep disturbance correlates best with LAmax and effects have been observed at 45 dB or less. This is particularly true if the background level is low. Noise events exceeding 45 dBA should therefore be limited if possible. For sensitive people an even lower limit would be preferred. It should be noted that it should be possible to sleep with a bedroom window slightly open (a reduction from outside to inside of 15 dB). To prevent sleep disturbances, one should thus consider the equivalent sound pressure level and the number and level of sound events.'*

12.38 In Night Noise Guidelines for Europe¹⁷⁰, the WHO provides more guidance on NOEL and LOAEL. Table 3 gives the following health effects for the population for night noise level exposure (average level over a year):

- 30dB_{Lnight,outside}: equivalent to no observed effect level (NOEL)
- 40dB_{Lnight,outside}: equivalent to lowest observed adverse effect level (LOAEL)
- 40 to 55dB_{Lnight,outside}. Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with noise at night. Vulnerable groups are more severely affected
- Above 55dB_{Lnight,outside}. The situation is considered increasingly dangerous to public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep disturbed. There is evidence that the risk of cardio-vascular disease increases.

12.39 The WHO does not provide a definition of SOAEL. However, based on these exposure level effects, it does recommend (in table 4) the following maximum night noise guideline values for the protection of public health from night noise:

- Night noise guideline (NNG) $L_{\text{night,outside}} = 40\text{dB}$
- Interim target (IT) $L_{\text{night,outside}} = 55\text{dB}$

12.40 The interim target (IT) of 55dB_{Lnight,outside} is recommended by the WHO where the achievement of NNG is not feasible in the short run (WHO Night Noise Guidelines for Europe, page 109). However the Night Noise Guidelines for Europe also note that vulnerable groups cannot be protected at this level.

¹⁷⁰ WHO Night Noise Guidelines for Europe, published 2009

APPLICANT'S OVERALL APPROACH TO NOISE AND DISTURBANCE

General observations

- 12.41 It was clear at a very early stage in the examination that noise and disturbance during the construction of the proposed development would be an area that was both important and relevant.
- 12.42 The Applicant failed to meet some of the deadlines set by the ExA at the outset of the examination (for example the answer to Q29.2 was submitted late). It also submitted late written submissions the day before an IS hearing which did not give sufficient time for Interested Parties to either read or take instructions, eg:
- APP111, APP112 and APP113 submitted on 3 February for the IS hearing on 4 February 2014
 - the noise limits paper APP150 submitted on the 19 February 2014 before the resumption of the adjourned hearing on 20 February 2014.
- 12.43 This was not helpful and only gave Interested Parties a short opportunity to raise their questions on the papers before the next submission date.
- 12.44 The ExA acknowledges that the Applicant did address most of the questions it asked and provided most of the information requested. For example, in the Rule 8 letter (PD006) the ExA asked for noise contours to be provided for each site to assist in our understanding of the context of sensitive receptors in relation to the sites. These were provided. However, the Applicant did not answer the ExA's question on intermittent noise levels and further declined to answer the ExA's question requesting recommended drafting and information in relation to the use of noise limits. This matter is discussed later in this chapter.

Applicant's approach to noise policy

- 12.45 The Applicant's approach to national policy and the hierarchy of noise effects is given in appendix B of the written summary of the IS hearing on 22 January 2014 (APP102.03). The appendix includes table B.1 which provides a summary of the Applicant's interpretation of national policy and guidance (NPPG) in relation to the hierarchy of noise effects and links to the ES and mitigation policy. On 3 March 2014, the Applicant submitted a second paper on NPS noise policy and its implications as appendix A to the written summary of the IS hearing on 20 February 2014 (APP157).
- 12.46 Our understanding of table B.1 is that SOAEL would be equivalent to the proposed threshold for noise insulation at the ES ABC

category C¹⁷¹, and what the trigger level for temporary rehousing would be when an unacceptable adverse effect occurred (APP102.03).

- 12.47 On 11 March 2014, in the covering letter to the final submission (APP197), the Applicant commented on the newly published NPPG, and confirmed that, in the context of noise, it is materially the same as the Beta¹⁷² version. For ease of reference we outline below the Applicant's position with regard to the interpretation of the NPPG. It should be noted that other Parties did not have the opportunity to comment on this final submission by the Applicant.
- 12.48 In APP197 the Applicant states that the published guidance confirms its submissions 'on NPS noise policy (APP102.03, Appendix B, and APP157, Appendix A), the key matters being:
- (a) *NPPG guides how the aims at NPS paragraph 4.9.9 should be interpreted.*
 - (b) *The first aim relates to 'significant observed adverse effects' as defined by NPPG and NPSE (and not to any other definition of significant effect in the Environmental Statement (ES)).*
 - (c) *SOAELs are aligned with the trigger values for noise insulation (or other equivalent off-site mitigation).*
 - (d) *Where on-site mitigation is exhausted, the provision of noise insulation avoids any residual significant observed adverse effects and, therefore, the first aim of NPS noise policy is met.*
 - (e) *The second aim relates to 'observed adverse effects' and these occur when the noise exposure is between the lowest observed adverse effect level (LOAEL) and the SOAEL.*
 - (f) *Observed adverse effects have been assessed in the ES (against the A and B thresholds of the BS5228-1 ABC method) and, taking account of noise level, duration and number of dwellings affected, can be reported as a significant effect in the ES. These observed adverse effects primarily relate to change in the acoustic character of the area and do not cause 'material change in behaviour and/or attitude'.*
 - (g) *The Environmental Impact Assessment and Thames Water's noise strategy has resulted in on-site mitigation being maximised. In maximising mitigation, the residual observed adverse effects are minimised and hence the second aim of NPS noise policy is met.*
 - (h) *NPPG, like NPSE, is clear that avoiding significant observed adverse effects and minimising observed adverse effects (ie, the first and second aims of NPS noise policy) "must be made taking account of the economic and social benefit of the activity causing the noise". In other words, there is a balance*

¹⁷¹ ES ABC category C: Noise category as defined by the ES for day, evening and night. See also BS5228-1 Annex E.3.2

¹⁷² Beta version was the draft current version of NPPG at the time of the IS hearings

to be made and NPS noise policy should not therefore be applied in isolation.

- (i) *Where residents elect to retain the off-site mitigation provided, it will reduce exposure to existing noise sources, thus improving their existing situation over the short and long term and meeting the third aim of NPS noise policy'.*

12.49 We have taken the Applicant's approach into our considerations and in reaching our conclusions on noise and disturbance.

ISSUES RAISED ON BASELINE, PREDICTED NOISE LEVELS AND METHODOLOGY

12.50 This section considers the issues that arose from the baseline survey, the Applicant's prediction of noise and vibration levels, and subsequently the methodologies used by the Applicant to assess significant effects from noise and vibration. We have not reported on all matters, just the issues that we consider need highlighting, although it should be noted that in coming to our conclusions and recommendations we have had regard to all relevant submissions.

12.51 The Applicant's methodologies which have been highlighted below include:

- Residential: methodology for assessment of significant effects from noise at construction sites
- Non-residential: methodology for assessment of significant effects from noise at construction sites
- Transport, road and river methodology, particularly the impact on houseboats.

Baseline surveys at surface construction sites

12.52 Baseline surveys were undertaken by the Applicant at each proposed surface construction site. The location of the measuring points are shown on the site plans in the ES (Docs 6.2.04 to 6.2.27, figure G1) with photographs (Docs 6.2.04 to 6.2.27, appendix G). The Applicant states that, at each site, measurements were taken at locations which are representative of the noise climate at the nearest noise sensitive receptors to the proposed construction areas.

12.53 In some cases the locations of the baseline survey measurement points are disputed by the local authority (eg LB Tower Hamlets with regards to King Edward Memorial Park Foreshore) and by local residents (eg Elm Quay Court, at Heathwall Pumping Station, and the houseboats at Kirtling Street and Chambers Wharf). This is because they consider that the resultant ambient noise levels measured do not accurately represent the nature of their environment (which in their view is quieter).

- 12.54 However, we consider that as a planning tool, the survey was adequate for assessing the broad impact of the overall project and for the purposes of reporting in the ES.
- 12.55 What does cause us concern is where it is proposed that the baseline survey would be used as a tool to determine eligibility for noise insulation by predicting the ambient noise level at dwellings. The BS5228 example trigger level for insulation suggests that ambient noise levels are *'predicted or measured at a point 1m in front of the most exposed of any windows and doors in any façade of any eligible dwelling'*¹⁷³. Our concern is that the prediction used in the ES (from the baseline survey) may not be sufficiently accurate in all cases and that a better understanding of the change in noise environment and perception of observed effects would need to be obtained.
- 12.56 An example is the residential receptors near the Heathwall Pumping Station site. These are all predicted in the ES to have night-time ambient noise levels of 62dB_{L_{Aeq}} or more. As a result, it has been predicted by the Applicant that these receptors would experience no significant effect, even though at three receptors night-time construction noise level is forecast to be between 62dB_{L_{Aeq}} and 67dB_{L_{Aeq}}. During the examination, the assessment of the baseline for one of these properties near Heathwall Pumping Station was disputed by one of the flat owners at Elm Quay Court. This was because the baseline measurement had been taken at road level and, in the resident's submission, did not represent the quieter nature of the façades of the properties overlooking the river.
- 12.57 At the request of the ExA the actual ambient noise level at one of the flats was measured. The ES had given the assumed ambient noise level in day/evening/night-time at the flats as 68/65/62dB_{L_{Aeq}} (Doc 6.2.15, table 9.4.1). However the measurement by the Applicant recorded the ambient reading¹⁷⁴ at one of the flats as 61/60/50dB_{L_{Aeq}} (APP167, table 6.1, answer to R57.6). This changes the night noise ambient from 7dB above the night-time noise trigger level for noise insulation to 5dB below.
- 12.58 Similarly, the Applicant's measurement at Downings Roads Moorings (near Chambers Wharf) changed the ambient noise level from 64/54/47dB_{L_{Aeq}} in the ES to 56/56/43dB_{L_{Aeq}} in the ES Update Report (APP208.01, table 20.2). Although this did not change the eligibility of the houseboats for noise insulation, it is relevant when considering the significance of the effect on the houseboats from construction and transport¹⁷⁵.

¹⁷³ BS5228 -1 : 2009+A1:2014: annex E, table E.2

¹⁷⁴ measurement corrected for façade

¹⁷⁵ ABC category in daytime, changes from B to A

- 12.59 In these cases, the measured night-time ambient noise level at the receptor was between 12dB and 4dB less than assumed in the ES. As discussed later, the ambient levels have a direct bearing on whether a property is eligible for noise insulation. Therefore we consider that the accuracy of the baseline, in relation to the sensitive receptor, is important in order to ensure that properties would be adequately protected from excessive noise should the development proceed.
- 12.60 LB Tower Hamlets submitted its own baseline measurements for King Edward Memorial Park and at individual flats in Free Trade Wharf (FTW) (REP096). In the case of FTW north these showed a lower ambient level of 71.7dB_{L_{Aeq}} (day-time) whereas the ES predicts a 78dB_{L_{Aeq}} ambient noise level. The Applicant responded to the submission from the Council (APP31.04, para 6.3.7 to 6.3.12) and revised the ABC impact threshold level in the ES Update Report.
- 12.61 Notwithstanding the above, we note that the Temple Group carried out its own baseline monitoring around Axis Court at Chambers Wharf (APP116.14, para 3.3.7). The measured levels in the evening are understood to be consistent with the Applicant's assessment and levels at night were higher than the Applicant's assessment. We are not therefore suggesting that the baseline is inaccurate as a general description. Rather, our view is that it may not be an accurate representation of the ambient noise level at each and every receptor. In the case of Chambers Wharf, the Applicant has agreed to carry out a further 12 months of baseline monitoring before commencement of construction. Whilst this would be secured in the Code of Construction Practice (CoCP) Part B, there is no requirement for the local authority to approve the location of the baseline monitoring points.
- 12.62 We raised this generic issue in the IS hearing on 20 February 2014 where we asked the Applicant whether the ambient levels, at both existing properties and new properties, would be measured before commencement of construction. We were advised by the Applicant that future noise monitoring (during construction) would include the same measuring positions as had been used in the application assessment. The Applicant did not plan to reassess the pre-construction ambient noise levels at sensitive receptors and representative façades. We return to this subject later in this chapter under the heading 'off-site mitigation'.

Predicted noise levels from construction

- 12.63 Predicted noise from surface construction activities have been calculated using the approach in BS5228: 2009, Part 1. This section is looking at the predicted noise level only. The impact of the predictions is discussed later under the section on methodology.

- 12.64 The NPS details what the Applicant should include in the noise assessment (NPS, para 4.9.4). The Applicant has provided a table (Doc 6.2.02, table 9.3.1) detailing where it considers that the application complies with this requirement. We would agree that the Applicant has addressed most of the NPS assessment requirements. However, in our view there are some omissions.
- 12.65 NPS paragraph 4.9.4 requires that the Applicant's noise assessment should include the '*identification of any distinctive tonal, impulsive or low frequency characteristics of the noise*'. The application did not provide this information. This was not an oversight and the Applicant sets out the reasons for the approach taken in the ES (Doc 6.2.02, table 9.3.1).
- 12.66 Noise levels at receptor points near the surface work sites have been assessed and presented in the ES as $dB_{L_{Aeq}}$ for daytime, evening and weekends, and night (Doc 6.2.04 to 6.2.27, chapter 9 for each site). The noise levels are presented as a range of noise levels with a typical monthly¹⁷⁶ noise level at each receptor.
- 12.67 However, our concern from this presentation of typical monthly noise levels is that despite the nature of the works, which in places includes demolition and piling, there is no indication before us of intermittent noise levels or any distinctive tonal, impulsive or low frequency noise.
- 12.68 We are also concerned that these monthly noise levels have the potential to mask high peak noise levels on a daily or hourly basis, which may have a significant effect on receptors. Others also commented on this aspect particularly with regard to the impact on health and wellbeing, for example Carnwath Road Coalition (REP186) and Free Trade Wharf Management Company¹⁷⁷.
- 12.69 We asked in the ExA's Q11.5 for the Applicant to provide '*an assessment of peak noise levels and number of incidences that will be experienced at all noise receptors at each site in the three time periods: standard working hours, extended working hours and night*'. The Applicant appeared to misinterpret the request and instead provided the examination with potential peak construction noise levels ($dB_{L_{Aeq}}$) for '*short periods when construction noise levels could be greater than the monthly worst case noise levels used for the assessment*' (APP11, para 5.1.3).
- 12.70 In view of the lack of a clear answer, we asked the Applicant (in the ExA's second written question Q29.8), to provide information on the expected worst $dB_{L_{Aeq}(1-hour)}$ which would be experienced during standard working hours and extended hours and the expected worst $dB_{L_{Aeq}(5-minutes)}$ at night.

¹⁷⁶ Typical monthly construction noise level: the most frequently occurring monthly construction noise level during works (as defined in ES)

¹⁷⁷ IS hearing 5 February 2014

- 12.71 The Applicant declined to provide this information and stated that the measures ($\text{dBL}_{\text{Aeq}1\text{-hr}}$ and $\text{dBL}_{\text{Aeq}5\text{-mins}}$) typically relate to BS4142, which is used for operational noise assessments. The Applicant considered that while BS5228-1 (the method used for the assessment at the construction sites) notes the time periods associated with these measures in general terms, and stated that there is no precedent for applying these periods to the assessment of construction noise for projects of a similar magnitude, intensity and duration to this project (APP56). We return to this point later in the discussion on methodology.
- 12.72 We understand the limitations of BS5228 and the assessment of noise levels from construction sites. However, on this project, not only will many of the sites be active for long durations (up to six years), but also 16 of the sites would have protracted periods of night-time working. Indeed, night-time working for periods of up to three years is expected at each of the three main drive sites. This lengthy duration makes the interpretation of the assessment for noise impact particularly critical when considering impacts on health and quality of life. At present we have no information on the impulsive or maximum noise levels that might be expected from the sites - this is discussed further in this chapter under the section heading 'noise limits'.

Residential: methodology for assessment of construction effects

- 12.73 The methodology used by the Applicant for the assessment of significant effects on residential receptors is an area of dispute raised in particular by the local authorities.

BS5228 ABC Method 1 - ES Modified

- 12.74 The Applicant assessed the significance of the effect of noise from construction on residential receptors by using a modified version of the BS5228 ABC method¹⁷⁸.
- 12.75 The Applicant modified the BS5228 ABC method as follows:
- Firstly the BS5228 derived criteria were used to identify impacts that could potentially cause significant effects at residential receptors
 - Then a further stage was applied: whether or not the Applicant considered the effect would be significant was assessed using professional judgement.

¹⁷⁸ BS5228-1:2009+A1: 2014. Code of practice for noise and vibration control on construction and open sites. Part 1 Noise. The ABC method is example method 1 (for the assessment of the significance of noise effects) given in Annex E.3.2. The +A1:2014 version corrects errors in the 2009 version, and amongst other aspects clarifies that noise for the ABC methodology should be taken as construction noise and not total noise. The +A1 version was published in February 2014, during the examination, however the Applicant had pre-sight and had undertaken the assessment with the errors corrected

- 12.76 The Applicant's professional judgement was described as being based on a number of factors (Doc 6.2.02, para 9.5.43 to 9.5.51):
- Design of the receptors (ie whether sound insulation provided by windows is likely to be sufficient to reduce internal noise levels to a reasonable level)
 - The number of receptors
 - The proportion of the community subject to the impact
 - The existing absolute noise levels
 - The duration of the impact (if the duration of the noise impact was for a month or less, that would not necessarily be assessed as significant).
- 12.77 Of particular note, the Applicant applied the night-time Interim Target (IT) threshold value of 55dB_{L_{night, outside}} contained in the WHO Night Noise Guidelines for Europe. At noise exposures below the WHO night-time IT, the degree of impact relative to the baseline situation and the absolute resulting noise level were also considered (Doc 6.2.02, paras 9.5.49 to 9.5.51).
- 12.78 However, we consider that the extensive use of professional judgement and the number of errata has made it difficult to determine if the assessment was undertaken on a consistent basis across the whole application area.
- 12.79 The BS5228 ABC methodology states that when a potential significant effect is indicated, *'the assessor then needs to consider other project-specific factors, such as the number of receptors affected and the duration and character of the impact, to determine if there is a significant effect'*. We asked the Applicant at the IS hearing on the 4 February 2014 where we might find this analysis in the ES or other submitted documentation. The Applicant responded that it considered that the character of the impact is already taken into account by the application of the BS5228 ABC method.
- 12.80 We can find no reference in the Applicant's assessment and evidence to the examination to the character of the noise, consideration that an impact may be greater because of the duration of the noise impact (either in the daytime or at night), or the impact of the duration on restricted use of private open space (eg balconies or gardens). Neither is there any separate identification of any distinctive tonal, impulsive or low frequency characteristics of the noise (as required by the NPS paragraph 4.9.4).
- 12.81 The Applicant appears in reality to have limited the factors it considered, once the potential for a significant effect had been identified, to whether potentially significant impacts could be reduced through closing windows, or partly closing windows, and whether the noise impact would be for less than one month.

- 12.82 LB Tower Hamlets in its LIR (REP096, para 5.7.3.1) questioned the modification of the ABC method *'by adding a further assessment of the possible internal levels at premises where the 'ABC' thresholds for significant effects are exceeded. It is not clear why the BS5228 methodology has been modified for the purposes of the ES'*. It further states that *'the modification of the 'ABC' method in this manner, to consider possible internal noise levels from the construction works, is considered inappropriate and likely to have caused an underestimation of significant effects'*. The Council addresses this issue in more detail in its written representation where it points out that *'whilst it may be possible that the internal noise level guidelines of BS 8223 might not be exceeded, there can still be a significant effect on the environment due to erosion of the acoustic amenity caused by substantial increases in noise'* (WRR097, section 3.6).
- 12.83 At the IS hearing on 20 February 2014, the Applicant stated that the assessment for night-time noise, as set out in the assessment methodology (ES, volume 2, section 9) is *'based on having windows open during times of the year when people would naturally tend to have their windows open'* (eg during summer months) and that the assessment of significant observed effects at night takes account of windows being open (APP157, section 3.3).
- 12.84 BS5228 does not suggest that the assessment for significant impact should consider possible reduction of noise levels through the building façade, open or closed windows. Also, the ES has presumed a specific noise insulation standard for the building envelope for each affected building with both windows open and closed. This required a range of assumptions regarding acoustic properties of windows, façade construction and available ventilation which in practice would differ between dwellings. We therefore remain concerned by the ES reduction in reported significant effects by the consideration of internal noise levels. This is of particular concern because of the long duration of many of the construction sites and extent of night-time working, and the implications for health and well-being.

BS5228 ABC Method 1 - Pure

- 12.85 In view of our concerns and LB Tower Hamlets representations about the underestimation of significant effects, we asked the Applicant in ExA's Q29.1 to provide an assessment of significant effects at the external façades of all receptors. The Applicant responded to this request and included plans which show the potentially affected façades in answer to Q29.1 and Q29.4 (APP56.04.01 to APP56.04.13).
- 12.86 The difference in the outcomes between the application of the two methodologies, BS5228 ES Modified (as used in the application)

and BS5228 Pure¹⁷⁹ (at the external façade, as given in answer to Q29.1) is given in APP167 in answer to the ExA's R57.14. The tables (table 14.1 to 14.23) show that, if the assessment had been undertaken in accordance with BS5228 at the property façades, then over 20 additional receptors (including blocks of flats) would be subject to a significant effect.

- 12.87 We also note that in the noise assessment, where the baseline noise survey measured the night-time ambient noise level as over 55dB_{L_{Aeq,T}}, then the higher level of ambient noise is used as the ABC threshold for level of significance. This does not seem unreasonable to us, but, as discussed earlier in this report, it is dependent on the baseline being accurate and representative of the ambient noise level at the property.

Use of BS5228 Method 2 (+5dB)

- 12.88 Method 2 (+5dB) is an alternative method given in the BS5228 for measuring potential significant impact. It assesses noise levels as potentially significant *'if the total noise (pre-construction ambient plus site noise) exceeds the pre-construction ambient noise by 5dB or more, subject to lower cut-off values of 65dB, 55dB, and 45dB_{L_{Aeq,T}} from site noise alone, for the daytime, evening and night-time periods respectively; and a duration of one month or more'*.
- 12.89 LB Tower Hamlets states in its written representation (WRR097, section 3.6.4) that the Council would prefer the assessment of significance of noise impact to be undertaken using the BS5228 method 2¹⁸⁰. This is because it *'specifically applies to works of more than one month duration and to a wider range of potentially affected premises than the 'ABC' method (which applies to dwellings only) including the assessment of construction noise impacts on open spaces (such as KEMP) as well as residential housing; hotels and hostels; buildings in religious use; buildings in educational use; and buildings in health and/or community use'*. The same representation further notes that method 2 is *'more akin to the Crossrail methodology which takes into account the pre-construction ambient plus construction noise'*.
- 12.90 LB Southwark also explained (at the IS hearing on 5 February 2014) that it considers that, while the ABC methodology is helpful at project level for project planning purposes, the sensitivity of the approach needs to be tested when considering mitigation measures. The Council's view is that, given adequate data on the ambient noise levels, method 2 (+5dB) would give a more

¹⁷⁹ BS5228: Pure: as referred to by the Applicant in APP167. ie impact at the façade of a property in accordance with the BS method (and unmodified)

¹⁸⁰ BS5228-1: 2009+A1:2014; Annex E.3.3, Example method 2 - +5dB(A) change. The March 2014 amendments to the 2009 edition include use of the term site activities instead of construction activities, potentially significant replaces significant in the first paragraph, and residential buildings instead of residential housing in the second paragraph

representative view of what the actual impact on householders would be - for example, would their sleep be disturbed or could they open their windows?

- 12.91 We asked in ExA's Q29.2 for the Applicant to provide us with an assessment using method 2 (+5dB). The Applicant declined to undertake this exercise as it *'concluded that BS assessment method 1 was entirely appropriate for this project' and 're-assessment using another method (method 2), where the assessment outcomes would be different would not assist the examination process'* (APP56, section 2.1).
- 12.92 The Applicant did however follow up with a more detailed response on 24 January 2014 (APP97), which gave comparisons for six key sites (the three main drive sites, Shad Thames Pumping Station, King Edward Memorial Park Foreshore and Bekesbourne Street). The comparison shows the differences between the +5dB change method, the BS5228 (Pure) ABC method and the ES (modified) ABC method, for the ES (tables 1a to 6a), including further mitigation identified since submission of the application (tables 1b to 6b).
- 12.93 We note from this data that the method of assessment should make no difference to eligibility for noise insulation or temporary rehousing. However, it would make a noticeable difference to the Applicant's acknowledgement that some properties might experience a significant impact eg Wheat Wharf at Shad Thames Pumping Station, would experience a 16dB increase in dBL_{Aeq} in daytime. This is considered not to be a significant effect in the ES, but would be significant if the BS5228 Pure method or method 2 (+5dB) were used.

Summary

- 12.94 At the IS hearing on 20 February 2014, LB Tower Hamlets, LB Southwark and LB Wandsworth all stated that they would have preferred the assessment to have used method 2. LB Wandsworth also noted that it considers that method 2 would have provided a better outcome for residents.
- 12.95 However, in its SoCG, LB Southwark confirms that *'there is no basis for challenging, in-principle, the base ABC method assessment from BS5228: 1997 used in the Environmental Statement as other major London infrastructure projects have set successful precedents'*. However, the Council does go on to state that the use of the extension to the ABC method, *'taking account of sound insulation of buildings and therefore considering indoor levels against relevant standards is not accepted'*. The Council considers that *'using this method appears to have underestimated the noise impacts on the adjacent residential properties and underestimates the number and distribution of premises likely to*

be affected by airborne noise' (APP116.14, para 3.3.8 and APP159.02).

- 12.96 We understand the view of the local authorities that the use of a simpler methodology would have been easier for all to understand. Notwithstanding this, we consider that use of the BS5228 ABC method (as defined in BS5228) is adequate for planning purposes.
- 12.97 However, the Applicant's modification of the method, extensive use of professional judgement and the assumption that the significant effect impact should be determined at the inside of the properties and not at the façade, results in an assessment that does not take into account the impact on the external environment of residential receptors (including gardens and balconies). We consider that this is likely to have resulted in both an underestimate of impacts on those that have been identified as having a significant effect and an underestimate of the number of receptors experiencing a significant effect.

Non-residential: methodology for assessment of construction effects

- 12.98 The ES stated that the methodology for noise and vibration for non-residential noise sensitive receptors was on a receptor-by-receptor basis, using established impact criteria, relevant guidance documents and professional judgement (Doc 6.2.02, para 9.5.52).
- 12.99 The basis for the assessments for non-residential receptors was not clear to us, so we asked for clarification in Q11.16. The Applicant's response (APP11) confirmed that its assessment had firstly determined if construction noise would be greater than ambient noise levels. It had then assessed internal noise levels against guidance levels and duration. The guidance used was BS5228 (for construction noise levels), PPG24¹⁸¹ (typical noise transmission through the façade), BS8233 (internal noise level) and BB93 (internal guidance design levels for schools) (APP11, tables 16.1 to 16.23).
- 12.100 We noted the number of schools in the areas around the surface work sites and requested a more detailed analysis of the noise impact. We asked in ExA's Q11.6, for an assessment of the $dB_{L_{Aeq}(30\text{-minutes})}$ total noise levels (ambient plus construction) for each school within 300m of the nearest boundary of the sites. The Applicant's answer (APP11, table 6.1), provided this information and identified schools where the total noise levels exceed the ambient by 3dB or more (ie construction noise level is equal to or greater than ambient) (APP11, table 6.1 and para 6.1.4).

¹⁸¹ PPG24, which was subsequently superseded by the National Planning Policy Framework in March 2012, was extant at the time of the preparation and submission of the application

River traffic: methodology for assessment of noise

- 12.101 The Applicant's methodology for the assessment of significant effects from construction river traffic is considered below. In particular, the assessment of water-borne noise on houseboats was a subject which attracted a number of written representations from Interested Parties and oral representations at the OF hearings¹⁸². Having regard to the level of representations, a number of questions were asked on this subject and it was one of the matters raised at the noise IS hearing.
- 12.102 Separate assessments are provided in the ES for the effects from road construction traffic and river construction traffic (eg tugs, barges and ships). The criteria used for both the road and river traffic assessments, is that no significant effect is experienced at less than 3dB change, and a potentially significant adverse effect may be experienced at levels over 3dB change (Doc 6.2.02, table 9.5.4).
- 12.103 There is no in-combination assessment with construction activities. The Applicant, in answer to Q29.1 stated that *'BS5228 only makes reference to the prediction and assessment of HGVs when they are moving around the site, for example on 'haul roads'. The two sources should be considered separately, partly because there are different legislative controls that apply to noise effects from on-site activity and off-site activity (eg, changes in traffic on existing transport corridors be they road, or river)'*.
- 12.104 We agree with this but consider that the assessment of noise from barges moving on and off the proposed jetties and campsheds is a potential issue at certain sites, particularly those with houseboats nearby (see below).
- 12.105 In addition, as the assessment is based on a change methodology, the accuracy of the baseline and relevance to the receptors against which the assessment is being made, is of particular importance.

Houseboats: methodology for assessment of river traffic impacts

- 12.106 There are five sets of houseboats close to surface construction sites which could be affected by river traffic¹⁸³. They are at:
- Putney (near Putney Embankment Foreshore)
 - Nine Elms Pier (near Kirtling Street)
 - Tideway Village (between Kirtling Street and Heathwall Pumping Station)

¹⁸² OF hearings: 22 November 2013, 23 November 2013, 3 February 2014, 5 February 2014

¹⁸³ Note: the noise impact from unloading and loading of boats is considered by the Applicant under construction noise assessment

- Downings Roads Moorings (upstream of Chambers Wharf)
- Hermitage Community Moorings (on the opposite river bank and just upstream from Chambers Wharf).

12.107 The Applicant considered noise effects from the loading of barges within the ABC methodology for construction site effects. Movement of barges was considered under the traffic assessment. For river traffic the assessment assumed that engine noise would be limited to 75dB(A) at a distance of 25m (Doc 6.2.14, para 9.5.87). As this limit was stated by the Applicant to refer to a Port of London Authority (PLA) Draft Thames Freight Operations Vessel Standard, we would assume that this refers to an air-borne noise limit at 25m rather than water-borne noise, which has different characteristics.

12.108 We asked about noise transfer through steel hulls in ExA's Q11.22, albeit for a non-residential boat. The Applicant answered that *'there is no such effect as the reverberating nature of noise transfer through the hull of a steel ship'* (APP11).

12.109 Nick Lacey¹⁸⁴ submitted a report by Rupert Taylor (REP194, dated 2 December 2013), which considers the implications of applying the ES methodology to the particular case of the houseboats at Downings Roads Moorings. It also refers to the phenomenon of how noise from engines and other sources below surface may not be radiated appreciably into the air, but can be transmitted with relatively little energy loss over long distances underwater. This might mean that there is an additional pathway for noise from river transport associated with the construction in relation to the houseboats. The report also considers the issues with regard to consideration of internal noise level as a measure of significant effect for structures that are not 'typical dwellings'. Although the report is about Downings Roads Moorings, its observations are equally applicable to the other houseboats listed above.

12.110 Written representations and statements at the OF and IS hearings (eg 22 November 2013 and 20 February 2014) from houseboat owners repeatedly asked the Applicant to consider the impact of water-borne noise, particularly below deck. Houseboat occupiers advised us that they experience noise effects when boats pass. They were particularly concerned about noise from engines and propellers resulting from construction river traffic manoeuvring close to their homes (WRR077, REP194, and REP452). They also spoke about the vulnerability of the houseboats to impact from construction traffic either from the barges or manoeuvring tugs (eg REP194).

12.111 The Applicant, in the written summary of the IS hearing on 20 February 2014, provided:

¹⁸⁴ On behalf of the Tower Bridge Yacht & Boat Company Ltd and the residential community at Tower Bridge Moorings at Downings Roads

- An assessment of the distance of the barge operations to the houseboats at Nine Elms Pier (APP157, Appendix D), which confirmed that the distance from the outside of the jetty to the houseboats would be approximately 40m, and the distance to the LLAU¹⁸⁵ from the outer barges would be 7m. However, the assessment did not give the distance from the houseboats to barges that would use the inside of the jetty; which had been one of the points made by the Interested Party at the hearing.
- Clarification of the Applicant's assessment of air-borne and water-borne noise effects (APP157, Appendix E), the traffic assessment criteria in table E1 and the assessments of traffic noise levels. These confirmed that change of noise of less than 3dB is predicted and would be considered to have no significant effect.

12.112 However, these submissions do not resolve our concern that the characteristics of the way noise travels underwater, and the effects this might have on a houseboat receptor, had not been fully taken into account in the assessment.

12.113 We requested in the ExA's R57.16 that an assessment of water-borne noise and vibration impacts be undertaken for all five sets of houseboats. The Applicant's answer in APP167 gave its approach to the assessment of air-borne and water-borne noise, but this did not answer the question about water-borne noise from an underwater source (eg noise from boat propellers and/or engine noise).

12.114 The Applicant has now agreed to undertake further survey work at the houseboats. The survey scope was sent to Mr Hale of Nine Elms Pier on 6 March 2014 (APP198.31) but the survey was not completed before the end of the examination.

12.115 There is a difference of view between the Applicant's noise consultants and the occupiers of houseboats regarding the nature of noise effects on houseboats. We see no reason to doubt the accounts given to us by those with direct experience of living on the river and we attach weight to those accounts. This leads us to conclude that the noise assessment methodology did not take full account of the impact of water-borne noise from underwater sources, ie either piling or construction traffic.

Summary on baseline, predicted noise level and methodologies

12.116 We appreciate that the proposed development is a large and complex project covering multiple sites and different types of receptors. Consequently, the noise assessment is extensive.

¹⁸⁵ LLAU: limits of land to be acquired or used

12.117 However, the extensive reliance on the use of professional judgement as an analytical tool makes it difficult to understand all the data, and for us to be assured that the conclusions have been arrived at on a consistent basis. In summary our views on the matters of baseline, predicted noise levels and methodologies are that:

- We consider that the noise baseline, although adequate for planning purposes, would need to be updated before the works commence on each site to ensure that the impact of noise at each sensitive receptor could be adequately minimised and mitigated. The reasons for this are discussed later in this chapter under the heading 'off-site noise mitigation - baseline issue'.
- The predicted noise levels at each site have been presented in the ES as monthly data, with predictions for day, evening and night. However we have no information on distinctive tonal, impulsive or low frequency noise levels as required by NPS paragraph 4.9.4. In particular, as the noise has been presented as monthly dB_{Leq} , we do not have an indication of the intermittent noise levels that may be experienced by receptors.
- We consider that the ABC methodology as defined in BS5228 for assessment of impact on residential properties is an acceptable methodology to use. However, by modifying it as discussed above we consider that the Applicant is likely to have understated the potential impact on residential properties and therefore the potential harm from the development.
- From the information before us, we do not consider that the noise impact on houseboats from water-borne sources (eg underwater noise from boat propellers and engines and/or piling) was adequately assessed. Whilst the Applicant agreed to undertake further surveys, the methodology for them was only sent to the houseboat owners on 6 March 2014, just before the completion of the examination. This data is not before us.

APPLICANT'S ASSESSMENT OF SIGNIFICANT EFFECTS

12.118 NPS paragraph 4.9.9 requires that the decision maker should not grant development consent unless it is satisfied that the proposals meet the aims '*avoid significant adverse impacts on health and quality of life from noise*' and similarly '*mitigate and minimise adverse impacts on health and quality of life from noise*'.

12.119 The Applicant's assessment of significant effects is as defined in the ES and the ES Update Report¹⁸⁶. The term 'significant' effect in the ES does not read directly across to the term used in the NPS,

¹⁸⁶ APP208.01 with appendices APP208.01.01 to 208.01.33

ie 'significant adverse' and 'adverse'. The assessment takes into account the additional mitigation measures which the Applicant proposed during the examination and are now included in the site-specific requirements and/or CoCP Part B.

12.120 In this section we report on the extent of the significant effects (as defined by the ES), with on-site mitigation measures in place, from noise and vibration during construction in the following categories:

- Ground-borne effects from tunnelling
- Surface work sites
- Road and river traffic
- Impact on open space.

12.121 How significant effects could be avoided and/or minimised and what mitigation has been proposed is discussed later in this chapter under the heading 'mitigation measures'.

Ground-borne noise and vibration from tunnelling

Ground-borne noise - residential and non-residential receptors

12.122 The Applicant's noise assessment for ground-borne noise from tunnelling activities gives 180 residential receptors as having a 'medium significant impact' with another 180 experiencing a 'high significant impact'. However, the impact would not be experienced for more than six days at any residential receptor as the Tunnel Boring Machine (TBM) passes. Therefore in the ES there is no significant impact assessed. We agree that this approach seems reasonable because of the short duration of the impacts.

12.123 Similarly, non-residential receptors would have a limited time duration exposure to the TBM passing and these have also been considered to have no significant impact (ES, volume 3, table 9.5.3). We accept this conclusion.

Ground-borne vibration - residential receptors

12.124 The Applicant's analysis for ground-borne vibration from tunnelling states that the predicted vibration dose value (VDV) at receptors would be as follows:

- During daytime, all the receptors fall within or below the 'low probability of adverse comment' band (VDV of 0.2-0.4ms^{-1.75}) and therefore significant effects are not anticipated.
- At night-time, the predicted VDV's for the majority of receptors fall within or under the 'low probability of adverse comment' band (ie 0.1-0.2ms^{-1.75}). 350 receptors along the Greenwich tunnel route are predicted to fall within the 'adverse comment possible range' (ie 0.2-0.4ms^{-1.75}).

However properties would be subject to this value for less than one week.

- 12.125 In view of the short duration, the Applicant considers that the impact from vibration would not be significant. We agree.

Ground-borne vibration - non-residential receptors

- 12.126 The potential impact of vibration at very sensitive non-residential receptors was assessed on an individual basis. Panoramas Antenna (over the Frogmore Tunnel) was assessed as having a significant impact. There is also a list of seven 'very vibration sensitive' receptors (including London Bridge Hospital) for which the detailed assessments were outstanding at the time of the ES. A significant effect was assumed in the absence of further information (Doc 6.2.03, para 9.5.42). We asked in ExA Q11.11 for an update, but the Applicant advised us that, apart from British Grove Studios, it had received no further responses from these receptors.

- 12.127 No further information is given in the ES Update Report, so in the absence of any additional information to the contrary we assume that there are eight very sensitive receptors which would be exposed to a significant effect from ground-borne vibration.

Ground-borne vibration - building damage

- 12.128 The ES forecasts that there would be no building damage from ground-borne vibration originating from either the TBM or the temporary construction railway (Doc 6.2.03, paras 9.5.34 to 9.5.36).

Significant effects from noise and vibration at surface work sites

- 12.129 This section reports on the significant effects of noise and vibration from construction at the 24 work sites. We are particularly concerned about the significant effects from noise and vibration because of the long duration of construction at many of the work sites, and the potential for significant impacts on health and quality of life from noise.

- 12.130 We note that the number of properties predicted to have a significant effect has reduced, from that assessed in the ES that accompanied the application, as a result of the additional mitigation measures that the Applicant proposed should be added through the course of the examination. This section gives the net significant effects, assuming the on-site mitigation is in place as proposed and secured through the site-specific CoCP Part Bs.

- 12.131 To put the assessments in context we set out below a summary of the durations of the construction work at the sites as indicated by the Applicant.

Duration of work and night-time working

12.132 The expected duration of work at each site is given in the Applicant's noise assessments, with the period of night-time working given, site by site, in the site-specific ES volumes (eg continuous working at Kirtling Street is given as 37 months in Doc 6.2.14, para 9.2.6c).

12.133 The longest durations on site are for the main drive sites:

- Carnwath Road Riverside: 6 years including 29 months continuous working¹⁸⁷
- Kirtling Street: 6 years including 37 months continuous working
- Chambers Wharf: 6 years including 33 months continuous working
- Greenwich Pumping Station: 5½ years including 28 months continuous working.

12.134 Of the remaining sites, 12 also have periods of night-time working in order to construct the connection tunnels. These are typically for periods from three to nine months. Seven work sites do not have any proposed periods of night-time working (King George's Park, Blackfriars Bridge Foreshore, Shad Thames Pumping Station, Earl Pumping Station, Deptford Church Street, King Edward Memorial Park Foreshore and Bekesbourne Street).

12.135 For each receptor the average monthly daytime noise level is given in graphical form in appendix G2 (Doc 6.2.04 to 6.2.27). These graphs are helpful in that they show the average monthly daytime noise levels (dBL_{Aeq}) throughout the construction period against the ABC criteria. However, they do not show night-time noise levels.

Noise at residential receptors

Applicant's assessment of significant effects

12.136 The Applicant's prediction of significant effects at residential receptors, due to noise from construction works, has been updated to include the additional mitigation measures proposed during the examination. This is included in the ES Update Report (APP208.01 with appendices). The list below indicates the properties that have been predicted by the Applicant as having a significant effect from noise.

- Hammersmith Pumping Station: two blocks of new development flats
- Barn Elms: one block of residential flats

¹⁸⁷ Continuous working: 24 hours a day, 7 days a week

- Putney Embankment Foreshore: two houseboats and ten residential houses
- Cremorne Wharf Depot: Station House and two blocks of new development flats
- Kirtling Street (main drive site): 21 houseboats at Nine Elms Pier, five of which are proposed to be relocated
- Shad Thames Pumping Station: two blocks of residential flats, which are converted warehouses
- Chambers Wharf (main drive site): two blocks of residential flats
- Earl Pumping Station: three blocks of residential flats and one set of terraced houses
- King Edward Memorial Park Foreshore: one block of residential flats
- Bekesbourne Street: one block of residential flats.

12.137 In addition residential properties at Carnwath Road Riverside and Chambers Wharf are reported to be impacted by transport noise (see transport impact section below).

12.138 The ES Update Report also identifies approximately 11 significantly affected receptors where noise levels are predicted to be at such a level that they would be eligible for noise insulation, and approximately six receptors which may be eligible for compensation. However, we also note there are other receptors where the predicted noise level would be at or above the noise insulation levels (ie SOAEL), but which have not been assessed as significant in the ES because of predicted high ambient noise levels¹⁸⁸. This latter point is discussed later in this chapter under the heading 'baseline issue'.

12.139 We highlight below properties from the above list which would either have extended periods of significant effects or night-time significant effects, as defined by the ES method.

12.140 At Kirtling Street the houseboat community at Nine Elms Pier is predicted to experience a typical monthly noise level, in daytime, evening and night of 68dB_{L_{Aeq}}. The ABC criterion is predicted to be exceeded for a period of 22 months in the evening and night-time and three months in the daytime (APP208.01, table 9.5.1). Although there are 21 houseboats, many are occupied by multiple households and our understanding is that over 50 households live on the houseboats (APP56, answer to Q29.3, table 3.1).

12.141 Chambers Wharf is bordered on three sides with residential blocks of flats. Additional mitigation proposed during the examination has reduced predicted noise levels and the predicted significant effects have also reduced (APP208.01, table 20.4):

¹⁸⁸ Source: ES, ES Update Report and APP11, answer to Q11.5

- Luna House: 4 months with typical monthly daytime noise levels of 70dB_{L_{Aeq}}. 47 properties. The additional mitigation measures have removed 29 months of evening and night-time significant effects.
- Axis Court: 4 months with typical monthly daytime noise levels of 65dB_{L_{Aeq}}. 59 properties. The additional mitigation measures have removed 29 months of night-time significant effects.

12.142 Earl Pumping Station is also close to residential receptors. However, there were no changes to the assessment findings as a result of further mitigation. The following residential blocks would have a significant effect in the daytime only. No night-time working is proposed (APP208.01, table 22.2):

- 1-39 Chilton Grove: 48 months with typical monthly noise levels of 70dB_{L_{Aeq}}. 39 properties
- 108-136 Chilton Grove: 48 months with typical monthly noise levels of 71dB_{L_{Aeq}}. 24 properties
- 52-62 Croft Street: 13 months with typical monthly noise levels of 62dB_{L_{Aeq}}. 5 properties
- Cannon Wharf block J: 19 months with typical monthly noise levels of 65dB_{L_{Aeq}}. New development not yet built.

12.143 Another property that would have significant effects over a long period is Free Trade Wharf (South) at King Edward Memorial Park Foreshore. The ES Update Report predicts that daytime construction noise levels would range between 80 and 63dB_{L_{Aeq}}, and the noise levels would exceed the ABC criterion for approximately 24 months (during the daytime). The worst case predicted noise level is an average monthly noise level of approximately 80dB_{L_{Aeq}}, which is predicted to occur for approximately one month and arises as a result of the breaking out of hard standing. There are approximately 20 flats in the south section of the building (APP208.01, para 21.7.5 to 21.7.6 and table 21.4).

Issues arising from the assessment

12.144 The number of properties which are predicted to have significant effects has reduced through the course of the examination as a result of additional mitigation measures proposed by the Applicant. However, the list above does not include three new blocks of flats that overlook the site at Kirtling Street (St James, Riverlight development containing over 400 flats). These were included as significantly affected until the 3rd March 2014 version of the draft Update Report when the impact was reassessed as not significant, even though night-time noise levels would be above the ABC threshold for 19 months. The reason given for two of the blocks was that *'this has been based on the assumption that occupants will keep windows closed. Unlike at other locations, this is considered a reasonable assumption during the night as well as*

the day and evening, as the developer has confirmed that mechanical ventilation and comfort cooling will be provided to all properties' (APP208.01, para 14.7.9). This is contrary to the statement made by the Applicant at the IS hearing¹⁸⁹ and reiterated in APP157, section 3.3), that the assessment is based on *'having windows open during the times of the year when people would naturally tend to have their windows open'*. We also note that many of these flats have balconies, so the potential loss of outside space appears not to have been considered.

12.145 We also requested that the Applicant undertake a noise assessment on a number of receptors that weren't included in detail in the ES for various reasons, eg Piper Building at Carnwath Road Riverside, new development at Chambers Street at Chambers Wharf and new development at Greenwich Pumping Station, all of which would be immediately adjacent to drive sites. These were presented in the Applicant's response (APP167) but none of them were included in the list of significantly-affected properties. This we found unconvincing as discussed below.

12.146 For example, the reassessment of the new development at Chambers Wharf on Chambers Street. The development is some nine or ten storeys high and will consist of affordable homes development with mixed rented and shared ownership. It is directly opposite the entrance to the site. The upper floors would not be shielded from noise by the site hoarding. The works site duration would be for six years with 33 months of 24/7 working. We are told that the new development includes 47 single aspect flats. The Applicant's assessment (APP167, section 7.1) gives no acknowledgment that the development is multiple floors high, and that higher floors would not have any sound mitigation from site boundary hoardings. The no significant effect assessment is made despite the Applicant's doubts whether mechanical ventilation is planned for the flats, and the acceptance that, with windows open, internal noise levels would be *'above the guidance for resting conditions but within the design range for reasonable speech or telephone communications (55dBL_{Aeq}) and reasonable conditions for study and work requiring concentration (50dBL_{Aeq})'*. We find the no significant effect assessment unconvincing when compared to the significant effect assessments for the other blocks of flats adjacent to the site.

12.147 Furthermore, the Applicant's assessment does not give any indication of the total number of households which would be affected as opposed to the number of blocks of flats. We asked for this information in Q29.3, and from the Applicant's answer we estimate that over 300 residential households (across all work sites) would be subject to a significant effect. If the assessment had been in accordance with the BS5228 Pure method, ie

¹⁸⁹ 4 February 2014

significance taken at the façade and no assumptions made with regard to windows open or closed, the number of residential households significantly affected would increase to approximately 1,800 (data from table 5.24, answer to Q29.5 in APP56). This information is only an estimate, as we note that the data had been sourced using Google Street view. We are aware from our site inspections that 89 -101 Carnwath Road, for example, is not one household but a housing association building occupied by multiple households.

12.148 Our accompanied site inspections included visits to a number of residential flats, including some that are not identified in the ES as having significant effects. For example, the flat visited in Pipers Building (Carnwath Road Riverside) would have a clear unimpeded aspect over hoardings into the main drive site. We could clearly hear the reversing lorries (which are temporarily using the proposed site) through the closed double glazing of the bedrooms. We requested that the Applicant re-assess the impact on these flats (many of which are single aspect) that would overlook a site operating 24/7 for 29 months. The Applicant provided a re-assessment which confirms that the upper floors would not be screened from activities by site hoardings but, even so, stated that the effects would remain as not significant (APP167).

12.149 We note that NPPG does consider that closing windows to eliminate adverse internal effects is possible, in which case alternative means of ventilation is likely to be necessary. However, there is no information provided by the Applicant as to which properties might require additional ventilation in order to maintain a healthy lifestyle. Nor is there information about the practicality of installing ventilation in such buildings. Provision of ventilation is included in the off-site mitigation measures (discussed later in this chapter), but there is no specific mechanism for a receptor to claim for ventilation if it is below the noise insulation trigger value.

12.150 The impact on the houseboats at Downings Roads Moorings was assessed by the Applicant as not significant but this was questioned in a representation from Nick Lacey¹⁹⁰ (REP194). The representation, which attached a report from Rupert Taylor, argued that the Applicant's *'assessment methodology is flawed in three important aspects, and that owing to their particular characteristics the residential barges at Downings Roads are likely to be exposed to unacceptable levels of noise for which there is no effective mean of mitigation'* (REP194, section 4). These three aspects referred to are:

- Ambient noise levels being measured remote from the moorings

¹⁹⁰ Nick Lacey: on behalf of Tower Bridge Yacht & Boat Company Ltd and the residential community at Tower Bridge Moorings at Downings Roads

- Levels of noise which they consider have been underestimated because, for certain operations during the installation of the cofferdam, there does not appear to be any practicable way of providing screening
- No account has been taken of the special characteristics of houseboats, which by their nature are more vulnerable to external noise than conventional dwellings, and which do not lend themselves to conventional mitigation measures.

12.151 We note that the Applicant has re-measured the baseline at the moorings as reported earlier; however this has not changed the assessment, which remains no significant impact. With regard to the other points above, we agree that the impact from water-borne noise has not been assessed as discussed earlier in this report, but consider that the requirement to use push piling (unless impossible) would reduce the impact of noise at the houseboats during the construction of the cofferdam. With regard to the special characteristics of houseboats, and effectiveness of conventional noise insulation, we discuss this later under the heading 'off-site mitigation'.

12.152 The above reasons are examples of why we are not confident that the impacts from noise have been adequately assessed. It is difficult to be assured from the data provided that the Applicant's conclusions have been arrived at on a consistent basis. We consider that the assessment of significant effects is unconvincing. In our view this is a particularly important matter because of the duration of the works and the extent of night-time working.

Vibration at residential receptors

12.153 The number of residential properties predicted to experience significant impacts from vibration has reduced substantially during the examination, as push piling has been specified at a number of foreshore sites unless 'impossible'. This removed predicted significant effects at blocks of flats at Albert Embankment Foreshore, Chambers Wharf and King Edward Memorial Park Foreshore.

12.154 However there are still two locations where vibration is predicted to cause significant effects¹⁹¹ as assessed in the ES Update Report. These are at:

- Shad Thames Pumping Station: two blocks of residential flats (also impacted by noise)
- Earl Pumping Station: two residential blocks (also impacted by noise).

12.155 The number of households affected by vibration at these two sites has not been provided, but from our review of the Applicant's

¹⁹¹ Significant effect criteria defined in Doc 6.2.02, table 9.5.2

answer to the ExA Q29.2, it would be over 50 households (APP56). The Updated ES Report notes that if low vibration piling were to be used, the impact could be reduced to not significant. However this has not been specified using the same 'unless impossible' terminology as the foreshore sites and therefore the significant effect prediction remains for these receptors.

12.156 If push piling is not possible at the foreshore sites set out above there would be significant vibration impacts on a number of properties. However, an alternative piling method, which we would expect to increase both noise and vibration levels, would need to be approved by the local authorities through CoPA¹⁹² s60¹⁹³ and s61¹⁹⁴. Overall, we consider that this matter has been adequately dealt with.

Cumulative effects of noise and vibration

12.157 At the IS hearing on 12 November 2013, Save Your Riverside, with regard to Chambers Wharf, commented that the cumulative effects of noise and vibration might be significant where the individual parameters were deemed to be not significant. The ExA asked the Applicant to indicate how the cumulative effects from noise and vibration would be considered (Q29.16).

12.158 The Applicant responded that there is no general requirement to consider combined noise and vibration effects from construction, but did note that short term temporary respite accommodation would be available through the application of TAPs¹⁹⁵ under the Non-statutory off-site mitigation and compensation policy (APP56, para 16.1.7 and 16.1.8). We discuss respite accommodation later in this chapter under the heading 'temporary rehousing'.

Noise at non-residential receptors

12.159 Significant effects on non-residential receptors, from construction works noise have been predicted by the Applicant. Details are included in the ES Update Report (APP208.01 with appendices). The list below indicates the properties that are predicted to have a significant effect from noise. There are no significant effects predicted from vibration.

- Albert Embankment (Camelford House)
- Victoria Embankment Foreshore (the Tattershall Castle and Hispaniola floating restaurants)
- Deptford Church Street (St Paul's Church and St Joseph's Roman Catholic Primary School)
- King Edward Memorial Park Foreshore (Pier Head Prep Montessori School).

¹⁹² CoPA: Control of Pollution Act 1974

¹⁹³ Requirement for control of noise at construction sites

¹⁹⁴ Prior consent for work on construction sites

¹⁹⁵ TAP: Trigger action plan for offsite noise mitigation. Provided for identified receptors

12.160 Mitigation proposals for non-residential receptors, particularly schools, were the subject of much debate at the hearings. We were concerned by the levels of noise increase above ambient at St Joseph's Roman Catholic Primary School of +11dBL_{Aeq} at the external teaching areas and at Pier Head Prep Montessori School of +11dBL_{Aeq} outside the classroom. Additional mitigation measures were proposed by the Applicant during the examination, which are noted. The commitment for these mitigation measures is through the TAPs which would be secured by a s106 agreement or obligation with the local authorities.

12.161 In addition to these mitigation measures, the Applicant has committed to mitigation measures to protect other non-residential sensitive receptors (through TAPs to be secured through s106 agreements and obligations) including:

- Falconbrook Pumping Station: York Gardens adventure playground, York Gardens Library and Community Centre
- Blackfriars Embankment Foreshore: City of London Boys School
- Chambers Wharf: Riverside Primary School
- Bekesbourne Street: Royal Foundation of St Katherine.

12.162 Our main concerns regarding the non-residential receptors have been mostly resolved through mitigation measures and TAPs, however we remain concerned about the impact on the external areas and general environment at St Joseph's Roman Catholic Primary School in Deptford. This is discussed further in chapter 13.

Noise from road and river transport

Road Traffic

12.163 There are no significant impacts predicted in the ES for either residential or non-residential receptors from road traffic¹⁹⁶.

12.164 As stated in LB Southwark's noise assessment on Chambers Wharf by Bureau Veritas (WRR075) should river transportation reduce by only 2% (to 88%) then the resulting increase in HGV movements would lead to an increase in noise level of 3.6dB on Chambers Street. This would result in a significant effect at the residential receptors on Chambers Street. The Applicant in its response to this assessment noted the comment and underlined its commitment to the use of barges. It did not challenge the increased noise level figure, but stated that should river transport '*not be possible for a period for any reason, the project would develop an alternative approach, consistent with compliance with noise criterion to the extent identified in the ES*' (APP31.02, table D.1). We do not have a similar analysis for the other sites which have assumed river transport, but we consider that the no significant impact noise

¹⁹⁶ Assessment assumes that 90% excavated material would be transported by river

assessment is very sensitive to changes in river transport and possible derogations.

12.165 However, as discussed in chapter 14, we rely on the control mechanism included in the River Transport Strategy (RTS)¹⁹⁷, to ensure that derogations can only be approved where necessary and reasonable and where approval would be unlikely to result in any new or materially different environmental effects from those assessed in the ES.

River transport

12.166 The Applicant's assessment predicts significant impacts from river transport at three properties:

- 89-101 Carnwath Road, which is adjacent to and upstream of the Carnwath Road Riverside site.
- 5 Carnwath Road, which is adjacent to and downstream of the Carnwath Road Riverside site.
- 8-14 Fountain Green Square, which is adjacent to and downstream of Chambers Wharf.

12.167 The Applicant is proposing, by seeking a separate planning permission, to reduce the impact on all three buildings by the installation of acrylic sheet hoardings on the river walls. These are outside the LLAU and are not secured by the DCO or s106 obligation. No evidence has been put before the examination that a planning application has been made or secured to deliver such measures. Accordingly, whilst we note the intention, we conclude that the acrylic sheet hoardings proposal should be given little weight.

12.168 The assessment in the ES and summarised in APP157 (Appendix E), is that there would be no significant impacts on houseboats due to river traffic. It states that the largest noise differential (at Nine Elms Pier) would be +2.7dB which is less than the 3dB threshold for significant effects.

12.169 We find this assessment unconvincing, for the following reasons:

- With regard to air-borne noise from river traffic at Nine Elms Pier, the assessment was carried out against a baseline noise survey on the shoreline (by the existing construction site) and not on the moorings. This does not appear to us to be a robust assessment because the baseline was not measured at the receptor and the assessment only needs -0.3dB change in ambient to result in a significant effect on the houseboats from river traffic in this location. The assessment that houseboats would not experience a significant effect while

¹⁹⁷ RTS: APP207.02

houses elsewhere have been assessed with a significant effect appears inconsistent.

- The air-borne assessment of impacts on the houseboats does not take into account the special characteristics of houseboats, which by their nature are more vulnerable to external noise than conventional dwellings (REP194, report by Rupert Taylor).
- As discussed earlier in this chapter (under the heading 'houseboats: methodology for assessment of river traffic impacts') we questioned whether the methodology had taken into account water-borne noise disturbance from tug boats manoeuvring barges in close proximity to the houseboats, particularly at night. This is particularly relevant at Nine Elms Pier where the houseboats are within 7m of the LLAU in the river.

12.170 We visited two houseboats at each of Nine Elms Pier and Downings Roads Moorings. As stated earlier in the section on methodology, both written and oral representations were made at the OF and IS hearings regarding the noise transfer through the hulls below deck.

12.171 As stated earlier in this chapter, the Applicant has agreed to undertake a survey of the houseboats, but the results are not before us. We are therefore unable to report with confidence on the effects on houseboats.

Open space: impacts from construction

12.172 The Applicant's open space assessment was undertaken in accordance with BS5228 method 2, which notes that an increase of 5dB or more above ambient for a month or more might be deemed to cause significant effects on open space.

12.173 As the ES did not include the analysis of the extent of the area impacted relative to the total available area, we asked for this additional information in Q11.19. The Applicant advised (APP11, section 19.2) that, of the 12 open spaces affected by noise, the proposed development results in the following impacts (ie percentage of open space above the +5dB threshold):

- 100% of St Paul's Churchyard Gardens at Deptford Church Street
- 20% of KEMP at King Edward Memorial Park Foreshore
- 20% of Victoria Embankment Gardens (William Tynedale) at Victoria Embankment
- 20% of Ranelagh Gardens at Chelsea Embankment
- 20% of Lee Valley Park at Abbey Mills
- 10% for 7 open spaces at King Georges Park, Barn Elms Sports centre, Barn Elms Playing Fields, Victoria Embankment (Charles Gordon), Inner and Middle Temple Garden at Blackfriars, Three Mills Green at Abbey Mills.

- 12.174 The Applicant assessed the impact on St Paul's Churchyard Gardens as significant, and the remaining 11 open spaces as not significant.
- 12.175 We have visited all the open spaces on unaccompanied and some on accompanied site inspections. We agree that the impact on St Paul's Churchyard Gardens would be significant.
- 12.176 However we are concerned that the Applicants answer on KEMP understates the impact. We note that the Applicant stated that 20% of the total open space in the park would have a noise level of plus 5dB above ambient (APP11, table 19.1). However, this was based on an ambient noise level of 61dB_{Aeq}, which was just one of the three ambient noise levels taken in the park. The other noise levels taken near the embankment were at 51dB and 54dB_{Aeq} (Doc 6.2.21, Appendix G, table G.10). A slightly lower ambient level was also confirmed by the baseline survey undertaken by LB Tower Hamlets/Free Trade Wharf which gave a baseline of 58.6dB_{Aeq} (in the bandstand) and 55dB_{Aeq} (1 Shadwell Cottages) near the school on weekdays (WRR040, appendix E). These noise level measurements are lower than the 61dB_{Aeq} used in the assessment, which would imply that the significant effect would be more widespread. From this, it would appear to us that the ES does understate the impact of noise on the park.
- 12.177 We note that the assessment of construction noise impact on open land has not been included in the ES Update Report.

Summary of assessment of significant effects

- 12.178 The proposed development would result in significant impacts on a large number of receptors over a prolonged construction period, including in some cases over three years of evening and night-time working. This would affect both residential receptors and non-residential receptors, including public open spaces and amenities.
- 12.179 We consider that the Applicant¹⁹⁸ is likely to have understated the number of receptors which would have a significant impact. In particular, the Applicant's own estimate of over 300 residential receptors which would have a significant effect would be as high as 1,800 if noise levels at the façade of the receptors were taken as the determining factor (see earlier).
- 12.180 However, we accept that the Applicant's assessment of internal noise levels should make no difference to eligibility for noise insulation (discussed later) because the noise insulation policy considers noise levels outside residential properties (1m from the façade).

¹⁹⁸ Using a modified BS5228 methodology to assess internal noise levels using professional judgement

- 12.181 We also consider that the method adopted does not take sufficient account of the external environment, which is an important factor when we consider the in-combination effects on amenity and quality of life. We are concerned for the health and well-being of local residents, particularly for those that live, attend school and work near sites with 24 hour working, and who would have no respite from the noise and disturbance. This is discussed further in chapter 13.
- 12.182 We have also come to the view that the impact on houseboats has not been considered fully. We note that a survey of the houseboats is ongoing, but the results are not before us and therefore we are unable to consider them.
- 12.183 With respect to the potential project-wide effects from ground-borne noise and vibration impact from tunnelling, we consider that the effects have been assessed adequately.

MITIGATION MEASURES

On-site mitigation

- 12.184 The NPS in paragraph 4.9.9 requires that the decision maker should not grant development consent unless it is satisfied that the proposals will *'avoid significant adverse impacts on health and quality of life from noise'* and *'mitigate and minimise adverse impacts on health and quality of life from noise.'*
- 12.185 The Panel considers that the starting point for this assessment is for us to assess whether the noise could be avoided completely; either by design or by the use of an alternative site. The rationale for the selection of sites or the purpose to which a site could be put (eg whether Chambers Wharf should be a reception site, not a drive site) is not considered in this chapter. We consider it in chapter 17. For the purposes of this chapter, we will consider only whether the application before us complies with the NPS in relation to noise and disturbance issues.
- 12.186 We note that during the course of the examination the Applicant did propose additional mitigation at most sites, which reduced predicted noise levels at some receptors and in places reduced an effect assessed as significant to one of no significant effect. Details of these mitigation measures are summarised in the Applicant's Summary of Additional Mitigation Measures and revisions to Compensation Policies (APP185).

Avoid significant adverse impacts

- 12.187 Further to the NPS statement regarding avoiding significant adverse impacts, the NPPG also has an aim to avoid noise levels above SOAEL.

12.188 The level of SOAEL was not specifically determined. However, it would appear from the Applicant's proposal for PW17 and table B1 in APP102.03 which gives the Applicant's approach to noise policy (referred to earlier in this chapter under the heading 'Applicant's approach to noise policy') that the Applicant decided that SOAEL (for noise) is the category C level in the ABC methodology. The draft Requirement PW17 was introduced in the 3 March 2014 version of the DCO, late in the examination and following the conclusion of the hearings. This did not change the Applicant's proposals for on-site mitigation measures, but is relevant to our report regarding off-site mitigation measures (see later section on off-site mitigation measures).

12.189 The Applicant proposed additional measures during the examination to avoid significant effects at some sites, for example:

- specification of push piling (eliminated vibration effects from piling and reduce noise levels)
- restrictions on types of activities allowed during night-time working hours at Barn Elms (removed the significant effect at night at Lancaster House)
- no night loading and moving of barges at Chambers Wharf (removed the night-time noise effect on Luna House and Fountain Green Square).

12.190 The Applicant also considers that the inclusion of a 'not environmentally worse than' (NEWT) clause in CoCP Part A (APP205.01, para 2.1.3) would avoid receptors that have been assessed as having no significant effect from becoming significantly affected (ie noise levels increasing to levels above SOAEL). The effectiveness of this clause is discussed below under the heading 'NEWT clause in CoCP Part A'.

12.191 With regards to vibration the Applicant stated in APP115.01, that the concept of SOAEL *'is new in policy terms. BS6472 Part 1 identifies levels of community response in terms of 'low probability of adverse comment' up to 'adverse comment probable', which is the point at which we say that this represents a significant observed adverse effect level.'* We take from this that the Applicant assumed that the SOAEL for vibration is $VDV 0.8ms^{-1.75}$ during the daytime and $VDV 0.4ms^{-1.75}$ at night for residential buildings¹⁹⁹.

12.192 The Applicant has provided no additional information on the assessment of the eight very sensitive non-residential receptors (referred to earlier in this chapter under the heading 'ground-borne noise - non-residential receptors'), so we have taken the

¹⁹⁹ BS6472-1:2008 Guide to evaluation of human exposure to vibration in buildings, table 1 gives $VDV 0.8ms^{-1.75}$ during the daytime and $VDV 0.4 ms^{-1.75}$ at night for residential buildings as the lower level of the range where adverse comment is probable

worst case position provided by the Applicant, that there are eight very sensitive receptors which would be exposed to a significant adverse effect from ground-borne vibration. We have no information on how the impacts could be avoided or mitigated, or how the impact would relate to the SOAEL level. We consider that SOAEL may be relevant in these cases as some of the eight receptors did include places where there might be people staying long term.

12.193 We summarise our overall views on the NPS test²⁰⁰ for avoidance of significant adverse impacts in the conclusion to this chapter.

Mitigate and minimise adverse impacts

12.194 The NPPG suggests that consideration needs to be given to mitigate and reduce to a minimum where noise is between LOAEL and SOAEL.

12.195 LB Southwark states in its final written submission (REP491, key headlines page 2), that *'the application fails the test in paragraph 4.9.9 of the NPS for Wastewater because it sets SOAEL at too high a level, fails to avoid significant adverse impacts, and fails to set LOAEL, meaning that there is no assessment of the mitigation and minimisation of adverse effects between LOAEL and SOAEL and hence insufficient mitigation and minimisation delivered'*.

12.196 We agree that the application does not set out how it would specifically minimise and mitigate between SOAEL and LOAEL. However, the Applicant did repeatedly make a commitment to the use of best practice on site by the contractors. This was not specifically stated in the context of minimising between LOAEL and SOAEL, but we consider that it would have the same effect. We questioned the Applicant at the IS hearings on how best practice on site would be secured, and the following was added to CoCP Part A:

'Any significant effects from construction will be minimised in the vicinity of the works by implementation of this CoCP. The Contractor shall follow best practice at all times in minimising the construction impacts. Measures specified within this document are considered to be the minimum' (APP205.01, para 1.1.9).

This paragraph is not exclusively targeted at noise as it covers all impacts from all construction activities, but we are satisfied that the intent is clear.

12.197 We note that the use of s61 and local authority approval process (discussed later) would ensure that Best Practicable Means (BPM) are applied at each site, which would also serve to minimise and mitigate effects below the SOAEL level.

²⁰⁰ NPS, paragraph 4.9.9

12.198 We also note and have regard to the additional mitigation measures that were introduced during the examination at some of the sites. Examples are:

- specifying a minimum sound reduction of 20dBR_w, for cladding and roofing to enclosures
- night time activities within materials storage/handling area to be screened by a roofed, three-sided noise enclosure
- site offices and welfare buildings located to provide noise screening to the lower levels of Axis Court at Chambers Wharf
- higher boundary hoarding at some sites (eg Earl Pumping Station)
- river transport for delivery of tunnel segments to Chambers Wharf.

12.199 Some of the local authorities remain unsatisfied with the extent of the mitigation proposals including particularly LB Hammersmith and Fulham, LB Southwark and LB Tower Hamlets. For example, LB Southwark states in its final written representation (REP491, page 3), *'significant impacts would also arise at Shad Thames and Earl Pumping Station and the mitigation policies as drafted also do not provide required certainty that these impacts can be properly mitigated and minimised'*.

12.200 The Applicant has stated that no additional on-site mitigation measures are possible to reduce the significant effects further (ES Update Report, APP208.01 with appendices APP208.01.01 to 208.01.33). However, it also states in APP185 para 3.1.5, that *'we anticipate that further mitigation will be possible through the next stages of the project once Contractors have been procured and through progression of detailed design'*.

12.201 We note however that, as discussed previously, no information was provided with regard to the intermittent noise levels and character of the noise which might be intrusive for residents and affect their quality of life (day and night-time), even when the predicted dBL_{Aeq} levels fall below the SOAEL levels. Therefore receptors that might experience a large noise change, but have been designated as having no significant effect because the noise levels are predicted to be just under the level set in the ES (ie just under the ABC threshold), would have no protection from the off-site mitigation proposals discussed below. We discuss this further below under the heading 'control of noise from work sites'.

12.202 At King Edward Memorial Park Foreshore the local authority and other Interested Parties asked if a restriction on Saturday working could be included as a mitigation measure for respite from excessive noise on Saturdays. We asked about the impact of such a restriction for all sites in ExA Q25.8. In its response, the Applicant confirmed that it would increase the occupation of the sites by between 2 months and 3.7 months, but would not affect

the overall construction period. In its submissions, the Applicant stated that it would prefer not to restrict Saturday working. However, LB Tower Hamlets reiterated that it considers that *'the benefits of restricted weekend working will outweigh the disadvantage of a slightly longer construction contract. Therefore working hours should exclude all weekend working except unless agreed otherwise by the local authority in consultation with the community liaison/stakeholder group'* (REP447 section 4).

12.203 The Applicant has provided (on a without prejudice basis) suggested revised wording for restriction in Saturday working to be set out in the CoCP (APP115.03, paras 8.2.9 and 8.2.11). It has also requested that this should be applied only to the four sites close to amenities, ie Barn Elms, King George's Park, Deptford Church Street and King Edward Memorial Park Foreshore) and should allow maintenance work on Saturdays. We consider that the restriction on Saturday working should be applied in relation to the King Edward Memorial Park as explained in chapter 11 and in chapter 17; the means of securing this restriction is discussed further in chapter 20.

12.204 We summarise our overall views on the NPS test²⁰¹ to mitigate and minimise against adverse impacts in the conclusion to this chapter.

Control of noise on work sites

12.205 The NPS at paragraph 4.9.9 requires that the decision maker should not grant development consent unless it is satisfied that the proposals *'where possible, contribute to improvements to health and quality of life through the effective management and control of noise'*.

12.206 The NPS further states in paragraph 4.9.10 that *'when preparing the development consent order, the decision maker should consider whether requirements are needed which specify the mitigation measures or the measurable requirements put forward by the applicant to ensure that the noise levels from the project do not exceed those described in the assessment or any estimates on which the decision was based'*.

12.207 Our concern with regard to the lack of clarity of the intermittent noise levels that might be experienced over a prolonged period, both day and night-time, led us to investigate the control of noise from work sites in more detail. These were discussed particularly at the IS hearing on noise.

12.208 The CoCP Part A and the Non-statutory off-site mitigation and compensation policy establish the framework for the control of noise and vibration as a result of project works (APP205.01,

²⁰¹ NPS, paragraph 4.9.9

section 6). They are secured by Requirement PW6 (ie CoCP) and the legal obligations respectively.

12.209 In this section we report on methods of control of noise on site ie CoCP Part A, CoPA s60 and s61, the NEWT clause in CoCP Part A and the possible provision of noise limits requirements in the DCO.

Code of Construction Practice Part A

12.210 The CoCP Part A is intended by the Applicant to provide clear and appropriate means of monitoring and ensuring compliance with a wide range of good practice measures. It has been substantially amended during the examination in consultation with the local authorities. A joint Borough submission²⁰² in relation to CoCP Part A was submitted by LB Tower Hamlets in January 2014 (REP255). In its final written submission the Council recognises that changes have been made to address issues (REP492). However, at the end of the examination there were still some issues outstanding eg LB Hammersmith and Fulham and LB Southwark with regard to the NEWT provision and the absence of noise limits (REP490 and REP491).

12.211 Section 6 of CoCP Part A addresses noise and vibration and requires that the contractor prepares a Noise and Vibration Management Plan and obtains s61 consent from the local authority (APP205.01).

12.212 The Noise and Vibration Management Plan is required to include details of control measures to be included in s61 applications and details of noise and vibration monitoring arrangements, including location, reporting requirements and off-site mitigation to be brought forward (APP205.01, para 6.1.10). The monitoring proposals are to allow noise levels to be easily compared to forecast noise in the s61 consent and the ES (para 6.6.6). We note however, that this Plan does not address the pre-construction ambient noise level at sensitive receptors which we discuss later in this chapter under the heading 'off-site mitigation'.

12.213 With regard to our written questions on noise limits which are discussed further below, the Applicant has included two sections into the CoCP Part A:

- A requirement for the contractor to monitor, control and report instantaneous maximum (L_{Amax}) noise levels (para 6.6.7 to 6.6.12)
- The 'not environmentally worse than' (NEWT) clause which is discussed below.

²⁰² Joint Borough submission, on behalf of LB Tower Hamlets, LB Wandsworth, LB Southwark, City of Westminster, LB Hammersmith and Fulham, LB Richmond, LB Lewisham, and City of London

NEWT clause in CoCP Part A

12.214 In response to our concerns with regard to the control and minimisation of noise on site, the Applicant introduced the following 'not environmentally worse than' (NEWT) clauses into the CoCP Part A (APP205.01, para 2.1.2 and para 2.1.3):

- *'2.1.2: The contractor shall ensure that no significant adverse effects arise that are worse than those reported in the ES. This shall be achieved through the process described in paragraph 2.1.3.*
- *2.1.3: The contractor shall identify, before the relevant phase of construction, whether its detailed design, construction methodology, programme, site specific mitigation or other assumptions are materially different from those made during preparation of the ES. If they are, then the contractor shall carry out an assessment of the likely significant effects using the relevant assessment methodology for each topic as defined in the ES. That assessment will identify any mitigation that is necessary to ensure that no significant adverse effects arise that are worse than those reported in the ES.'*

12.215 We note the intent of the NEWT clause, but its effectiveness is based on the following points:

- The reliability of the levels assessed in the ES, and the accuracy and rigour of the process
- That these levels are acceptable.

12.216 In addition, the meaning of paragraph 2.1.2 caused some puzzlement as to how it would work in practice on three points:

- How it would minimise noise impacts between LOAEL and SOAEL?
- How it would avoid noise impacts above SOAEL? This is particularly important as it appears to protect a receptor that is predicted as having no significant effect from becoming significantly affected, but would give no protection to a receptor that was predicted as being significantly affected from a still higher level of impact
- Whether or not the actual noise levels predicted in the ES would be used as levels for the contractor to comply with?

12.217 We questioned the Applicant at the IS hearing (4 February 2014) on how the NEWT clause would work in practice and were advised by the Applicant that it is intended to prevent a receptor which currently is predicted to have no significant effects from becoming one with a significant effect. We were advised that the principle of the clause is not that the contractor would adhere to the noise level predictions in the ES, but with the assessments of significant effect. It was not clear to us how this would work in practice,

particularly as we consider that the ES assessment may have understated the significant effects.

12.218 The Applicant further explained NEWT and its application in the written summary to the IS hearing of 4 and 5 February (APP115.01, section 4). It confirmed that *'NEWT has been successfully applied on other projects and, as brought forward, provides the basis for ensuring that no receptor that is identified in the ES as being not significantly affected, could become significantly affected'* (APP115.01, para 4.1.19). However the example given was related to push piling and levels of vibration and did not clarify the local authority concerns about how the receptors that had been identified as having significant effects would be protected from having even worse significant effects.

12.219 We asked the Applicant how the NEWT principle would be adhered to for each parameter in the ES and how compliance would be monitored and enforced (the ExA's R53.1). In response the Applicant advised that compliance and monitoring would be enforced through the delivery of mitigation as subsequently defined in the contractors Construction Environmental Management Plan (CEMP) and would be enforced through Requirement PW6. The Applicant explained that the process would be completed before construction work commences on site. The CEMP would be subject to consultation and approvals as set out in section 2.3 of CoCP Part A. Approval of the CEMP would only be granted by the approving bodies if the contractor had demonstrated compliance with the NEWT principles (APP163).

12.220 However, as LB Southwark points out, the CEMP is a document that the local authorities would be consulted on, but they would not approve. Similarly, the contractor and the employer are required by CoCP Part A (para 6.6.1) to discuss the monitoring points with the local authorities, but they would not be approved by the local authority (REP491, section 4). We do note, however, that the contractor would have to adhere to any site-specific noise and vibration monitoring related conditions imposed by the local authority through s61.

12.221 Moreover, LB Hammersmith and Fulham in its final written submission (REP490), notes that *'the applicant's response to question 53.1 (APP163) does not adequately address ongoing monitoring arrangements, or identify any contingency should the effects of construction prove to have more significant effects than those identified at the time of the CEMP'*. The Council also commented that *'as currently proposed the NEWT commitment will only be breached if such breach is demonstrated from data for one whole month. This is likely to have impact on health and quality of life. NEWT should be a minimum commitment and not be subject to best practicable means, as that would subvert the environmental impact assessment regime'* (REP444, para 1.30).

- 12.222 LB Southwark has also queried in its final written submission '*just what numerical levels constitute NEWT is not clear for most locations from the ES, as updated. So NEWT offers insufficient certainty as to the levels that will be set and therefore that NEWT will achieve its aims in practice*' (REP491, section 4).
- 12.223 This illustrates the level of confusion that still remains. It is our understanding that the Applicant's intention is that there would be no numerical levels set, merely a commitment for any receptor that is not identified as significantly affected in the ES to remain not significantly affected in practice. As stated earlier, this relies on the assumption that the ES has correctly identified all significantly affected receptors. The assessment in the ES has been based in part on professional judgement, which would make it difficult for individuals to determine whether NEWT was being adhered to in practice. It is not clear to us how this commitment would be managed and ensured throughout the contract.
- 12.224 While we can understand that the NEWT clause has been added with the Applicant's best intentions, we do not consider that it would have full effect and would not give protection to receptors from impulsive noise levels. The other aspect that we find unsatisfactory is that there is no means by which a receptor that has been assessed as having a significant affect is protected from a material increase by the NEWT clause.
- 12.225 We therefore do not consider that the NEWT clause as currently drafted in the CoCP meets the NPS requirements to minimise and mitigate adverse impacts. Although we do accept that it would avoid a receptor becoming significantly affected if it had not already been deemed to be so by the ES.
- 12.226 Accordingly we consider that weight can only be attached to the commitment secured that '*no receptor that is identified in the ES as being not significantly affected, could become significantly affected*' and little weight attached with regard to the specific control and limitation of impacts, and our wider assessment of impacts.
- 12.227 In the event that the Secretaries of State should decide that the NEWT clause requires amendment to ensure that it fulfils the intent to constrain the contractor to the levels assessed in the ES, then a project-wide requirement would be required in the DCO. However such a requirement has not been drafted or consulted on.

Control of Pollution Act (CoPA) s60 and s61

- 12.228 The Applicant states that the CoPA section 61 consent applications would be used to provide further detail on the noise predictions for the works, along with the precise mitigation that would be implemented (APP205.1, section 6).

12.229 At the IS hearing on 20 February 2014 the local authorities commented that s61 secures BPM²⁰³, but this is subject to the contractor's costs being taken into account. Therefore a mitigation measure promised now might not be forthcoming in future if circumstances change to increase costs. Both LB Tower Hamlets and LB Southwark stated that they would prefer noise limits to be set in the DCO. This was further confirmed by LB Hammersmith and Fulham and LB Southwark in their final written submissions (REP490 and REP491).

12.230 In addition LB Southwark comments in its written representation on 3 March 2014, that *'section 61 cannot be relied upon as sufficient evidence of mitigation to enable consenting of the works that will produce noise impacts to be mitigated. There are too many variables in the mitigation that might come out of the section 61 process. Without certainty at the point of consent, section 61 alone does not offer an appropriate method of control. With the works consented under the DCO, section 61 and the best practicable means test imposes only an obligation to do one's best to control noise while still delivering the works'*. The Council goes on to state that *'it is quite possible that the section 61 process will not deliver adequate mitigation and so the works should not have been consented in the first place'* (REP449, section 6).

12.231 LB Southwark further confirms its view that *'Noise limits in DCO requirements are therefore required not to duplicate the s61 regime, but to complement it and create the necessary certainty for the project to be consented'* (REP449, section 6).

12.232 We have examined the case for noise limits and report on it below.

Noise limits

12.233 As stated earlier in this report, we remain concerned that the Applicant has not provided information on any 'distinctive tonal, impulsive or low frequency characteristics of noise' as required by NPS paragraph 4.9.4. We are also concerned that, as the ES presented noise levels as a range with a typical monthly construction noise level, there could be higher impacts than forecast on a daily or nightly basis.

12.234 We identified early in the examination that there might be a need for noise limits to be included in the DCO as a requirement for each surface construction site, and asked in Q29.11 *'if the Secretaries of State were to decide that there should be a maximum noise level imposed at each site, what would be the practicable noise levels that could be set for each site during the specified working hours, expressed as $dB_{L_{Aeq}(1\text{-hour})}$ for day and evening and expressed as $dB_{L_{Aeq}(5\text{-minutes})}$ for night-time? Justify the levels suggested.'*

²⁰³ BPM: best practicable means as defined under section 72 of CoPA

12.235 The Applicant declined to provide the noise levels requested (APP56, section 11), reasoning that:

- it would not be *'practicable to set out unchangeable maximum noise levels at each site, expressed as dBL_{Aeq}(1-hour)'*
- there is no precedent for limiting daytime construction noise for this type of project in terms of dBL_{Aeq}(1-hour)
- at the early stage in the project's planning, the uncertainty would be such that *'any maximum level set would be too high to provide meaningful protection to local residents and other noise sensitive facilities'*.

12.236 Although the reasoning in the second bullet set out above was constrained to there being no precedent for limiting daytime construction noise, the Applicant also declined night-time noise limits.

12.237 The Applicant goes on to explain the five steps of its noise strategy:

- committed mitigation at this early stage
- commitment for the contractor to investigate and then employ all further mitigation that is practicable
- CoPA s61 consent process (including possible noise limits)
- off-site mitigation triggered when BPM on-site is exhausted and there would remain significant impacts on people inside their homes, community facilities or places of work
- monitoring to ensure compliance.

12.238 The Applicant further suggests that if the ExA were minded to set noise limits of any form, then to be practicable any level set now should be subject to modification by the s61 consent process, as was adopted for the permission to build the Olympic Park (APP56, section 11).

12.239 In acknowledgment of the matters that we raised in relation to high noise levels that could occur over short periods of time, the Applicant did amend the CoCP Part A to require the contractor to identify as part of its s61 consent application, those construction activities that could give rise to significant impulsive noise events and the mitigation, or management processes in accordance with best practicable means, to minimise these impulsive noise events.

12.240 The subject of noise limits was also raised by a number of Interested Parties. St James Group Ltd, in its written representation suggested maximum noise levels at Kirtling Street and Heathwall Pumping Station sites (WRR087, appendix 9). In this regard the Applicant similarly declined to agree to maximum noise levels and noted in its response to the ExA's Q29.10, that *'the Riverlight development was designed to provide a high degree of sound insulation to combat high existing noise levels. This*

protection will also mitigate construction noise.' (APP56, para 10.1.4). The response goes on to mention trigger values for temporary rehousing at these apartments; however we note that in the ES Update Report they are now considered not to have a significant effect.

12.241 At the IS hearing on 4 and 5 February 2014, LB Hammersmith and Fulham, LB Southwark, LB Tower Hamlets and St James Group Ltd all confirmed that they would prefer noise limits included in the DCO.

12.242 The day before the resumed IS hearing on 20 February 2014, the Applicant submitted a paper for consideration on noise limits, based on an example at Chambers Wharf. The Applicant's suggestion (APP150, dated 19 February 2014), was for typical monthly noise level limits ($\text{dBL}_{\text{Aeq,T}}$) set by the ABC methodology, except where exceedances have been estimated in the ES. Daily maxima at +5dB would be allowed above these limits and also increased thresholds for short term works (eg site set-up, demolition, cofferdam construction and fill).

12.243 The proposal also included a maximum noise level at night of $85\text{dBL}_{\text{AFmax}}$ as determined at the façade of any dwelling with no more than 20 exceedances allowable between 2300hrs and 0700hrs. The $85\text{dBL}_{\text{AFmax}}$ (with up to 20 exceedances) was explained by the Applicant at the IS hearing to be possible within the typical monthly night noise levels. This maximum night noise level was withdrawn as a parameter at the IS hearing and not included in the final drafting, but the draft and subsequent discussion highlighted the vulnerability of the proposal and confirmed our concerns about intermittent noise levels and potential impacts from the permitted exceedances.

12.244 The Applicant's suggestion was in draft form in APP150. Notwithstanding this, the local authorities did respond with comments in their written submissions on 3 March 2014.

12.245 The most detailed comments on the Applicant's noise limitations paper (APP150) were from LB Southwark. The Council commented negatively on the suggestions and the lateness of the draft proposal in the process (REP449, section 7). It summarised that *'the council supports the imposition of noise requirements consistent with the Requirement MS9 in the Hinkley Point Development Consent Order, consisting of:*

- *Noise limits imposed across day, evening and night, with a L_{Amax} at night*
- *Provision for council approval of monitoring scheme, any short term increase in noise up to 75dB L_{Aeq} , 1hour only and any other exceptions*
- *45dB at night*
- *Limits measured at the façade of any dwelling.'*

12.246 The Applicant responded that it does *'not consider the example of Hinkley Point C to validate noise limits to be justified in this context as Hinkley Point is not an urban environment'* (APP198.24, para 1.11.5). We find the logic of this response unsatisfactory as we would have thought it might be considered to be even more important to have noise limitations in an urban residential environment than it is in a non-urban environment as was the case at Hinkley Point C.

12.247 St James Group Ltd, in its final written submission (REP457, dated 3 March 2014), maintains the view that the best way of controlling noise to an acceptable level at Riverlight would be by means of maximum noise levels in dBL_{Aeq} format with dBL_{AFmax} figures for night-time noise (REP457, para 3.1 to 3.3). The St James Group Ltd final submission also appends suggested wording for a DCO requirement on maximum noise levels and noise monitoring for Work Nos 13a and 13b (ie Kirtling Street). The suggested noise levels for day, evening and night-time, are limits of:

- day: $75dBL_{Aeq,12\text{ hours}}$
- evening: $75dBL_{Aeq,1hr}$
- night: $70dBL_{Aeq,1hr}$ and $83dBL_{AFmax}$.

12.248 The Applicant has responded to St James Group Ltd proposals but does not agree to them (APP198.36). The Applicant goes on to state that the limits and requirements sought would not be practicable or would duplicate requirements in the CoCP (eg monitoring) and are therefore unnecessary. We have also reviewed the proposals, but note that the noise limits suggested would be in relation to the Riverlight development only, and have not taken into account the potential impacts on other receptors (eg the houseboats at Nine Elms Pier).

12.249 The Applicant's alternative suggestion for *'hypothetical project wide requirements in respect of noise and vibration limits'* was developed further for all sites and submitted as the Noise Limits Paper (APP188) on 3 March 2014. In it the Applicant states that the noise strategy, both on-site and off-site, is robust and appropriate for the project and expresses concerns about imposing noise limitations. The Secretaries of State are asked by the Applicant in considering this matter to take account of:

- *'the critical importance of ensuring timely delivery of the project*
- *'the fact that the Environmental Statement fulfils its designated function by assessing the likely significant effects of the project, which is a different function from defining absolute limits to be imposed at all times'* (APP188, para 1.1.4).

- 12.250 The Applicant goes on to state that the options '*should be considered hypothetical and therefore caution is necessary before imposing limits of this nature*'.
- 12.251 Our view on the Applicant's concerns is that, on the first point, we are not convinced that imposing noise limits would substantially affect the programme of works. We were given no evidence to support this assertion. We are also not convinced that it would be appropriate to put the health and well-being of local residents at risk because of expediency. On the second point, we and other Parties requested noise limits that could be set at $\text{dBL}_{\text{Aeq},1\text{hr}}$ levels and either $\text{dBL}_{\text{Aeq},5\text{mins}}$ or dBL_{Amax} at night (WRR087 and ExA's Q29.11) and not set at the monthly average levels predicted in the ES.
- 12.252 We also note that at the IS hearing (20 February 2014), LB Tower Hamlets stated that the Crossrail project has maximum noise limits imposed at Canary Wharf. In response, the Applicant commented that these had been imposed under the s61 consent process. However, we have no evidence before us of the levels imposed at Canary Wharf, the context in which they were imposed, or the implications of such limits on the tunnel progress and delivery.
- 12.253 LB Southwark did not withdraw its earlier concerns in response to the Applicant's final proposals. Instead, it suggested an alternative form of drafting for a requirement based on noise limits for residential and non-residential receptors across day, evening and night with a dBL_{Amax} at night. The noise limits would be set at SOAEL using method 1 and if appropriate method 2 (and applying the lower of the levels produced), with a $60\text{dBL}_{\text{Amax}}$ at night (with a maximum of 2 events over that limit per hour). Noise limits would be measured at the façade of any dwelling unless agreed otherwise with the local authority. The noise limits detailed would apply except for specific daytime, short duration construction or demolition activities during site set up, demolition and cofferdam construction and fill phases (see REP491, section 5 for details). This suggested requirement was published on 11 March 2014, at the end of the examination. Accordingly, the Applicant did not have the opportunity to respond before the examination closed.
- 12.254 LB Hammersmith and Fulham confirmed that it supports the inclusion of a requirement that would limit noise levels to a specified level, and that noise levels should be below the SOAEL and should meet the WHO Guidelines to reduce adverse health and well-being effects.
- 12.255 LB Hammersmith and Fulham also confirmed that the Council continues to support the imposition of noise requirements similar to the requirement in the Hinkley Point C DCO with limits set at the façade of any dwelling or sensitive receptor. With regard to the Applicant's Noise Limits Paper, it considers that '*there is no*

justification for setting noise limits and then allowing an increase on those noise limits of +5dB' (REP490, para 9.3). It disagrees with the evening and night-time measurement of 1 hour and considers that it should be reduced to 5 minutes. The Council also considers that definitions are needed for monthly and daily limits in order that there would be clarity in the implementation of the requirement. Finally the Council states 'it is of concern that at this late stage in the examination important documents such as this and the DCO are still in draft and local authorities and other Interested Parties will not have the opportunity to comment on the final documents' (REP490, para 10.1).

12.256 The Panel's view of the Applicant's suggested noise limits (in APP188) is that they would not meet the requirements of the NPS to minimise noise on site. Moreover, they may even encourage the contractor to work up to the limit and undermine the ES predictions and householders' expectations of what they might experience from the ES predictions. For example, at Wapping High Street (residential flats across the river from Chambers Wharf) the ES has predicted a night noise level range of 26-40dB_{L_{Aeq}} with a typical monthly construction noise level of 40dB_{L_{Aeq}} (APP208.01, table 20.4). This has been assessed as no significant effect and the receptors would not be eligible for noise insulation. A householder reading the ES would expect a monthly night-time noise level of about 40dB_{L_{Aeq}}. However, the Applicant's noise limit proposals would set a typical night noise limit of 56dB_{L_{Aeq,T}} for the same receptor over the same period. In addition a +5dB would be allowable on a daily basis as long as the monthly figure was retained within the typical monthly noise limit. A contractor might reasonably assume that these were limits that could be worked to; which in turn could undermine the predications in the ES.

12.257 We note however, that the Applicant's suggested noise limits in APP188 would assist minimisation and mitigation at the properties that have been predicted to have noise levels above the ABC thresholds. This is because the suggested threshold level is set at the predicted noise level, and would therefore give some security that the noise levels would be constrained to at least the average monthly levels, with the potential for a +5dB daily increase and the temporary relaxation limits.

12.258 We have reviewed the context and evidence before us in relation to noise limits and we consider that there is uncertainty in relation to:

- the practicality of setting maximum noise levels at each site, expressed as dB_{L_{Aeq}(1-hour)} for day or dB_{L_{Aeq}(5-min)} for night-time
- whether any maximum level that could be set would be too high to provide meaningful protection to local residents and other noise sensitive receptors

- whether any particular noise levels due to specified works and activities are an inevitable consequence of the development.

12.259 Whilst we have considered all the noise limits suggested by the Parties, we do not consider that an appropriate noise limit requirement is before us. This is because we do not consider that the hypothetical requirement put before us by the Applicant is a suitable mechanism to constrain noise levels as it does not address the impulsive or maximum noise levels, which is one of our concerns. Moreover, no evidence has been put before us from other Parties for suitable levels of $dB_{L_{Aeq}(1\text{-hour})}$ for day or $dB_{L_{Aeq}(5\text{-min})}$ for night-time, which we can be confident would be practicable for the work sites.

Vibration limits requirement

12.260 The Applicant also presented a similar hypothetical project-wide requirement for vibration limits set at the level of significant assessment (APP188). For similar reasons to those given above we do not consider that these requirements would meet the need to minimise the effects on receptors, and could indeed act contrary to the intention in practice.

12.261 LB Southwark requested a maximum vibration level requirement, where levels should equal SOAEL ie. 1mm/s SOAEL by day; 0.3mm/s SOAEL by night, all as PPV (REP491). Again this suggested requirement was submitted for the 11 March 2014 deadline, at the end of the examination, so the Applicant did not have the opportunity to respond before the examination closed.

12.262 We do not consider that there is a need for a vibration limit requirement, because push piling has been specified (unless impossible) at most sites, and any change in methodology would require approval by the local authorities under s61. Moreover, the Non-statutory off-site mitigation and compensation policy provides for respite accommodation if vibration levels are in excess of the trigger values for more than one day, as measured in VDV. We agree with the use of VDV for this measure because it is the methodology specified in BS6472 for the assessment of human response to building vibration (see earlier in this chapter under the heading 'avoid significant adverse impacts').

Summary on control of noise on work sites

12.263 In the NPS paragraph 4.9.10, we are advised that when preparing the DCO, the decision maker should consider whether requirements are needed to specify the mitigation measures or the measurable requirements put forward by the Applicant to ensure that the noise levels from the project do not exceed those described in the assessment. In paragraph 4.9.11, the decision maker should consider whether mitigation measures are

acceptable and may impose requirements to ensure delivery of these mitigation measures.

- 12.264 The Applicant has assessed noise impacts from the work sites as average monthly noise levels. These have been reviewed and we consider that adequate mitigation measures would be secured through CoCP Parts A and B and through the CoPA s61 process. This is carried forward to our assessment of the NPS tests.
- 12.265 However, as stated earlier we do not have any information on predicted intermittent noise levels.
- 12.266 In view of the large number of sensitive receptors, the long duration of the works and the extent of night-time working, we would have preferred to be able to report on intermittent noise levels and recommend a noise limit requirement as mitigation. Our preference would have been for this to include site-specific requirements for noise limits expressed as $dB_{L_{Aeq}(1-hour)}$ in day and evening and expressed as $dB_{L_{Aeq}(5-minutes)}$ at night, with temporary relaxations (eg during site set up and cofferdam construction).
- 12.267 Whilst the Applicant initially declined to provide appropriate limits for such a requirement (in response to Q29.11), these were subsequently provided but expressed as monthly noise limits (APP188). We did not find them satisfactory for the reasons set out above.
- 12.268 St James Group Ltd did suggest noise limits for Kirtling Street and Heathwall Pumping Station, but the Applicant stated that they would not be practicable. Also, whilst LB Southwark put forward noise limits at the end of the examination, these were not received in sufficient time for the Applicant or others to comment. Accordingly, we are not in a position to recommend a noise limit requirement.
- 12.269 We accept that such a requirement might be able to be imposed at the s61 CoPA consent stage by the local authorities, but whether this would be so is uncertain. We therefore cannot report with certainty on the levels of disruption from noise that persons living and working near the sites would be subjected to. This matter is also carried forward for the overall assessment of the NPS tests later in this chapter.

Off-site noise mitigation

- 12.270 The NPS in paragraph 4.9.13 states that where all other forms of noise mitigation have been exhausted, the Applicant may consider it appropriate to provide noise mitigation through improved sound insulation to dwellings, or in extreme cases, through compulsory purchase of affected properties.
- 12.271 The Applicant has produced a policy for noise insulation and temporary rehousing titled Non-statutory off-site mitigation and

compensation policy (APP210.01). It has been included as appendix 3 to the legal obligations securing off-site mitigation and compensation policies relating to the Thames Tideway Tunnel and the Resources for the Councils (APP209.03). However, there remain aspects of the policy which are still outstanding and are of concern to us, the local authorities and a number of the representative community groups and other Interested Parties.

12.272 In this section we report firstly on noise mitigation through insulation and then on the provisions for temporary rehousing.

Noise insulation

12.273 The Applicant has committed to provide noise insulation above certain trigger levels. The Applicant states that the Category C noise threshold for night-time used for the ABC methodology may be considered to be SOAEL (APP11.01.01, para 3.1.10). It also states that the $75\text{dB}_{\text{Aeq},12\text{hr}}$ daytime noise level used as part of the ABC criteria can be taken to be a SOAEL before going on to explain that *'Above these SOAELs, noise levels inside properties would lead to significant adverse effects. This is why Thames Tideway Tunnel will provide noise insulation to properties where it is not reasonably practicable to further reduce noise exposure outside the properties due to Thames Tideway Tunnel construction'* (para 3.1.10 to 3.1.13).

12.274 The Non-statutory off-site mitigation and compensation policy (APP210.01) covers dust, light, noise insulation, vibration and temporary rehousing. Trigger levels are included for noise insulation and temporary rehousing, with lower levels set for special cases such as shift workers and vulnerable people. Houseboats are considered as special cases for the assessment of compensation claims resulting from noise. However, there are no details of trigger levels for air, dust or ventilation. There is no mention on whether someone could claim for assistance with ventilation if a property which has been deemed to have no significant effect in the ES, would have to keep windows closed to reduce impacts inside the home.

12.275 Trigger levels for noise insulation in the policy comply with the levels set in BS5228-1 table E.2 and have been based on predicted noise levels at 1m from the façade of the building. As such the eligibility for noise insulation would be irrespective of the use of the Applicant's professional judgement in the determination of significant impacts made in the ES.

12.276 In response to concerns about the certainty of noise insulation for properties which have been predicted to have a 'significant effect', the Applicant has proposed Trigger Action Plans (TAPs) which would address the concerns of the affected properties before construction work started on site. This commitment was welcomed by both the local authorities and other Interested Parties. The list

of receptors which are eligible for a TAP, with plans of the affected façades, is included in appendix 1 of the Legal Agreement²⁰⁴ (APP209.03). In addition to the list of properties given in appendix 1, the Applicant has committed to TAPs for the houseboats at Putney Pier and Nine Elms Pier (APP201.01, appendix C, para 1.1.3).

12.277 We note that the list of properties for TAPs includes some properties which are forecast to have significant effects in the ES Update Report but which were not identified as being eligible for noise insulation, eg Lancaster House at Barn Elms and Axis Court at Chambers Wharf. These, generally, are properties where, after the additional mitigation has been applied, the noise levels should fall outside the Policy. Notwithstanding this, the Applicant has made the commitment for noise insulation on a precautionary basis and to recognise the potential for in-combination effects. This is noted by the Panel.

12.278 A sample TAP was worked up, by the Applicant, for Luna House at Chambers Wharf, which is forecast to experience high noise levels in daytime. The pilot TAP was developed for a single unit in the block of flats which we visited during our accompanied site inspection. However Save Your Riverside (SYR) raised further concerns about the draft TAP and the thermal impact of the secondary glazing on rooms that already have full height and width windows and where occupants would be unable to open windows (appendix to REP496). Moreover the proposed alternative ventilation would require piercing the windows which would subsequently have to be replaced. Such work would require physical intervention in the fabric of the building and the consent of the freeholder. The SYR representation goes on to say that, *although every effort had been made 'to try to propose a plan of mitigation, thus far the current draft TAP remains speculative, and the impact unsatisfactory. Engineering solutions, even completed ones, achieved henceforth at notable cost to the project, may well not be effective and they will never cover the holistic human impact of the noise and other impacts of the proposed works at Chambers Wharf as a main drive site'*. We note SYR's comments but also note that, whilst it may be an imposition, there is no evidence provided that noise insulation would not be effective. We also note that if noise insulation cannot reasonably be installed, then residents would be eligible for temporary rehousing (see below).

12.279 Another property that would have significant effects over a long period is Free Trade Wharf (South) at King Edward Memorial Park Foreshore, which is predicted to exceed the ABC criterion for 24 months (APP208.01, para 21.7.5). The peak average monthly noise level at this receptor would be 80dB_{L_{Aeq}}. The property is

²⁰⁴ Secured by legal agreement or unilateral undertaking

included in the list for a TAP, but there are no sample details before us in relation to this property.

12.280 We were concerned about what would happen to residents of houses where noise insulation is not feasible either due to the design of the property or perhaps because it is listed and the level of intervention required would be inappropriate. The Applicant, in response to our Q29.14, included a clause in the policy (APP210.01, para 5.1.10) stating that *'where, due to the nature or type of building, noise insulation cannot reasonably be installed, affected owners or occupiers shall qualify under the temporary rehousing section of the Policy'*. This commitment is noted.

Noise and vibration trigger values – Requirement PW17

12.281 On 19 February 2014 (the day before the reconvened noise IS hearing) the Applicant submitted a paper titled Off-site Mitigation Discussion Paper which included a hypothetical example of an approach to noise mitigation, based on a wider interpretation of policy, and with trigger levels for noise insulation of ambient +5dB (with lower cut off level of 65, 55, 45 dBL_{Aeq,T} during day, evening and night as defined by BS5228-1 example method 2) (APP152, para 3.3.4).

12.282 However, the subsequent submission from the Applicant, Offsite Mitigation Paper (APP187, 3 March 2014) argues that an extension to the off-site mitigation would be inappropriate and inconsistent with the NPS and NPPG (APP187, section 3.2). It notes that a lower threshold would increase noise insulation from approximately 300 to 3,000 windows at an additional cost of between £25m and £50m.

12.283 In the 3 March 2014 version of the DCO the Applicant added a new draft Requirement PW17 regarding noise and vibration trigger values. The Applicant advised that the addition of Requirement PW17 to the DCO was so that *'the values that will trigger noise insulation or equivalent mitigation are clear on the face of the DCO, and further the inclusion of this requirement would enable the Secretary of State to amend those values without needing to amend the non-statutory off-site mitigation and compensation policy'*. Whilst we understand the Applicant's intentions on this matter, we do not consider that the ExA has a sufficient evidence base to recommend any alternative values.

12.284 The draft Requirement PW17 is similar to the terms included in the Non-statutory off-site mitigation and compensation policy; however there are new parameters added. Therefore there are inconsistencies between the DCO and the Policy. The key differences (for noise insulation) are:

- A new clause (PW17, para 2.3.3) which gives an alternative option for the trigger values shown in table 1 to apply *'where*

a significant effect is identified using the assessment methodology defined in the Environmental Statement and forecast noise level exceeds assessment category C defined in the Environmental Statement even if the duration trigger values in paragraphs [requirements²⁰⁵] 2.3.1 and 2.3.2 are not exceeded' and noise insulation does not already exist or a grant has not already been paid. This is not included in the Policy.

- In PW17 (para 4.2.1) vulnerable persons would have a reduction on air-borne and ground borne noise trigger levels of 5dB (PW17 para 4.2). This is less than the 10dB figure in paragraph 7.2.4 of the Policy.

12.285 The draft Requirement PW17, paragraph 2.3.3, is also a change from the hypothetical options given in APP152 on 19 February 2014, as category C is set at 75, 65, 55 dBL_{Aeq,T} (day, evening, night) whereas the method 2 in APP152 was at ambient +5dB with lower cut off of 65, 55, 45dBL_{Aeq,T}. No explanation of the change was given by the Applicant.

12.286 LB Southwark comments on the draft Requirement PW17 and the lack of explanation for the new paragraph 2.3.3. It suggests that in the absence of any explanation, the ExA should assume that it is intended to catch the properties specified in the Non-statutory off-site mitigation and compensation policy for pre-triggered TAPs. (REP491, section 10a).

12.287 Our observation on the draft Requirement PW17 clause 2.3.3, is that it would also be applicable to properties that had not been assessed in the ES (for example because they had not been built), and therefore we consider that it is a helpful addition to the criteria included in the Policy.

12.288 There are other inconsistencies between PW17 and the Policy; these are discussed further in this chapter under the heading 'temporary rehousing'.

12.289 The possible addition of Requirement PW17 and the treatment of the inconsistencies are discussed further in chapter 20.

Baseline issue

12.290 With the inclusion of TAPs into the noise insulation policy it became less clear how a property, that is not predicted in the ES to be significantly affected, could apply for noise insulation if they subsequently experienced a significant effect. Some local authorities were concerned about this aspect and about the lack of certainty regarding mitigation measures, noise limits, the duration of the noise impact on receptors and potential impacts on health and wellbeing. For example LB Tower Hamlets in its final written

²⁰⁵ Our recommended drafting in appendix F removes the unnecessary reference to requirements

submission noted that *'the ambient noise level will be an important factor in determining eligibility for noise insulation or temporary rehousing and thus must be as accurate as possible. Furthermore, the ambient noise level should be determined at a residential façade (BS5228) and it is understood that little of Thames Waters baseline monitoring has actually been undertaken at residential façades and in any case, the selected locations were not agreed with the local authority'* (REP492).

12.291 This leads on to the importance of the baseline measurement location. The Applicant confirmed at the IS hearing on 20 February 2014 that the baseline would be remeasured before construction starts on site, but that the same locations would be used for the measurements. This does not address the issues raised by the local authorities that the baseline should accurately reflect the noise levels at the actual façade of the affected property. LB Tower Hamlets in its final written submission confirmed that this is still an outstanding matter (REP492). From our own examination of the representations and undertaking site inspections we have noted a number of locations where the measurement point may not have represented the receptors' actual noise levels (eg ground level or on another façade of the building).

12.292 This issue was illustrated by the baseline measurements taken at Elm Quay Court²⁰⁶ in February 2014. If the ES baseline states that ambient is less than the noise insulation trigger level values, there is no issue because the trigger values apply without modification. However, the noise insulation trigger level values²⁰⁷ do not apply where the ES ambient level²⁰⁸ is greater than the noise insulation trigger value²⁰⁹. In these instances (in both PW17 and the Non-statutory off-site mitigation and compensation policy):

- the trigger level for noise insulation is ambient as reported in the ES
- the trigger level for temporary rehousing is ambient as reported in the ES plus 10dB.

12.293 A potential problem arises for properties where the baseline (in the ES) states that the ambient is higher than the noise insulation trigger value, but in reality the actual ambient at the façade of the relevant property is lower than the trigger level (as has been shown for Elm Quay Court). This would mean that the property would not be eligible for noise insulation or temporary rehousing until a higher level of noise had been reached than would have been the case if the actual ambient had been known.

²⁰⁶ Measurement of ambient at Elm Quay Court showed a 50dB LAeq night-time ambient, as opposed to the 62dB LAeq ambient used in the ES

²⁰⁷ PW17, table 1 and Non-statutory off-site mitigation and compensation policy, table 4.1

²⁰⁸ In the absence of construction noise

²⁰⁹ PW17, paragraph 2.2 and Non-statutory off-site mitigation and compensation policy, paragraph 4.2.2

- 12.294 We have reviewed the data provided by the Applicant²¹⁰ and established that there are a number of work sites where the ES ambient is reported as above the noise insulation trigger values (for example the receptors across the river opposite Kirtling Street). We accept that for some locations the ES ambient readings would be representative (eg Axis Court); however as shown on the two remeasurements we have before us (Elm Quay Court and Downings Roads Moorings), the ES ambient can be unrepresentative of the actual ambient at receptor façade.
- 12.295 We consider that it would be necessary to check the accuracy of the ambient noise measured at the façades for those properties assessed in the ES to have ambient levels which are higher than the trigger level values. This would be in addition to the ES monitoring points and the CoCP Part A noise monitoring requirements. This would ensure that the baseline measurement would be representative of the façade and that the off-site mitigation proposals would be an effective mitigation measure for properties that experience noise levels above SOAEL.
- 12.296 Although we questioned the Applicant about the baseline, the full extent of the issue and the implications on qualification for noise insulation only became apparent to us in the later stages of the examination. Consequently, although the matters were discussed widely and all Parties given an opportunity to make representations on baseline we do not have a suggested requirement from the Parties before us. However, from the representations we received, we consider that the issue could be relatively easily overcome by additional measurements of the pre-construction baseline ambient at points to be agreed with the local authorities before construction starts on site. The qualification for noise insulation could then be reassessed using these measurements. This is discussed further in chapter 20.

Houseboats

- 12.297 LB Wandsworth remains concerned about the houseboats at Nine Elms Pier at Kirtling Street; the owners/occupiers of the houseboats are also concerned. The owner/representative of Nine Elms Pier states in the final written submission (REP495) that *'Appendix C: Houseboat mitigation and compensation policy, together with yet to be seen houseboat TAP's, offers little certainty either for houseboat owners or residents. In consequence there is currently no final format document in respect of houseboat mitigation and compensation policy upon which to raise comment'*. We agree; however we note that appendix C²¹¹ of the Policy does identify houseboats as special cases for the assessment for compensation claims resulting from noise and acknowledges that due to the nature and construction of houseboats, they are

²¹⁰ ES, ES Update Report, answer to ExA's Q11.5

²¹¹ Appendix C of appendix 3 in APP209.03, and appendix C of APP210.01

inherently difficult structures to insulate (para 3.3.5). All claims would be assessed on a case-by-case basis. It also commits to TAPs for the houseboats at Putney and Nine Elms Pier (APP201.01, appendix C, section 1).

12.298 However, as stated earlier in this chapter (under the heading 'noise from road and river transport'), we do not consider that the effect of noise on the houseboats has been fully assessed with regard to impact from river transport noise. Therefore some houseboats (particularly at Kirtling Street) may have significant impacts from both air-borne and water-borne noise. Also, of particular concern to us is whether noise insulation would be practicable and what outside amenity space would be available to houseboat residents for respite from noise. Therefore we can have no certainty on this matter.

Temporary rehousing

12.299 NPS paragraph 4.9.13 refers to Compulsory Acquisition (CA) in extreme cases. Temporary rehousing is not specifically mentioned in the NPS but the Applicant states (APP11, in answer to Q11.36), that its policy had been developed on the assumption that it would not become necessary to offer the option of permanent rehousing and that temporary rehousing would be preferred and would be sufficient. On balance we agree with this assessment especially when considered against the legislative tests for securing CA.

12.300 Apart from houseboats (discussed below), the ES does not predict that any temporary rehousing would be required (APP11, answer to Q11.36).

12.301 The Non-statutory off-site mitigation and compensation policy (APP210.01) includes trigger levels for temporary rehousing. Following discussions and questioning by the Panel, additional measures for respite from vibration and rehousing have also been included where noise insulation is not possible or practicable (para 5.1.10).

12.302 As with noise insulation we questioned how the trigger levels should be related to the SOAEL level and agree in principle that temporary rehousing should be triggered at a higher level than noise insulation. This is in accordance with BS5228-1, annex E where it is stated that noise trigger levels for temporary rehousing should be set at 10dB above the trigger level in table E.2 or 10dB above the pre-construction ambient, whichever is the higher. The Applicant's proposals comply with these parameters and we are satisfied that the trigger levels for noise are satisfactory on this basis.

Houseboats

12.303 The ES identifies those properties that may be eligible for temporary rehousing (APP11, para 36.16), which are:

- two houseboats at Putney Pier
- 21 houseboats at Nine Elms Pier. Five of these houseboats would have to be relocated for the construction of a conveyor to take excavated material to the new jetty.

12.304 The Non-statutory off-site mitigation and compensation policy also states that houseboat owners and tenants may be eligible for temporary rehousing, which could include rehousing on land or relocation of houseboats and/or residents (APP210.01, appendix C, para 1.1.2). However, we have been advised that alternative moorings are difficult to obtain²¹². From oral evidence provided at the CA hearings we understand that the Applicant has identified 25 houseboats as being currently available for occupation, but no vacant moorings have been identified for the temporary relocation of affected houseboats.

12.305 Appendix C of the Policy does seek to secure the ability of houseboats to return to moorings post-construction, but this cannot be guaranteed (para 3.5.1).

12.306 Therefore we can have no certainty on this matter.

Noise and vibration trigger values- Requirement PW17 (temporary rehousing)

12.307 Earlier in this chapter we discussed the Applicant's draft Requirement PW17 with regard to noise insulation. The draft requirement also covers temporary rehousing but it is inconsistent²¹³ with APP210.01 and the Legal Agreement for Securing of Off-site Mitigation Policies and Resources for Local Planning Authorities (APP209.03). These differences are in three areas:

- The Non-statutory off-site mitigation and compensation policy (appendix 3 in the legal agreement, APP209.03) includes time periods for exceedance of the trigger values before temporary rehousing would be offered of 'at least ten days out of any period of 15 consecutive days or alternatively for 40 days in any six-month period'. PW17, on the other hand, does not include a time period qualifier for temporary rehousing²¹⁴ and is therefore more generous than the Policy. The Applicant does not give a reason for this, but we assume that this is a deliberate change to ensure that receptors would not have to be exposed to SOAEL plus 10dB for any period, therefore effectively avoiding the impact.
- There is no specific mention of the houseboats in PW17 as special case properties. We consider that this is probably an

²¹² As stated by the Applicant in evidence to the CA hearings

²¹³ This inconsistency is in addition to the inconsistencies discussed earlier under the heading 'noise insulation'

²¹⁴ Time qualifiers, PW17 para 2.3.1 and 2.3.2 only refer to noise insulation

omission as they were the only receptors identified in the ES as requiring temporary relocation.

- PW17 does not give eligibility for temporary rehousing where noise insulation cannot reasonably be installed due to the nature or type of the building. We consider this is probably also an omission, as it was added to the Policy during the examination to give certainty that rehousing would be available in this scenario. Without this addition we cannot have certainty that above SOAEL levels in the home would be avoided.

12.308 LB Tower Hamlets has commented with regard to vibration trigger levels in PW17, and considers that in respect to ground-borne vibration the VDV parameter currently proposed for daytime and night-time are at the higher limit of BS6472's adverse comment possible range. Therefore it considers that either the lower level should be used, which is half the value detailed in PW17, or at worst a mid-way point should be adopted. The Council's own and preferred ground-borne noise limit is '*L_{Amax}(f) 35dB and, at worst not be more than L_{Amax} 40dB*' (REP492). This suggested requirement was published on 11 March 2014, at the end of the examination, so the Applicant did not have the opportunity to respond.

12.309 Notwithstanding this, we note from BS6472 that the Applicant's trigger level is also at the bottom of the range 'adverse comment probable', and that '*temporary respite will be triggered if the predicted or measured vibration exceeds the trigger levels in the property for more than one day*' (PW17, paragraph 3.2). We also note that the trigger level for vulnerable people would be divided by two (PW17, paragraph 4.2.2). In view of the short-term exposure before respite accommodation would be offered we are satisfied that the trigger levels for vibration are appropriate.

Summary - off-site mitigation

12.310 The Applicant has developed an off-site mitigation policy to provide noise insulation (amongst other matters) and temporary rehousing when on-site mitigation measures have been exhausted and significant impacts still remain at receptors. The Policy as drafted complies with the example trigger levels in BS5228, which are not generally challenged.

12.311 However, as discussed earlier, to ensure that adequate off-site mitigation is available to all receptors that would experience noise levels at or over SOAEL, we consider that additional pre-construction ambient noise measurements would be required. This is considered further in chapter 20 as an additional project-wide requirement.

12.312 We consider that temporary rehousing would fall into the category of 'avoid' and 'prevent' in the NPPG noise hierarchy, with 'prevent'

being appropriate where there would be an unacceptable level of impact (where the effect is noticeable and very disruptive to the point of regular sleep deprivation and/or awakening which could cause medically definable harm). Therefore temporary rehousing would have to be offered where SOAEL cannot be achieved through mitigation, by noise insulation or by avoiding the noise.

12.313 The draft DCO Requirement PW17 goes some way to ensure that off-site mitigation would be offered above SOAEL levels, however, the following inconsistencies²¹⁵ need to be addressed:

- Paragraph 4.2.1 would need to be amended to 'minus 10dB' from 'minus 5dB' to be consistent with the Policy.
- Eligibility for temporary rehousing and trigger levels for when noise insulation is not possible or practicable.
- Houseboats as special case properties.

These matters are discussed in chapter 20.

12.314 We have no certainty on what off-site mitigation could be available to houseboats. We are aware that surveys and discussions are ongoing, but in the absence of detailed proposals before us, we can give this little weight.

IMPACT ON HEALTH AND QUALITY OF LIFE FROM NOISE AND VIBRATION IN CONSTRUCTION

12.315 Implicit in NPS paragraph 4.9.9 is that we need to have an understanding of what the impacts of noise and vibration would be on the health and quality of life of those that would be exposed to adverse impacts. The NPPG also gives us guidance in this matter, as it refers to examples of outcomes for each effect level, these include changes in behaviour, sleep patterns and the potential changes to quality of life due to changes in the acoustic character of the area (see section in this chapter under the heading 'national planning practice guidance').

12.316 The impacts of the proposed development are considered in detail in chapter 13 on 'socio-economic effects, including the effects on amenity, health and well-being'. In this section we report on the impacts on health and well-being from noise alone.

12.317 A summary assessment was provided by the Applicant in answer to the ExA's Q33.3 and Q33.4 for residential households within 250m of the sites, vulnerable people and children who both live and go to school near the sites. The left hand column in the tables in the Applicant's response gave the noise and vibration impacts on quality of life as different intensities: low, medium and high. These were combined with the other constituent parts, and

²¹⁵ Inconsistencies with the Non-statutory off-site mitigation and compensation policy

embedded measures to determine the impacts on each group of receptors (APP60, tables 4.1 to 4.24).

12.318 The Applicant indicated that all sites would have either 'low', 'low to medium' or 'medium' impact on quality of life from noise and vibration except for the following which were all predicted as having a 'low to high' intensity impact:

- Putney Embankment Foreshore
- Cremorne Wharf
- Kirtling Street
- Victoria Embankment
- Shad Thames Pumping Station
- Chambers Wharf
- Earl Pumping Station
- Bekesbourne Street.

12.319 The local authorities maintain their concern about the impacts from noise and vibration, eg LB Southwark states that *'the applicant has underestimated the full extent of the impacts upon people living, learning and working around the site at Chambers Wharf'* (REP491).

12.320 We appreciate that it is difficult to assess what the impacts would be on the quality of life from noise for many, but we consider that there appears to be a lack of acknowledgment that there would be an issue. This is compounded by the Applicant's methodology for noise assessment which considers significant impacts internally for residential households and not at the façade. We have assessed that there would be between 300 and 1,800 households with significant impacts from noise (depending on the methodology used²¹⁶).

12.321 Even with the mitigation measures before us and secured in the DCO, and CoCP Part B, we consider that there would remain significant impacts on health and quality of life from noise during the construction period (eg at Kirtling Street and Earl Pumping Station). The Applicant has gone some way in its proposals in seeking to avoid significant impacts and mitigate and minimise adverse impacts. Noise insulation and/or temporary rehousing would be available to those properties which are predicted to have a significant impact above SOAEL. Subject to noise insulation being effective and ventilation being available, they should be protected in the home.

12.322 There are also properties which have been designated as being significantly affected because they are in a category A or B area, (in accordance with BS5228 ABC methodology), that would be exposed to a high increase in noise level which could affect the quality of life and character of the area. These would not be able

²¹⁶ Refer to section in chapter 12, under the heading 'noise at residential receptors'

to claim noise insulation because they would be below the SOAEL trigger level (eg Wheat Wharf at Shad Thames Pumping Station). There are also many properties which would have a significant effect at the façade but have been assumed by professional judgement not to be significantly affected (eg Free Trade Wharf (middle) at King Edward Memorial Park Foreshore).

12.323 We consider that the quality of life impacts from noise should also take into account the impact on residential households when they are outside the dwelling, for example in the garden, on their balcony or walking to work, school, or local amenities. This is particularly a concern when construction is planned to cover many years.

12.324 The NPPG guidance²¹⁷ refers to noise changing the acoustic character of an area. It also states that the noise impact may be partly off-set if the residents have access to relatively quiet amenity space or a relatively quiet, protected external publically accessible amenity space (eg public park or a local green space designated because of its tranquillity) that is nearby (eg within a 5 minute walking distance).

12.325 As stated earlier the three main drive sites which would operate during the night-time and across extended working hours would be close to residential areas. We remain particularly concerned for residents and children who live, work and go to school in the immediate vicinity of the sites, particularly with regard to the long duration of the works and 24 hours working.

12.326 Therefore, in summary as stated earlier in this chapter, we consider that the assessment is likely to understate the impact from noise on residents because it only considers the internal impact in the home. We therefore also consider that it is likely to understate the impact on quality of life. This is carried forward to the conclusions on the NPS tests.

CONCLUSIONS ON NOISE AND DISTURBANCE

12.327 We have assessed the subject of noise and disturbance against the NPS paragraphs 4.9.9, 4.9.11, 4.9.12 and 4.9.13.

12.328 The Applicant's view on each of the aims of NPS paragraph 4.9.9 are summarised in its letter dated 11 March 2014 (APP197) and given earlier in this chapter under the heading 'Applicant's approach to noise policy'.

²¹⁷ NPPG paragraph 009, reference ID: 30-009-20140306

Avoid significant adverse impacts on health and quality of life from noise (NPS, para 4.9.9)

- 12.329 On the first aim, the Applicant considers that the NPS relates to significant observed adverse effects as defined by NPPG and NPSE and not the definition of significant effect in the ES. We agree with this distinction.
- 12.330 The approach of the Applicant to the application of the NPS, in our view, raises some difficulties as we consider that it is implicit that consideration should first be given to avoiding (by either not creating or by designing out the noise), then seeking to mitigate that which cannot be avoided or designed out and then finally and only when other forms of noise mitigation have been exhausted mitigate by providing noise insulation.
- 12.331 Our view is that the proposed development cannot be said to avoid significant adverse impacts on health and quality of life from noise. The significant adverse impacts that would occur are obviously greater at some sites than others. There are a number of sites with residential development adjacent and in close proximity which would experience significant adverse noise levels (above SOAEL), eg Kirtling Street, Shad Thames Pumping Station, Earl Pumping Station, King Edward Memorial Park and Bekesbourne Street.
- 12.332 Our other concern with regard to the Applicant's approach is that it continues on the ES methodology assumption that significant effects can only be experienced inside dwellings, and ignores the effects on the acoustic character of the area. It also does not sufficiently take into account the duration of the effect and the fact that significant effects might be experienced by receptors that are exposed to noise both during the night and day for a significant time period.
- 12.333 We consider that the noise assessment has not fully considered the effects on houseboats. Significant adverse effects from air-borne noise have been identified but the effects of water-borne noise have not been fully taken into account. The Applicant agreed to undertake further surveys at a late stage in the examination but the results of these surveys are not before us.
- 12.334 Therefore we consider that the proposed development does not meet the first aim of the NPS test. We consider the effectiveness of off-site mitigation below.

Mitigate and minimise adverse impacts on health and quality of life from noise (NPS, para 4.9.9)

- 12.335 On the second aim, the Applicant advises us that the NPS relates to observed adverse effects and that these occur when the noise exposure is between LOAEL and SOAEL. It goes on to state that observed adverse effects have been assessed in the ES (against the A and B thresholds of BS5228 ABC methodology) and by

taking into account noise level, duration and number of dwellings affected, can be reported as a significant effect in the ES. Again, we agree with this distinction.

- 12.336 We have considered this aim in two sections, the first considering the noise assessments as presented in the ES and then considering the areas which we consider are omissions.
- 12.337 We agree with the Applicant's assumption that the second aim relates to mitigation and minimising adverse effects, and agree with its interpretation of this being when noise levels are between LOAEL and SOEAL.
- 12.338 We acknowledge that the mitigation measures (both on-site and off-site) were much improved through the examination process and that these would be secured through CoCP Part B. The Applicant has stated in the ES Update Report that more mitigation measures would not be practicable on each site. The Applicant's final letter also stated that on-site mitigation has been maximised (APP197, para 9.1.7g).
- 12.339 Furthermore, we note and are satisfied that the contractor would be required to produce a noise management plan, a CEMP and would require s61 CoPA consent from the local authority for each work site. We consider that, as suggested by the Applicant, some additional mitigation measures could be agreed with the contractor at that stage with regard to site layout and other detailed matters which could further minimise noise from a site.
- 12.340 However, an additional mitigation measure that was proposed in the examination by a number of Interested Parties was the restriction of Saturday working at King Edward Memorial Park Foreshore. We consider that this is a measure that can secure further on-site mitigation and minimisation and should be accommodated to minimise impacts at receptors at weekends at this site. This is reported on further in chapter 20.
- 12.341 Therefore with regard to minimising and mitigating the typical monthly construction noise levels that have been reported to us, it is not unreasonable to conclude that on this basis the second aim of NPS paragraph 4.9.9 can be met.
- 12.342 However, there remain what we consider to be gaps in the noise assessment:
- The Applicant assumes that significant effects (or observed adverse effects) are only experienced inside dwellings, and does not take into consideration the effects on the acoustic character of the area with regards to the perceived change in the quality of life. It acknowledges through the ABC methodology that a significant impact might occur at a lower construction noise level in quieter areas, but this was

assessed using professional judgement into an impact inside the property and not at the external façade of the property.

- We have no identifiable information regarding 'distinctive tonal, impulsive or low frequency characteristics of noise', and the possible disturbance that might arise from such noise characteristics and types, particularly at night.
- Nor is there an appropriate noise limit before us to control such noise levels, or even information to understand if such a limit would be practicable.
- The survey of water-borne noise on the houseboats is not before us.

12.343 We are therefore unable to report more widely on the mitigation and minimisation of noise levels, in relation to matters on which we have no evidence. As set out below, the Panel having considered all the mitigation proposals conclude that, despite the uncertainties set out above, the proposals do on balance and taken overall meet the second aim of mitigate and minimise adverse impacts on health and quality of life. However, it should be noted (as set out in chapter 18 under the heading 'noise and disturbance') that the Panel considers that the absence of this information, and the difficult position it places the decision maker in seeking to reach a conclusion in respect of whether the proposals do accord with the NPS, is a factor which weighs against making the DCO.

Where possible, contribute to improvements to health and quality of life through the effective management and control of noise (NPS, para 4.9.9)

12.344 On the third point of NPS paragraph 4.9.9 the Applicant advises us that where residents elect to retain the off-site mitigation provided (ie noise insulation), it would reduce exposure to existing noise sources, thus improving their existing situation over the short and long term. Hence the Applicant considers that it has met the third aim of NPS paragraph 4.9.9.

12.345 We agree that some of the TAPs would give a real long term benefit to recipients eg Riverside Primary School and St Joseph's RC Primary School. In the case of houses which currently have single glazing, we also agree that the provision of double glazing would also provide a long term benefit.

12.346 However, we do not consider that this would be an improvement that would be retained in all cases; particularly in properties that already have double glazing and might require greater intervention to the fabric of the building, and/or may result in other compromises or impacts that are not on balance beneficial in the absence of the work site impacts.

12.347 However we note that this aim is only to be applied where possible, therefore we agree that the Applicant has demonstrated that it has addressed this third aim of paragraph 4.9.9 of the NPS.

Off-site mitigation measures (NPS, para 4.9.13)

- 12.348 Our view of the application of NPS paragraph 4.9.13 is that it should come into effect when the options for compliance with paragraph 4.9.9 have been exhausted (ie the options of design, site selection and engineering out the significant adverse impacts and mitigating and minimising adverse impacts). In that case paragraph 4.9.13 directs applicants to consider noise insulation and in extreme cases compulsory purchase. On this project, the Applicant has assessed temporary rehousing as opposed to compulsory purchase and we would agree with that approach.
- 12.349 The Applicant's Non-statutory off-site mitigation and compensation policy provides for both noise insulation and temporary rehousing. The Policy would be secured through legal agreements with the local authorities or by unilateral obligation²¹⁸ (APP209.03). The threshold levels for noise insulation and temporary rehousing are not generally disputed. However, there are matters which are still outstanding, not least of which is whether noise insulation would be effective in all types of sensitive receptors.
- 12.350 The intention is that off-site mitigation measures, through both noise insulation and temporary rehousing, would be available above SOAEL levels and the Applicant has drafted a new DCO Requirement PW17 to ensure this. However, as discussed earlier, this was submitted on 3 March 2014 and there are omissions and inconsistencies between both the noise insulation and temporary rehousing qualification areas of the Policy and the draft PW17 (APP209.03). We consider that these inconsistencies could be addressed in the drafting of PW17, as discussed in chapter 20.
- 12.351 As stated earlier, (in this chapter under the heading 'Baseline issue'), we consider that additional baseline noise measurements are required, before work starts on site, at sensitive receptor façades. This should be at locations to be agreed with the relevant local planning authority. This is particularly relevant to the eligibility for noise insulation for those properties which do not currently qualify for or have a commitment to a TAP. We consider that this could also be addressed in drafting and this is also discussed further in chapter 20.
- 12.352 The houseboats are referred to in appendix C of the Non-statutory off-site mitigation and compensation policy as special cases. A commitment to TAPs is included for some houseboats. However, apart from temporary rehousing for residents, we have no certainty as to what off-site mitigation would be available to

²¹⁸ s106 of the Town and Country Planning Act 1990 as amended by s174 of PA 2008

houseboats. We are aware that surveys and discussions are ongoing, but in the absence of detailed proposals before us we cannot give this any significant weight. However, we consider that this could be addressed to some degree in the drafting of Requirement PW17 and this is discussed further in chapter 20.

12.353 In conclusion, our view is that the amendments to the draft Requirement PW17 and the additional baseline requirement would ensure that noise insulation and temporary rehousing would be satisfactorily available for significantly affected receptors. Accordingly, subject to these amendments being included in the DCO, we consider that the Applicant has met the requirements of NPS paragraph 4.9.13.

Implications for the DCO (NPS, para 4.9.11)

12.354 The NPS paragraph 4.9.11 considers that the decision maker may wish to impose requirements to ensure delivery of the Applicant's mitigation measures.

12.355 As discussed earlier, there are a number of requirements that we consider should be included or modified within the DCO, for the construction phase of the project. These are discussed in chapter 20, but in summary the additional requirements or modification of requirements that relate to noise mitigation are:

- PW17, with modifications to ensure that it is consistent with the Non-statutory off-site mitigation and compensation policy with regard to noise insulation and temporary rehousing through appropriate trigger levels
- a new requirement for the measurement of baseline at the façade of receptors, which would then ensure delivery of off-site mitigation to eligible receptors
- a site-specific requirement to restrict Saturday working at King Edward Memorial Park Foreshore.

12.356 The inclusion of these requirements is given weight in our final assessment.

Overall conclusions on noise and disturbance

12.357 Our overall assessment of the NPS tests is that with regard to the three aims in NPS paragraph 4.9.9:

- we do not consider that the proposals meet the first aim of the NPS test to avoid significant adverse impacts on health and quality of life from noise, although we do take into account NPS paragraph 4.9.13 below
- on the second aim, we consider that on balance the proposals can be said to meet the aim of mitigating and minimising adverse impacts on health and quality of life from noise, however we consider that there are significant uncertainties on which we are unable to report

- on the third aim, we note that the aim is to be achieved 'where possible', and consider that the proposals would meet this aim.

12.358 We have considered the off-site mitigation measures, offered by the Applicant in accordance with NPS paragraph 4.9.13, and consider that they would be satisfactory subject to the requirements we propose and discuss in chapter 20.

12.359 We consider that the ES is likely to have understated the impact from noise and disturbance. Moreover, we are unable to conclude by how much the impacts are understated because of the uncertainties reported above.

12.360 Overall we conclude that noise and disturbance is a matter which weighs against making the DCO. This conclusion is carried forward to our overall consideration in chapter 18.

13 SOCIO-ECONOMIC EFFECTS, INCLUDING EFFECTS ON AMENITY, HEALTH AND WELL-BEING

INTRODUCTION

- 13.1 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) states that applicants should include in their applications an assessment of socio-economic impacts during the construction, operation and decommissioning phases. Applicants should undertake an equalities impact assessment (EqIA) to identify potential adverse, differential or positive impacts on particular equalities groups. This should describe the demographics of the area surrounding the development, show whether a disproportionate number of a particular equalities group will be affected by generic impacts and describe the equalities impacts on businesses and the loss of goods and services (NPS, section 4.15).
- 13.2 The decision maker should have regard to the potential socio-economic impacts of new waste water infrastructure identified by the applicant and from any other sources it considers important and relevant. The decision maker should have regard to the EqIA and consider whether any mitigation measures put forward by the applicant to mitigate any adverse socio-economic or equalities impacts are acceptable (NPS, section 4.15).
- 13.3 The decision maker must also have regard to the public sector equality duty (PSED) set out in s149 of the Equality Act 2010. This requires public authorities to pay due regard in the exercise of their functions to the need to:
- eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under this Act
 - advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it
 - foster good relations between persons who share a relevant protected characteristic and persons who do not share it²¹⁹.
- 13.4 The NPS states that waste water management has the potential to affect health and well-being. Adequate provision of waste water infrastructure is beneficial to society and health but the possibility of some adverse effects cannot be discounted. Direct impacts may include traffic, air pollution, dust and noise. The applicant should consider any significant health impacts in the ES and identify measures to avoid, reduce or compensate for these impacts. Indirect and cumulative effects should be considered (NPS, section 3.10).

²¹⁹ S149(1) of the Equality Act 2010

- 13.5 The Local Impact Reports (LIRs) provide information on socio-economic matters which we have taken into account. For example, LB Tower Hamlets states that the area around King Edward Memorial Park Foreshore has a population density which is significantly higher than the average for the Borough and for London and that over 90% of households live in flatted accommodation. Due to rapid population growth the amount of open space per 1,000 population is falling, despite some new provision, and is below the local target of 1.2ha per 1,000 population which is itself just half of the national standard (REP096, para 2.1).
- 13.6 LB Southwark states that there are 2,500 residents within 250m of Chambers Wharf, of which 15% are older people and 16.5% have long term limiting illness. There is also a large number of pupils attending schools near the site (REP095, para 3.10.12). LB Hammersmith and Fulham states that there are 2,500 residents, 300 businesses and several schools within 250m of Carnwath Road Riverside (REP090, section 4).
- 13.7 This chapter of the report discusses socio-economic impacts under the following headings:
- Effects on equalities groups
 - Employment
 - Amenity, health and well-being
 - Effects during operation.
- 13.8 The ES assessments of effects on amenity relate to air quality, construction dust, noise, vibration (human response) and visual impacts and the potential for these effects to influence the amenity (or the enjoyment of a place or environment) experienced by a receptor (Doc 6.2.02, para 10.5.19). Where we use the term 'amenity' in this report we use it in the same way as in the ES. Impacts on public open space are reported in the socio-economic chapters of the ES. In this report they are discussed in chapter 11 under the heading 'Open space, sport and recreation'. The effects of projected improvements to water quality on health are discussed in chapter 15.

EFFECTS ON EQUALITIES GROUPS

- 13.9 An EqIA was submitted with the application. This was the subject of a number of criticisms set out in the LIR from LB Hammersmith and Fulham. The criticisms were wide-ranging and included the fact that the assessment used data from the 2001 census (REP090, section 12)²²⁰. The LIR from LB Southwark also criticised the EqIA which it considered did not fully take into account local demographics (REP095, para 3.9.38). At the same time, it became apparent from written representations and submissions at the first

²²⁰ The Applicant was in the process of reviewing the use of data in the EqIA at this time

Open Floor (OF) hearings that there were some specific locations where equalities groups might be disproportionately impacted by the development.

- 13.10 The ExA asked the Applicant to complete its review of the EqIA in the light of the comments received (PD017, Q33.1). The Applicant advises that it has completed its review using the latest socio-demographic data from the 2011 census to identify any potential changes to the assessment. The Applicant considers that the EqIA is in accordance with the requirement of the Equality Act 2010 (APP60, section 1). The updated EqIA is at document APP77.
- 13.11 LB Hammersmith and Fulham welcomes the changes that have been made and is reassured that appropriate amendments will be made to the EqIA where required (APP116.03, section 3.11). There now appears to be widespread, although not universal, acceptance of the content of the EqIA²²¹.
- 13.12 The ExA also asked the Applicant to review those instances where site-specific evidence relating to impacts on groups sharing protected characteristics had been identified during the examination and to consider whether it would be appropriate to take any additional steps to remove or minimise any disproportionate impacts (PD017, Q33.2). The Applicant responded by providing a table setting out, for each matter raised, where that matter is referred to in the EqIA, Health Impact Assessment (HIA) or elsewhere (APP60, table 2.1). This table shows how matters raised by Interested Parties, for example impacts on children attending a particular school, are considered elsewhere in the evidence and what mitigation measures are proposed.
- 13.13 The EqIA sets out the Applicant's approach to equalities matters (APP77). It includes descriptions of the demographics of the area around each work site and shows where a disproportionate number of a particular equalities group would be affected by generic impacts, in accordance with the NPS. It also describes the measures that were taken to promote equality during consultation on the project and how equalities issues were taken into account in site selection.
- 13.14 The EqIA then goes on to describe effects and mitigation measures at each work site. For example, at Chelsea Embankment Foreshore a high percentage of the population is aged over 65. The EqIA states that diversion of the Thames Path would have a disproportionate negative effect on this group. Mitigation measures include giving appropriate advance notice of path diversions and contacting relevant local groups through the

²²¹ SoCG - LB Ealing, LB Richmond upon Thames, LB Wandsworth and City of London agree there would be no significant adverse impacts in their respective areas. Most other Boroughs have not commented on the updated EqIA. LB Newham and RB Kensington and Chelsea reserved their positions

community liaison plan to identify any further mitigation needed for those with mobility impairments (APP77).

- 13.15 At King Edward Memorial Park Foreshore and at Deptford Church Street, the EqIA states that the use of park land for construction would have a disproportionate effect on deprivation groups²²². In the case of Deptford Church Street there would also be a disproportionate effect on children. Mitigation measures for loss of open space are discussed in chapter 11. Our assessment of this issue has taken into account the equalities considerations referred to in the EqIA.
- 13.16 In many cases the mitigation for impacts affecting equalities groups would also be of benefit to the population at large. For example, mitigation for temporary loss of open space through enhancements to nearby spaces would be of benefit to the whole community. Some mitigation measures are directed specifically at equalities groups. For example, the Non-statutory off-site mitigation and compensation policy states that the trigger values for noise insulation may be set at a lower level where a property is occupied by a vulnerable person (APP209.03, appendix 3, section 7.2). Off-site mitigation (including noise insulation) is discussed further in chapter 12.
- 13.17 We consider that the EqIA provides an appropriate level of detail for effects on equalities groups to be identified and taken into account as part of the decision making process in accordance with the NPS and the PSED. We return to the general adequacy of mitigation for socio-economic effects in the conclusion to this chapter.

EMPLOYMENT

- 13.18 The Applicant estimates that the project would generate 4,250 direct construction jobs and up to 5,100 indirect jobs during the construction phase. In addition it is anticipated that the project would stimulate activity in the river transport sector (Doc 7.01, para 8.4.136). The ES assesses the creation of additional employment opportunities for construction workers and barge operation workers as major beneficial effects at the project-wide level (Doc 6.2.03, section 10).
- 13.19 In general, these benefits were not disputed by others. Most of the concerns relating to employment identified in the LIRs refer to adverse impacts at individual sites, a matter which is discussed below. At the project-wide level, the Mayor of London considers that the overall impact in terms of the economy and employment in London is expected to be positive (REP099). LB Hounslow and

²²² The Panel notes that deprivation is not a protected characteristic in the terms of the Equality Act 2010. Nevertheless, in this context we regard it as an important and relevant matter

LB Newham welcome the employment that would be generated by the development (APP116.04, APP116.11).

- 13.20 A skills and employment strategy was submitted with the application (Doc 7.15). This sets out a number of objectives and activities. The objectives relate to health, safety and well-being; development of relevant skills; promoting opportunities for local people and disadvantaged groups and promoting science, technology, engineering and maths education in schools. The strategy states that the Applicant will require contractors to employ local workers as follows:
- At each tunnel drive site, at least 20% of employees would live in the drive site Borough.
 - Overall, at least 25% of employees would live in the Boroughs where the work sites are located.
 - For river transport, at least 30% of employees would live in Greater London, Kent or Essex.
 - At least one apprentice would be employed for every 50 site employees.
- 13.21 The Applicant would also establish a skills planning group, bringing together contractors, education and training agencies and funding agencies to identify future training requirements. The Mayor of London comments that these would be useful commitments to ensuring that contractors make reasonable endeavours to recruit from the local area and to working to provide training opportunities (REP099).
- 13.22 These commitments would be secured through planning obligations in each of the local planning authority areas. The obligations relating to employment and skills are in similar form in each case. The details of the obligations are generally accepted although LB Southwark has some concerns.
- 13.23 The employment and skills provisions relating to LB Southwark are in a unilateral obligation as opposed to a bi-lateral agreement (APP119.14). Amongst other matters, LB Southwark would have liked to have seen more specific targets in relation to the employment of previously unemployed residents, default payments if local employment targets are not met and longer durations for apprenticeships (REP449). The Applicant does not agree with LB Southwark's approach which it considers to be too detailed and too inflexible.
- 13.24 We note that the terms of the agreements and undertakings are consistent across the project and are also consistent with the skills and employment strategy that was submitted with the application. In our view that is a sensible and practical approach. Whilst we understand that LB Southwark would have preferred a more bespoke approach, we see no reason to doubt that the obligations would provide an appropriate mechanism for delivering the skills

and employment strategy. We therefore take account of these obligations in our overall assessment.

Adverse effects on employment

- 13.25 The proposed development would have both direct and indirect adverse effects on businesses. These effects are identified in the LIRs. At Carnwath Road Riverside, LB Hammersmith and Fulham draws attention to the loss of 120 jobs at the Carnwath Road Industrial Estate. LB Wandsworth comments that construction impacts would adversely affect businesses in the vicinity of Putney Embankment Foreshore. LB Lewisham is concerned about direct impacts on businesses at Earl Pumping Station, disruption to businesses at Crossfield Street adjacent to Deptford Church Street and broader impacts on businesses in Deptford High Street (REP090, REP098, REP093).
- 13.26 Those businesses which would be displaced by the proposed development would be entitled to statutory compensation. Nevertheless, any loss of employment is to be taken into account as an adverse socio-economic impact. Some businesses would be subject to adverse amenity impacts to the extent that they may suffer financial loss. In those circumstances compensation may be available under the Non-statutory off-site mitigation and compensation policy (APP209.03, appendix 3, section 8).
- 13.27 Written representations and submissions at hearings highlighted impacts on particular businesses. These included Assael Architecture, located close to Carnwath Road Riverside; Capitalstart and Glendola Leisure, both owners of restaurant/catering businesses close to Putney Embankment Foreshore; London Duck Tours, operators of amphibious tourist vehicles at Albert Embankment Foreshore and Temple Group, owners and occupiers of office accommodation close to Chambers Wharf (WRR057, WRR052, WRR025, WRR098, WRR089). At the first OF hearing Rob Wicker spoke on behalf of three businesses at Crossfield Street, Deptford, drawing attention to their need to use the street for loading and customer parking²²³. The Applicant's response to Mr Wicker's concerns is discussed in chapter 19.
- 13.28 LB Lewisham raised concerns about broader impacts on businesses at Deptford High Street²²⁴. We note that bus stops and a pedestrian crossing on Deptford Church Street would be relocated during the construction period. However, pedestrian access to the High Street from Deptford Church Street and the residential areas to the east would be maintained. We consider that the proposition that there would be material harm to trade in the High Street is not supported by the evidence and we attach little weight to it.

²²³ Rob Wicker, OF hearing 21 November 2013

²²⁴ Brian Regan, OF hearing 21 November 2013

AMENITY, HEALTH AND WELL-BEING

- 13.29 Effects on amenity are assessed in the ES and health and well-being is considered in the Health Impact Assessment (HIA) submitted with the application (Doc 7.12). These matters were controversial during the examination. The LIR from LB Southwark draws attention to the proximity of residential properties to the work site at Chambers Wharf, the duration of the works and the socio-economic profile of the area which, it is suggested, is likely to result in many people being at home during the day (REP095).
- 13.30 LB Southwark emphasises the in-combination effect of noise, air quality, visual impact and highway safety on residents and argues that the socio-economic impacts are understated in the ES. In addition, LB Southwark is concerned about sunlight and daylight impacts on Axis Court, a residential development adjacent to Chambers Wharf (REP095, para 3.9.40 to 3.9.45).
- 13.31 Effects on amenity and the learning environment within schools were raised by LB Southwark and LB Lewisham (REP093, REP095). This matter was also raised in hearings where the importance of outdoor space to learning and physical education at St Joseph's Primary School, Deptford and Riverside Primary School, Southwark was described²²⁵.
- 13.32 The ES assesses amenity effects in relation to public open spaces, recreational facilities, community facilities, residential receptors and businesses. The assessments relate to air quality, construction dust, noise, vibration and visual impacts. Where significant noise effects have been identified during the evening or night the assessment is on the basis that the residential receptor has a high level of sensitivity. Otherwise, the assessment is on the basis that the residential receptor has a medium level of sensitivity (Doc 6.2.02, section 10). The results of the assessments are in section 10 of the respective site-specific volumes of the ES (Doc 9.2.04 to 9.2.26), as amended by the ES Update Report (APP208.01)²²⁶.
- 13.33 For residential receptors, adverse effects on amenity are identified at most of the work sites, although in some cases these are assessed as minor. Major adverse effects are identified at Hammersmith Pumping Station, houseboats at Putney Embankment Foreshore, Cremorne Wharf Depot and Kirtling Street (including houseboats). Moderate adverse effects are identified at Putney Embankment Foreshore, Carnwath Road Riverside, Chambers Wharf, Earl Pumping Station and King Edward Memorial Park Foreshore.

²²⁵ Patricia Chantry, St Joseph's Primary School Deptford at the OF hearing on 21 November 2013 and Josi Lewis of Riverside Primary School on 22 November 2013

²²⁶ Socio-economic impacts were not assessed at Shad Thames Pumping Station, Bekesbourne Street and Beckton Sewage Treatment Works

- 13.34 Where adverse effects on amenity are identified for users of parks, open spaces and the Thames Path these are generally minor. The exception is at King Edward Memorial Park Foreshore where a moderate adverse effect is identified. In relation to community facilities, moderate adverse effects are identified at St Joseph's Roman Catholic Primary School, Deptford, Pier Head Preparatory School (at King Edward Memorial Park Foreshore) and St Paul's Church, Deptford. A major adverse effect on amenity is identified in relation to businesses at Putney Embankment Foreshore²²⁷.
- 13.35 The Applicant's assessments in relation to amenity were not accepted by all of the local authorities. At the end of the examination there were outstanding concerns on behalf of LB Hammersmith and Fulham, LB Wandsworth, LB Lewisham, LB Southwark and LB Tower Hamlets, that the effects on amenity had been understated in the ES²²⁸.
- 13.36 One of LB Southwark's concerns relates to sunlight and daylight at Chambers Wharf. The Council drew attention to the effect of a 3.6m hoarding and offices on Axis Court, particularly as the building is immediately adjacent to the site and includes single aspect flats at ground and first floor level. In response to the ExA's Q33.8 (PD017) the Applicant provided a drawing demonstrating that the site offices could be arranged so as to comply with sunlight and daylight guidelines in relation to adjoining residential accommodation (APP60, section 8).
- 13.37 LB Southwark subsequently commented that, notwithstanding the sunlight and daylight assessment, *'this building in such close proximity to the windows of single aspect flats would result in a visually overbearing, obtrusive and claustrophobic impact on the occupiers of these flats, which in combination with the disturbance from the construction works will result in significant and unacceptable impacts upon their amenity and well being'* (REP309, section 33).
- 13.38 The CoCP Part B for this site has been amended such that the contractor would be required to refer to the appropriate guidance and carry out a sunlight and daylight assessment when developing the site layout (APP178.35, section 4). We consider that this would address the Council's concern in relation to sunlight and daylight. However, we agree with LB Southwark that the proximity of the high hoarding and site offices would result in an overbearing visual impact. This would add to the overall impact on the amenity of those living very close to the site.

²²⁷ The ES regards the availability of compensation as mitigation in relation to impacts on businesses at Putney Embankment Foreshore and on St Paul's Church, Deptford. Allowing for mitigation, the residual impact is stated to be minor adverse in both locations

²²⁸ The concerns are carried forward from the LIRs and submissions. The position at the end of the examination is recorded in APP116.03, APP116.06, APP116.13, APP116.14, APP116.15, APP159.01 and APP159.02. See also REP449

- 13.39 With regard to the effects on amenity, we have noted above that the ES identifies major adverse effects at a number of work sites. In chapter 12 we conclude that the methodology adopted in the ES is likely to have understated the noise impacts from surface construction sites. Moreover, in the case of houseboats a full assessment of the impact from river transport is not before us, as the ES does not take full account of impact from water-borne noise. This has implications for the assessment of amenity impacts at all sites because noise is an important component of those assessments. At the four sites discussed in the following paragraphs there are additional factors which lead us to question the ES assessments of moderate adverse impacts on residential receptors.
- 13.40 Carnwath Road Riverside is a proposed main drive site so the construction effects here would be experienced for an extended period including night-time working. In addition to our general concerns about the reporting of noise impacts, we consider that the visual impact of noise mitigation measures needs to be taken into account. The CoCP Part B requires high hoardings²²⁹ to be provided at either end of the site and offices and storage containers would be used as noise barriers (APP178.15, section 4).
- 13.41 Chambers Wharf is also a proposed main drive site with an extended construction period including night-time working. There are many residential receptors near to the proposed work site, including a number of single-aspect properties. Moreover, the number of receptors is set to increase markedly with the completion of multi-storey residential development on the south side of Chambers Street. In chapter 8 we refer to LB Southwark's concerns regarding the significant visual impacts from hoardings and noise enclosures. We share those concerns, noting that this site would be intensively developed with large temporary structures, including a slurry treatment plant, during the construction phase. We consider that visual impacts would be particularly significant here due to the proximity of residential receptors.
- 13.42 As noted in chapter 17, in the section on Chambers Wharf, the CoCP Part B and the River Transport Strategy (RTS) commit to no loading of barges or movement of vessels at night. However, this would be subject to a derogation process. The Applicant's estimate, based on records from previous years, is that derogations may be expected around 5% of the time (APP31.02, para 2.2.11). Whilst contingency plans would be prepared in accordance with the RTS, the content of those plans is not before us.

²²⁹ The hoarding adjacent to No 5 Carnwath Road would be 7m high

- 13.43 The consequence is that, during a derogation event, it appears to us likely that there would be some night-time barge movements and/or additional lorry movements. For reasons set out in chapter 17, at Chambers Wharf either of those outcomes is likely to result in additional noise and disturbance. We consider that the expected frequency of derogation events is sufficiently high for this to be a relevant consideration in our assessment of impacts on amenity.
- 13.44 Residential properties at Free Trade Wharf, adjacent to King Edward Memorial Park Foreshore would be subject to significant adverse noise effects for 24 months. As noted in chapter 17, Free Trade Wharf has a distinctive stepped design incorporating balconies which would be exposed to noise. This is also a site where high hoardings are proposed for noise mitigation purposes which would themselves result in visual impacts. The loss of trees within the park would also add to visual impacts during construction.
- 13.45 Residential properties adjacent to Earl Pumping Station would be subject to significant adverse noise impacts for 48 months - the whole of the construction period at this site. We note that this would be mainly during the daytime. Even so, we consider that the duration of the impact is an important consideration. This is a location where there are blocks of flats relatively close by. Consequently there would be little opportunity to screen views into the work site from upper floors.
- 13.46 Our overall assessment is that the ES is likely to understate the effects on the amenity of residential receptors at Carnwath Road Riverside, Chambers Wharf, King Edward Memorial Park Foreshore and Earl Pumping Station.

Health and well-being

- 13.47 The HIA identifies potential significant health impacts and measures to avoid, reduce or compensate for these impacts as required by the NPS. The methodology includes the identification of 14 health determinants and ten priority population sub-groups. The sub-groups include children, older people and people who are disabled or with health problems (Doc 7.12).
- 13.48 The HIA describes the health-related design measures that were developed during the design of the project to mitigate potential negative impacts. It concludes that the residual negative impacts during construction would be negligible to minor adverse, although in some instances there may be a moderate adverse effect due to the potentially greater effects of noise. The main potential positive health and well-being impact is assessed to be from employment. The HIA states that measures in the Skills and Employment Strategy would ensure that the positive impacts would be minor to moderate beneficial (Doc 7.12).

- 13.49 The LIR from LB Southwark states that, in the Council's view, the in-combination effects over the six years of construction at Chambers Wharf would have the potential for significant impacts on the health and well-being of people living, learning and working in the area. It is suggested that impacts on physiological and mental well-being are not adequately considered. If the proposed development were to proceed, LB Southwark considers that additional measures to mitigate such impacts would be required together with extensive community liaison (REP095, section 3.10).
- 13.50 LB Southwark included a Mental Well-Being Impact Assessment: Screening Report with its LIR (REP095, appendix 9). This report identifies a wide range of potential impacts by reference to key population groups. For example, in the early years group there is said to be potential for negative impacts on the home learning environment and opportunities for outside play. The report states that older people may feel less safe going out due to increased traffic, noise and busyness and that depression and mental health problems may be exacerbated by noise and vibration.
- 13.51 The report comments that a sense of lack of control is likely to have a significant negative effect. Ensuring that local people have a voice and can influence some aspects of mitigation is identified as a potential positive impact.
- 13.52 These points were expanded upon at a hearing where a representative of LB Southwark spoke about the physiological effects of noise and the risks of stress resulting from a combination of impacts²³⁰. Concerns about health effects were mentioned by several other parties at the hearings. The matters raised included effects of reduced air quality on people who may be vulnerable due to respiratory conditions, effects on children, effects on sick and elderly, effects on sleep deprivation and cumulative effects on mental health²³¹. Health effects were also referred to in written representations. For example, the Carnwath Road Coalition submitted a health survey identifying the incidence of health conditions, such as asthma and heart conditions, in the locality of Carnwath Road Riverside (WRR010, appendix A). The written representation from Olaiz Miyar stated that health risks associated with air quality and noise at Carnwath Road Riverside should be avoided by selecting an alternative drive site at Barn Elms (WRR028).
- 13.53 The ExA asked for further information about the in-combination effects on the health and well-being of residential households, vulnerable people, children and residents of houseboats (PD017,

²³⁰ Alex Trouton, for LB Southwark on day 2 of the first IS hearing on the rationale for site selection and drive strategies (12 November 2013)

²³¹ Consuela Sharrocks, Jose Miyar, Anthony Jelly, Carnwath Road Coalition, Gloria Guy, Hamish McClean, Cllr Nicholas Botterill at OF hearing (20 November 2013) and Fiona Pryor and Larry Broomhead at OF hearing (22 November 2013)

Q33.3 and 33.4). The Applicant's response explains that the in-combination effects for each priority sub-group are considered within the 'quality of life' health determinant. This takes account of separate assessments for noise and vibration, air quality, odour and visual impacts, changes to the aesthetic quality of the river and foreshore, light pollution and open space (APP60, section 3).

- 13.54 The Applicant provided restructured tables which were drawn from the HIA, focussing on the quality of life determinant and the receptor groups requested by the ExA. For each work site the tables set out the in-combination assessment and the embedded mitigation measures, for example those in the CoCP. The residual impact, taking account of the embedded measures, is described in terms of a range (APP60, section 4).
- 13.55 At around half of the work sites the residual impact is described as a range from negligible or minor adverse to moderate adverse²³². Lower impacts are described at the remaining sites. These impacts are as assessed before the additional mitigation measures which were developed during the examination, for example, amended specifications for noise enclosures and no night-time barge movements at Chambers Wharf.
- 13.56 There is agreement with, or at least acceptance of, the findings of the HIA amongst most of the local authorities. LB Hounslow states that there would be benefits to recreational users of the river and LB Richmond upon Thames comments that there would be improvements to water quality (APP116.05, section 3.10). The Mayor of London acknowledges that there would be some negative impacts on health and well-being during construction but concludes that the resolution of combined sewer overflows (CSO) would justify a degree of temporary disruption. The Mayor considers that the scale of the proposed mitigation is appropriate (APP116.16, para 3.10.1). City of London Corporation (City of London) takes a similar view (APP116.08, section 3.10).
- 13.57 LB Wandsworth and LB Tower Hamlets agree with the findings of the HIA and other local authorities make no comment on it²³³. However, LB Hammersmith and Fulham and LB Southwark do not agree (APP116.03, APP116.14 and APP159.02). The residual impacts for the quality of life determinant at Carnwath Road Riverside and Chambers Wharf are described as a range from negligible to minor adverse. Given the extent and nature of the impacts that would be experienced at these two proposed main drive sites, this appears to be inconsistent with the findings for

²³² Hammersmith Pumping Station, Putney Embankment Foreshore, Cremorne Wharf Depot, Chelsea Embankment Foreshore, Kirtling Street, Heathwall Pumping Station, Albert Embankment Foreshore, Victoria Embankment Foreshore, Blackfriars Bridge Foreshore, King Edward Memorial Park Foreshore, Earl Pumping Station and Deptford Church Street

²³³ LB Newham reserves its position on this matter in its SoCG (APP116.11)

other sites where the range is described as negligible or minor adverse to moderate adverse.

- 13.58 Moreover, the factors taken into account in arriving at the quality of life assessments have considerable overlap with the factors taken into account in the amenity assessments. We have concluded above that the amenity assessments reported in the ES for Carnwath Road Riverside and Chambers Wharf are likely to understate the impacts at these sites. For the same reasons, we consider that at these sites effects on the quality of life health determinant are likely to be understated.

Mitigation for effects on amenity, health and well-being

- 13.59 Mitigation of impacts relating to noise and vibration, air quality, traffic, visual impacts and loss of open space are all relevant to mitigation of socio-economic impacts. Those mitigation measures are discussed in the appropriate sections of the report and are not repeated here.
- 13.60 The Non-statutory off-site mitigation and compensation policy (APP209.03) and the s106 obligations in favour of LB Hammersmith and Fulham, LB Southwark and LB Lewisham (APP119.05, APP119.013, and APP119.14) contain provisions which are relevant to impacts on communities, including amenity, health and well-being.
- 13.61 The Non-statutory off-site mitigation and compensation policy makes provision for Trigger Action Plans (TAP) for three primary schools. Under these plans, noise insulation measures would be designed, agreed and installed prior to the commencement of the works that would cause the disturbance. The plans would be 'pre-triggered' - that is to say noise insulation is offered without any pre-condition that a specified noise level is predicted or measured (APP209.03, appendix 3, section 3.2). The three schools are:
- Riverside Primary School (Chambers Wharf)
 - St Joseph's Roman Catholic Primary School (Deptford Church Street)
 - Pier Head Preparatory School (King Edward Memorial Park Foreshore).
- 13.62 We consider that the concept of pre-triggered TAPs would provide a welcome degree of certainty in relation to schools. We also note that the schools would be able to retain the noise insulation measures after the works, should they so choose, providing longer-term noise protection.
- 13.63 At Riverside Primary School the s106 obligations would provide financial contributions towards relocation of the children's vegetable garden to a more shielded location; soundproofing and associated works in connection with indoor sports and music; facilitating lessons in alternative outdoor spaces; provision of a

living green wall and other measures to improve well-being at the school (APP119.14). These measures are, in our view, reasonably related to the anticipated impacts at Riverside School and we therefore take them into account. Taken together with the TAP, we consider that they offer a comprehensive package which would offer a substantial degree of mitigation²³⁴.

- 13.64 At St Joseph's Roman Catholic Primary School (Deptford) the s106 obligations would provide financial contributions towards alternative outdoor play facilities and teaching resources, open days at the school and additional science and technology teaching resources (APP119.13). We consider that the TAP would offer a reasonable degree of protection to the interior of the school. However, this school would be very close to the Deptford Church Street work site. External play and teaching areas, and the general surroundings of the school, would experience in-combination impacts. Whilst the s106 obligations would provide some beneficial mitigation, we consider that the degree of benefit would be relatively minor in relation to the scale of in-combination effects.
- 13.65 The ExA sought further information about the measures that could be taken at Pier Head Preparatory School (PD017, para R57.11). Although a draft TAP is not before us, the Applicant states that one is being developed with the school. The measures are expected to include secondary glazing to the main hall, blinds to reduce solar gain and cooling/ventilation equipment (APP167, section 11). On this basis there appears to be a reasonable prospect that appropriate mitigation would be provided.
- 13.66 The s106 obligations would provide contributions towards public realm enhancements at three locations:
- Thames Path improvements and other landscape and amenity enhancements (Carnwath Road Riverside)
 - Temporary teenagers' play space at Bevington Street, play space improvements at Edwardian Manor House, Thames Path landscaping and improvements to the riverside quietway (Chambers Wharf)
 - Public realm improvements (Earl Pumping Station).
- 13.67 We consider that these measures would help to offset both direct impacts on the public realm, such as effects on the amenity of the Thames Path, and more general in-combination effects on the quality of life within the affected communities. We therefore consider that they accord with the requirements of the NPS and we take them into account.

²³⁴ The s106 obligations in LB Southwark would also provide contributions relating to St Michael's Secondary School and St Joseph's Primary School (Southwark). However, there is little evidence before us regarding direct impacts on these schools. We consider that it has not been shown that these contributions meet the requirements of the NPS

- 13.68 The s106 obligations in favour of LB Lewisham include a community sports contribution to fund sports activities for children in Deptford. We regard this as limited mitigation for in-combination effects on the quality of life of children. Whilst we take it into account, we consider that the degree of benefit would be relatively minor in relation to the scale of in-combination effects.
- 13.69 The s106 obligations in favour of LB Hammersmith and Fulham and LB Southwark include financial contributions to funding community initiatives. In LB Southwark this is referred to as a Community Enhancement Fund, which would be allocated through a Community Liaison Working Group²³⁵ (APP119.14). In LB Hammersmith and Fulham a similar contribution is referred to as a Community and Education Enhancement Fund (APP119.05).
- 13.70 The funds are intended to address a wide range of community impacts over and above those specifically predicted. LB Hammersmith and Fulham states that the mitigation would be in the form of a community investment programme, including the funding of a community working group to work with the community and schools. It is argued that this is necessary to ensure mitigation of intangible and residual effects of development through locally agreed projects to promote well-being and enhance quality of life and to fund community involvement (REP444).
- 13.71 LB Southwark states that long term major infrastructure projects generate a wide variety of intangible, relatively difficult to quantify, impacts on local communities' well-being and quality of life. Measures to mitigate and manage impacts would include *'health and well-being outreach projects, including monitoring of the impacts on the elderly, respite relief from impacts being experienced, community off site visits and impact offset programmes'* (REP449).
- 13.72 The rationale for these funds is based on the intangible nature of broader impacts on the quality of life of communities. They seek to address impacts which have not as yet been specifically predicted or mitigated. At this stage there is only the most general indication of how the funds might be deployed. Consequently, in our view, the obligations have not been shown to be directly related to the proposed development as required by paragraph 3.1.7 of the NPS. Moreover, it is difficult to say whether or not the amount of funds is reasonable in all respects.
- 13.73 We accept that the concept of a locally administered fund for mitigation measures has some attraction, particularly as it would allow for some community input to the mitigation measures. This would respond to the point made by LB Southwark regarding the

²³⁵ We note that LB Southwark disputes the term 'community enhancement'. However, for clarity, we have used the term as it is used in the obligation which is before us

importance of providing an element of local control (REP095, appendix 9). Nevertheless, as the obligations before us do not accord with the NPS guidance, we attach very little weight to them.

- 13.74 The obligations in favour of LB Hammersmith and Fulham and LB Southwark are contained in unilateral obligations and are not agreed with either Council. Both Councils set out their outstanding concerns in representations. With regard to mitigation for socio-economic impacts, LB Hammersmith and Fulham considers that the amounts of the contributions for Thames Path improvements, other landscape and amenity enhancements and community and education enhancement are insufficient (REP444). LB Southwark considers that the amount of the contribution for community enhancement is insufficient and also has concerns about the obligations relating to the proposed Community Liaison Working Group (REP449).
- 13.75 Whilst we note these outstanding concerns, we are bound to reach our recommendation on the basis of the obligations which are before us. We have not seen any evidence that leads us to conclude that the absence of the obligations sought by LB Hammersmith and Fulham and LB Southwark is an important consideration weighing against the grant of development consent.

Effects during operation

- 13.76 No potential negative health and well-being impacts were identified during operation other than initial perceived risks of odour or visual intrusion from some sites.
- 13.77 The ES states that the main socio-economic effects during operation would relate to the provision of new public open space and improved river-related recreational opportunities as a result of improved river quality (Doc 6.2.03, section 10). The LIR from LB Hounslow states that the Chiswick reach of the Thames is heavily used for recreational rowing and that improved water quality would be a significant beneficial impact for recreational users of the river (REP086, para 2.76 and 2.85).
- 13.78 In chapter 11 we note that new public realm would be created at a number of work sites. We conclude that this would be a benefit of the proposed development, particularly at Victoria Embankment Foreshore and Blackfriars Bridge Foreshore where new public realm would adjoin well used parts of the Victoria Embankment. The ES assesses this as a beneficial effect at the project-wide level and we see no reason to disagree.
- 13.79 We conclude in chapter 15 that the purpose of the project is to improve water quality and contribute to the aims of the Water Framework Directive. We note that some parties have questioned the water quality benefits of the scheme, including in relation to

health risks to rowers (for example, WRR096). This matter is also discussed in chapter 15. The ES assesses the improved recreational opportunities for all types of water-based leisure and sport as a beneficial effect and on the basis of the evidence before us we share that view.

CONCLUSIONS ON SOCIO-ECONOMIC EFFECTS

- 13.80 The Applicant has carried out an assessment of socio-economic impacts during the construction and operation phases in accordance with the NPS. We have taken this assessment into account together with relevant information from the LIR, written representations and oral evidence.
- 13.81 The Applicant has undertaken an equalities impact assessment (EqIA) to identify potential adverse, differential or positive impacts on particular equalities groups. This has been updated during the course of the examination in response to concerns raised in LIRs and questions from the ExA. There is now widespread, although not universal, agreement with the content of the EqIA.
- 13.82 We consider that the EqIA provides an appropriate level of detail for effects on equalities groups to be identified and taken into account as part of the decision making process, in accordance with the NPS and the PSED. The Applicant has shown how effects on equalities groups have been taken account in the development of the scheme and in mitigation. In many cases the mitigation for impacts affecting equalities groups would also be of benefit to the population at large. However, some measures are directed specifically at equalities groups. For example, there would be TAP and s106 obligations relating to affected schools and the Non-statutory off-site mitigation and compensation policy has provisions relating specifically to vulnerable persons.
- 13.83 The proposed development would result in the creation of additional employment opportunities for construction workers and barge operation workers during the construction phase. This would be a significant socio-economic benefit. The Applicant has prepared a skills and employment strategy designed to maximise the potential employment benefits to the Boroughs affected by the project. Delivery of the strategy would be secured through planning obligations. There would also be some adverse effects on employment, both through direct displacement and amenity impacts on businesses.
- 13.84 The ES identifies adverse effects on amenity for residential receptors at most of the work sites, although in some cases these are assessed as minor. Major adverse effects are identified at Hammersmith Pumping Station, Cremorne Wharf Depot and Kirtling Street. Major adverse effects in relation to houseboats are identified at Putney Embankment Foreshore and Kirtling Street. Moderate adverse effects are identified at Putney Embankment

Foreshore, Carnwath Road Riverside, Chambers Wharf, King Edward Memorial Park Foreshore and Earl Pumping Station. For the reasons given above, we consider that it is likely that the ES understates effects on the amenity of residential receptors at Carnwath Road Riverside, Chambers Wharf, King Edward Memorial Park Foreshore and Earl Pumping Station. There would also be adverse effects on amenity in relation to schools, open spaces, businesses and community facilities.

- 13.85 The HIA identifies potential significant health impacts and measures to avoid, reduce or compensate for these impacts as required by the NPS. The findings of the HIA are not disputed by most of the local authorities and some local authorities identify health benefits. Two local authorities do not agree with the Applicant's conclusions on health matters. We consider that the effects on the quality of life health determinant are likely to be understated at Carnwath Road Riverside and Chambers Wharf and, to this extent, we do not agree with the conclusions of the HIA.
- 13.86 We have considered the extent to which the mitigation measures put forward by the Applicant would mitigate adverse socio-economic impacts during construction. Mitigation measures included in the CoCP and requirements relating to noise and vibration, air quality, traffic, visual impacts and loss of open space are all relevant to the mitigation of impacts on communities, including impacts on amenity, health and well-being. The Non-statutory off-site mitigation and compensation policy and the s106 obligations also contain relevant provisions.
- 13.87 With regard to effects on schools, we consider that the s106 obligations for Riverside Primary School (Chambers Wharf), taken together with the TAP, would amount to a comprehensive package which would offer a substantial degree of mitigation. At St Joseph's Roman Catholic Primary School (Deptford) we consider that the TAP would provide a reasonable degree of protection to the interior of the school. Whilst the s106 obligations would provide some beneficial mitigation, the degree of benefit would be relatively minor in relation to the scale of in-combination effects on the external environment. At Pier Head Preparatory School (King Edward Memorial Park Foreshore) there is a reasonable prospect that appropriate mitigation would be provided through a TAP, although the plan itself is not before us.
- 13.88 Having regard to all the above matters we conclude that the Applicant has offered a wide-ranging package of measures which would do much to mitigate adverse effects on amenity, health and well-being. Nevertheless, in chapter 12 we identify that there are gaps in the proposed mitigation for the impacts of construction noise. Given that construction noise is an important component of the assessments in relation to amenity, health and well-being, it

follows that we cannot be satisfied that the overall mitigation package is satisfactory.

- 13.89 We have not identified any significant adverse socio-economic effects during the operational phase. There would be benefits resulting from the provision of new public open space and improved river related recreational opportunities as a result of improved water quality.

14 TRAFFIC, TRAVEL AND TRANSPORTATION

INTRODUCTION

Policy context

- 14.1 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) makes it clear that consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development and gives guidance as to the requisite assessments to be carried out by applicants where a proposal is likely to have significant transport implications. It states that these should distinguish between the construction, operation and decommissioning project stages as appropriate (NPS, para 4.13.2 and 4.13.3).
- 14.2 The NPS also states that water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective (NPS, para 4.13.10).

The application

- 14.3 The application was accompanied by a Transport Strategy (Doc 7.09), a Project-wide Transport Assessment (TA) (Doc 7.10) and Transport Assessments for each of the proposed work sites (Docs 7.10.1 to 7.10.24). These collectively informed the Environmental Statement (ES) that accompanied the application. In accordance with the NPS paragraph 4.13.3, the assessments distinguished between the construction phase and the operational phase and were prepared following consultation with Transport for London (TfL) and the local highway authorities potentially affected by the proposal. Whilst traffic and transportation impacts for the decommissioning phase were not addressed, our view is that this is reasonable and appropriate given the nature of the project, its anticipated life and the uncertainties as to the timing, nature and scale of any decommissioning works required.
- 14.4 It was generally accepted that traffic impacts associated with the proposed development would arise for the most part in the construction phase and that the effects during the operational phase would not be significant. This is reflected both in the ES, in the evidence submitted, and in our questioning as part of the examination.

River transport strategy

- 14.5 During the course of the examination, the transportation effects of the proposal were considered at length before, at and following an IS hearing held on 24 January 2014 (HEA112 to HEA115). The original Transport Strategy was revised and redrafted by the Applicant following consultation with TfL and other stakeholders.

Its title was changed to River Transport Strategy (RTS) (APP207.02 (final version)) and its measures are proposed to be secured by Requirement PW15.

- 14.6 The RTS provides, amongst other matters, for river transport to be used to remove the excavated material that would arise from the main tunnel construction and to bring bulk construction materials to each of the three main tunnelling sites. River transport would also be used to remove material excavated during construction of the proposed shafts at Carnwath Road Riverside and Chambers Wharf. It further provides for river transport to be used to bring the material to be used to fill most of the cofferdams constructed at foreshore sites and to subsequently remove temporary fill and other excavated material from them (APP207.02, para 4.1.1).
- 14.7 During the course of the examination the Applicant agreed that precast concrete segments for the section of tunnel proposed to be driven from Chambers Wharf would also be brought in by river (as opposed to by road). The RTS also requires the feasibility and practicality of transporting the following materials by river to be reviewed (APP207.02, schedule 3, section 3):
- Material excavated from the proposed shaft at Kirtling Street
 - Construction and excavated materials to and from Greenwich Pumping Station.
- 14.8 Whilst the strategy provides for derogations to be put in place in the event that transportation by river is not possible for any reason, the commitment secured by the RTS is to otherwise move 100% (subject to any approved operational derogations) of the specified materials by river. This commitment is accompanied by the expectation that the volume of specified materials transported by river would not fall below the target of 90% (APP207.02, para 2.1.2). Contractors would also be incentivised to move additional materials by river (APP207.02, para 4.2.1(c)(ii)). The proposal to use river transport accords with London Plan Policy 7.26, which seeks to increase the use of the Blue Ribbon Network, including the River Thames, to transport freight and the preference for waterborne transport over road transport contained in the NPS (para 4.13.10).
- 14.9 As to derogations, these comprise both Operational and Sustainability Derogations. Operational Derogations can only be approved where necessary and reasonable and where approval would be unlikely to result in any materially new or different environmental effects from those assessed in the ES (APP207.02, schedule 4, para 1.3). Furthermore, the RTS requires contractors to plan for likely foreseeable derogation events and agree what operational derogation would be put in place should an event occur. For unplanned events the approvals process is more demanding. Sustainability derogations are intended to enable beneficial re-use of specified materials where their movement

would result in a reduction in carbon generation in comparison to the carbon generation associated with the transportation of the material as otherwise required by the RTS (APP207.02, para 3.1).

- 14.10 Plainly, more materials could potentially be moved by river than those specified in the RTS (eg tunnel segments to Kirtling Street). However, having regard to the evidence that we have seen and heard on the matter, our view is that the balance currently struck by the RTS is appropriate.
- 14.11 Notwithstanding this, we note that the RTS does not specify that the fill material used to construct the cofferdam at Chambers Wharf must be transported by river. This appears to us to be an error as it plainly is the intention in the application that this material would be brought to and (so far as required) removed from the site by river (see eg Doc 7.10.17, para 20.2.12). This apparent 'error' in the RTS would be corrected by the addition recommended to Requirement PW15 (see chapter 20).

TRAFFIC AND TRANSPORT ASSESSMENT

Road traffic impacts

- 14.12 Notwithstanding the commitment to move the majority of the excavated materials and other bulk construction materials to the foreshore sites by water, the project would nonetheless generate road traffic to and from all of the work sites²³⁶. The effect that this traffic would have on the existing road network serving the sites was analysed and reported in the TAs²³⁷. The TAs also analysed the effect of changes to the road network as a consequence of carrying out the works (eg lane closures required to construct works within the highway boundary). The basis on which this analysis was undertaken was agreed with TfL prior to the preparation of the TAs and during the examination the results were scrutinised in detail by TfL and their consultants²³⁸.
- 14.13 For the most part the analysis was agreed. However, at the conclusion of the examination, several areas remained where further analysis was required to satisfy TfL that the conclusions reached by the Applicant and reported in the TAs and ES were sound (APP116.17, section 3.4). Sites about which particular concerns were raised included:
- Victoria Embankment Foreshore
 - Blackfriars Bridge Foreshore

²³⁶ Including sites with river access (eg Putney Embankment Foreshore) and those without (eg Acton Storm Tanks)

²³⁷ In undertaking this assessment the TAs each assumed that 90% of the materials specified in the RTS as required to be transported by river would in fact be taken by river. The remaining 10% was assumed to be taken by road

²³⁸ Whilst TfL are the highway authority for the Transport for London Road Network and have some powers for the Strategic Road Network they (with assistance from their consultants) also scrutinised the effects on all other local highway authority roads

- Deptford Church Street.
- 14.14 Other Interested Parties raised concerns about these and other sites, notably at Carnwath Road Riverside, Chambers Wharf and Deptford Church Street. At Deptford several Parties questioned the effect that the proposal to close one carriageway of Church Street and suspend the bus lanes for several months would have on buses and other traffic using the existing road network in the area.
- 14.15 As to the analysis undertaken by TfL and its consultants, the conclusions in the TAs were not 'signed off' by TfL before the end of the examination at all sites (see above). Accordingly, an element of doubt remains regarding the accuracy of the assessment at some sites and consequently the effects reported in the ES. Notwithstanding this, the Applicant was firmly of the view that the effects reported in the ES are accurate, and no evidence was provided by any party to persuade us that this was not the case.
- 14.16 Should the draft Development Consent Order (DCO) be granted as proposed and the project implemented, the requirement in the CoCP Part A for traffic management schemes for each work site to be submitted to the highway authorities for approval would engage (APP205.01, para 5.1.7), as would the requirement to submit traffic management plans for each work site for formal approval by the local authority prior to work commencing (eg Requirement ACTST6). Accordingly, we are satisfied that the Parties' failure to agree all aspects of the TA prior to the conclusion of the examination is not critical. Indeed, reconsideration of traffic management plans and the traffic management schemes that support them at a future date would be desirable in any event, given the potential for changes to the highway network and traffic conditions to occur between now and the programmed date for each phase of the works required at each site (eg by the introduction of further cycle lanes).

Travel plans

- 14.17 Requirements at each work site stipulate that workforce travel plans shall be submitted to and approved by the local planning authority prior to works commencing (eg ACTST7). This, in our view, is appropriate and, taken together with various measures stipulated in the CoCPs, we are satisfied that the application meets the test set by paragraph 4.13.4 of the NPS.

Outstanding areas of disagreement and objection

- 14.18 Notwithstanding the above, several areas remained at the conclusion of the examination where the Applicant and others failed to reach an agreement. These are recorded in the SoCGs. The principal area of concern related to the proposal to replace the

London Permit Scheme (LoPS) with a bespoke scheme for the control of works associated with the project affecting the highway.

The London permit scheme

- 14.19 In this regard we acknowledge that since LoPS was introduced it is generally required to be used by all utility companies and others wishing to undertake works affecting the highway in Greater London. It is administered by TfL and the local highway authorities. It comprises a permit scheme prepared in accordance with the Traffic Management Act 2004 which provides for the highway authorities to co-ordinate works affecting the highway and thereby to discharge their duties to manage the highway network under the New Roads and Street Works Act 1991. It does this in the main by requiring utilities and others seeking to undertake works affecting the highway to obtain a permit before carrying them out. The permit application is considered by the relevant highway authority and, if the authority is satisfied that the LoPS objectives are met and that the works proposed would not compromise their statutory duties to co-ordinate and manage the highway network, then a permit is issued. Regular consultation with and dialogue between the highway authority and those wishing to undertake road and street works before a permit is applied for and issued, ensures that the works are co-ordinated in a way that minimises disruption.
- 14.20 As to the suitability of LoPS for control of the works affecting the highways in London that would be required in connection with the Thames Tideway Tunnel (TTT), the permit scheme has the benefit of being familiar and widely understood. As far as we are aware it works well and is respected by the utility companies, their contractors and others that use it in London. It has been successfully used for many recent developments in London, including some (but not all) substantial ones.
- 14.21 Its suitability for Nationally Significant Infrastructure Projects (NSIPs) on the scale of the proposed development is, however, debatable in our view as responsibility for issuing permits would ultimately rest with TfL and the local highway authorities²³⁹. Whilst there is no reason to suppose that the responsible highway authorities would not act reasonably when determining a request for a permit, it has to be acknowledged that there is a risk that a permit might not be issued (or not issued in sufficient time). The works could thereby be delayed. Depending on the works involved, the Applicant argues that this could have significant consequences for the timely completion of the project (APP61, response to Q34.2). Whilst we regard the risk of delays on this account to be small, we nonetheless agree with the submission made.

²³⁹ In this connection LoPS does include a dispute resolution procedure. However, the initial stages require the parties to agree that the outcome of the dispute resolution process is binding. If this is not agreed the Applicant has the option of referring the matter to the administrative court

- 14.22 The bespoke scheme drawn up by the Applicant seeks to avoid this whilst at the same time ensuring that all TTT works affecting the highway are co-ordinated with road and street works proposed by others. By the close of the examination it was accepted by most highway authorities that such a scheme would be acceptable, subject to agreement on the details and their being satisfied that it would not conflict with their duties to manage the highway network. Unfortunately, it proved not to be possible before the close of the examination to finalise the scheme and in its final representation TfL noted that *'despite recent positive discussions with TWUL on the Bespoke Process, there is currently no agreed satisfactory alternative process to replace LoPS'* (REP498). TfL accordingly recommended that, until such time as the scheme is finalised, the provisions of the DCO should be modified to retain LoPS. LB Southwark submitted a similar representation, noting that it had not been possible to reach agreement on a bespoke scheme with the Applicant and suggesting amendments to the DCO to ensure that the Council retains the ability to comply with its statutory duties to co-ordinate works affecting the street network (REP491). Other Councils also maintained an objection to their loss of highway powers.
- 14.23 As to the way forward, the detail of the bespoke scheme that the Applicant proposes to replace LoPS is contained in appendix C to the CoCP Part A (APP205.01). This scheme is not, however, agreed and, whilst TfL (who generally led representations on this point for all highway authorities) plainly anticipate that, with more time and work it would be possible for them to agree a modified bespoke scheme (REP498) this was not achieved by the time the examination closed. Consequently, TfL suggests that LoPS should be retained to safeguard its position. TfL's position on this matter is supported by some of the other highway authorities (eg REP481, schedule 19; REP491 and APP116.05, page 45). We agree, and the modifications that we suggest should be made to the DCO to reflect this, are set out in chapter 20.
- 14.24 The position may not be final, however, insofar as, in due course, we anticipate that a revised bespoke scheme may be drawn up that would be acceptable to TfL and the other highway authorities affected by the proposed development as well as the Applicant. Should the Secretaries of State be satisfied that this is the case (or should a revised scheme be put to the Secretaries of State that they otherwise find satisfactory), then, provided that the revised scheme is secured in substitution for that currently contained in appendix C to the CoCP Part A (and Interested Parties are given a fair opportunity to make representations), our view is that the modifications in relation to LoPS that we propose to the DCO would not be required.

Other matters

- 14.25 In addition to the concerns relating to LoPS a number of other traffic and transportation concerns were raised during the examination. These included:

Concerns regarding the interface between the development proposals underway and planned for the Vauxhall/ Nine Elms/ Battersea Regeneration Area (eg WRR062, WRR087)

- 14.26 Whilst we appreciate these concerns, it was clear to us that the responsible highway authorities (TfL and LB Wandsworth) are alive to the issues and we saw no convincing evidence that traffic could not be managed in the area in a way that respects the needs of all highway users, either through LoPS or an agreed bespoke scheme to replace it.

Concerns regarding the impact of traffic associated with the project on non-motorised users, and the impact on local roads which are proposed to be used to access some work sites

- 14.27 Plainly, insofar as the proposed development would increase traffic on the road network, the potential for congestion and accidents would also increase, including accidents involving cyclists and pedestrians and children travelling to and from school. However, the Applicant has committed to the RTS which would limit the generation of HGV traffic. Moreover, there would be a range of mitigation measures secured elsewhere, including in the CoCPs and the s106 obligations²⁴⁰. These measures would include limiting HGV movements at certain times near some of the affected schools. Having regard to the mitigation measures proposed, we do not see this as a matter that should weigh significantly in the Secretaries of States' decision as to whether to make the DCO or not.

Concerns regarding the proposal to divert public rights of way, including the Thames Path, at several sites

- 14.28 In this regard, the proposal to divert public rights of way during the construction phase would generally involve additional travel distance and cause a loss of amenity to some users, including people using the Thames Path (eg REP091, para 3.2.22). Others would suffer a loss of amenity when public areas are closed off for maintenance (eg REP096, section 3.3.2.6, REP 093, para 8.2.89). This is regrettable. However, we are satisfied that the diversions proposed during construction (including that at Chelsea Embankment Foreshore during all working hours) are necessary and appropriate given the need to protect public safety during the

²⁴⁰ Commitments in s106 undertakings include provisions for improvements to walking and cycling routes to schools near to Chambers Wharf. The CoCP Part Bs for Chambers Wharf and Deptford Church Street both contain provisions that would prevent HGVs accessing the sites at peak school travel times. Further details of s106 contributions can be found in appendix D

works and, where necessary, we have sought to ensure that diversions are put in place before routes are closed. Accordingly, we do not see this as a matter that should weigh significantly in the Secretaries of States' decision as to whether to make the DCO or not.

Concerns regarding the need to modify existing parking arrangements during the construction phase

- 14.29 Some changes to the existing on-street parking provision would be required to facilitate safe and convenient access at several work sites. In some cases existing parking spaces used by local residents would be lost. In others, business users would be disadvantaged (eg REPO93, para 8.2.76). The arrangements proposed are nonetheless appropriate in our view and, given the contributions for controlled parking zones contained in the s106 undertakings (see appendix D), we do not see this as a matter that should weigh significantly in the Secretaries of States' decision as to whether to make the DCO or not.

Concerns regarding the supply of sufficient vessels and their crews to support the RTS

- 14.30 There is no doubt in our minds that the number of barges and other vessels required to implement the RTS would be substantial and could represent a significant risk to the timely delivery of the project. However, the evidence is that the Applicant is alive to the issue (APP16, response to Q16.1), and we have no reason to believe that the vessels and crews required to implement the RTS would not be available when required, or that their supply would unacceptably impact on other river transport operations. We do not see this as a matter that should weigh significantly in the Secretaries of States' decision as to whether to make the DCO or not.

Concerns regarding Saturday working at Barn Elms. LB Richmond-upon-Thames seeks to preclude all Saturday working at the Barn Elms site (APP116.05, p44)

- 14.31 The CoCP Part B for this site restricts access for HGVs on Saturdays and access for all vehicles when the playing fields are being heavily used (APP125.07, p4). In our view these measures would operate together to ensure that existing users of Queen Elizabeth Walk would not be significantly inconvenienced by the works and we see no reason to support the complete ban on Saturday working requested by the Council. Our conclusions on this are reinforced by the absence of any evidence to show that allowing some traffic to access the site on Saturdays would result in significant inconvenience to other users of the highway network serving the site and the playing fields.

Concerns regarding the proposed access to Falconbrook Pumping

Station. LB Wandsworth seeks a permanent access to Falconbrook Pumping Station from York Road (as opposed to via York Gardens) (APP116.06, p145)

- 14.32 As to this request, the expectation is that during the operational phase the volume of traffic that would need to enter the site would be minimal. Whilst direct access to the site from York Road would be possible, York Road is a major traffic route and our view is that, on balance, an access of the nature required would be more appropriately provided via York Gardens.

CONCLUSIONS ON TRAFFIC AND TRANSPORT

- 14.33 In conclusion we find the proposal would substantially comply with the transport policies set out in the NPS. The application was accompanied by a Transport Assessment and a Transport Strategy which, during the course of the examination, was revised and re-titled the RTS. This strategy would ensure that the majority of the excavated material arising from construction of the main tunnel would be transported by river. The fill material required to construct cofferdams at most foreshore sites would also be transported by river, as would the excavated material arising from sinking shafts at two main construction sites and from removing temporary cofferdams. During construction, requirements would generally ensure that appropriate measures are taken to regulate traffic generated at each construction site and avoid unacceptable impacts on the highway network.
- 14.34 Notwithstanding this, several areas of concern remained at the conclusion of the examination. Whilst the Applicant's proposal to replace LoPS with a bespoke scheme was accepted by most Parties as a principle, the terms of the bespoke scheme were not agreed by all the highway authorities involved, including TfL. Accordingly, we recommend that, unless the bespoke scheme is agreed and secured prior to consent being given, the DCO should be modified to retain LoPS as recommended in chapter 20.
- 14.35 Overall there is little doubt that the proposed development could give rise to a range of impacts on London's transport infrastructure during the construction phase of the project. However the proposal is to use river transport for the majority of the material excavated from the proposed tunnel and most other bulk construction materials required and arising at sites adjoining the River in order to reduce the impacts on the highway network²⁴¹, and the evidence is that other impacts could be sufficiently and appropriately mitigated. Requirements and other measures (including measures secured by way of s106 obligations) would

²⁴¹ Whilst the commitments to use river transport to move excavated material from the main tunnel and other bulk construction materials to foreshore sites contained in the RTS would be subject to derogations, any derogations would only be approved where necessary and reasonable and where the derogation is unlikely to give rise to any materially new or materially different environmental effects to those assessed in the ES

secure this mitigation, including that specified in the CoCPs. In some sensitive areas, mitigation would include, for example, limiting the hours at which HGVs would be permitted to operate.

- 14.36 With these requirements and the other obligations entered into by the Applicant our view is that the Secretaries of State can be confident that the project would not result in any residual effects on the surrounding transport infrastructure that should attract more than limited weight.

15 WATER QUALITY AND RESOURCES

INTRODUCTION

- 15.1 We are advised in the National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) that infrastructure development can have adverse effects on the water environment, including ground water and transitional waters. During construction, operation and decommissioning phases it can involve discharges to water and cause adverse ecological effects.
- 15.2 NPS paragraph 4.2.8 advises that *'the decision maker should be satisfied that a proposal has regard to the River Basin Management Plans and meets the requirements of the Water Framework Directive (including Article 4.7) and its daughter directives, including those on priority substances and groundwater'*. The decision maker should also *'consider the interactions of the proposed project with other plans such as Water Resources Management Plans and Shoreline/Estuary Management Plans'*.
- 15.3 The following paragraph advises that the Examining authority (ExA) and the decision maker should also *'consider proposals to mitigate adverse effects on the water environment put forward by the applicant and whether appropriate requirements should be attached to any development consent order and/or development consent obligations entered into'* (NPS paragraph 4.2.9).

ISSUES, QUESTIONS AND RESPONSES RAISED DURING THE EXAMINATION

- 15.4 Some Interested Parties raised queries on matters of water quality but these were generally associated with the need for the development, which is outside the framework of this examination. At the outset of the examination we asked for a Statement of Common Ground (SoCG)²⁴² between the Applicant and the Environment Agency (EA) to address, amongst other things, the matter of water quality. However, there were still some matters that we specifically raised in the ExA's written questions with regard to the NPS tests.
- 15.5 We recognise that the purpose of the proposed development is to improve water quality and contribute to the aims of the Water Framework Directive (WFD). However, the EA stated that *'the construction and permanent location of sites associated with the project have the ability to impact on the aims of WFD, and as such it is necessary for a WFD assessment to demonstrate compliance'* (RRP710, section 3). The EA also noted that there were a number of issues that needed to be secured in the draft Development

²⁴² PD003, rule 6 letter dated 25 July 2013, annex E

Consent Order (DCO) to adequately comply with the WFD including encroachment of structures in the river, habitat compensation, scour and accretion monitoring and mitigation, construction methodologies, Construction Environment Management Plan (CEMP), piling and dredging, and groundwater monitoring and dewatering.

- 15.6 The EA and the Applicant reached an early conditional agreement concerning these matters. At the end of the examination, they confirmed in the SoCG that matters are agreed subject to further detail being provided at the appropriate time in the project. The EA is satisfied that the appropriate securing mechanisms are in place to ensure this (APP215.03, table 3.6.3).
- 15.7 Notwithstanding the early agreement with the EA, we had some questions concerning water quality, combined sewer overflows (CSOs) and waste water flows which we considered needed clarification.
- 15.8 The overall Thames Tideway project is required to remove 39 million m³ of combined sewage flows from the River Thames (in a typical year)²⁴³. This proposed development is one part of it, the remainder being the Lee Tunnel and improvements to five sewage treatment works (STWs). The Lee Tunnel and STWs improvements will remove over half of the sewage overflows, with the remaining 17.6 million m³ of CSO discharges²⁴⁴ to be addressed by this proposed development. On completion of the proposed development, the design discharge volume per year would be 2.4 million m³, and the maximum number of residual discharge events from the controlled CSO's would reduce to four in a typical year²⁴⁵ (Doc 7.18, para 2.4.3).
- 15.9 We noted from the Engineering Design Statement (Doc 7.18, table 3.2) that after tunnel completion the design overflow of four spills per year at Greenwich CSO would still result in combined sewage overflows of 573,000m³/year. Accordingly, we questioned the Applicant regarding the environmental impact and acceptability of these discharges (ExA's Q18.4). We also sought to clarify the reasoning underpinning the adoption of four discharges per year as a design standard (ExA's Q18.1). The Applicant explained that *'the value of up to four CSO discharges in a typical year is not a design standard for the project but it is the result of the sizing of the full length tunnel system and the control of discharges from unsatisfactory CSOs without entailing excessive costs. Up to four events are simulated for the typical year but in other years the number can be as high as eight or as low as one'* (APP18, para

²⁴³ Doc 7.18, para 2.2.1

²⁴⁴ Some unsatisfactory CSOs would discharge into the river over 50 times in a typical year (Doc 7.18, para 2.4.3 and 3.4.6) - in the project's base condition (ie typical rainfall year for the 2020s condition with STW improvements and the Lee Tunnel in place)

²⁴⁵ Typical year rainfall event defined as 1980 (Doc 7.18, para 3.4.5)

1.1.4). In the case of Greenwich, the Applicant states that the control of the CSO *'is considered an acceptable design because it would comply with the dissolved oxygen (DO) standards (no adverse impact on DO), the discharge volume and duration would have no adverse aesthetic impact and continues to have no adverse health risk'* (APP18, para 4.1.4).

- 15.10 At the other end of the design flow spectrum, the smallest overflow given in the application as submitted was Bekesbourne Street which was stated as being designed to remove overflows of just 1,500m³/year. We questioned the Applicant on the benefits that would be achieved from the proposals at this work site (Q18.5). The Applicant advised that there had been a temporary diversion installed at this site and the actual discharge volume without the diversion would be 588,700m³/year²⁴⁶ and not the 8,500m³/year²⁴⁷ given in the application. A revised table of discharge volumes is included in the ES Update Report (APP208.01, table 27.2).
- 15.11 We also received a representation concerning the works at Shad Thames Pumping Station where the design is expected to reduce the discharge volume from 100,000 m³/year to 72,000m³/year (four spills per typical year). The representation²⁴⁸ concerned the amount of sewage related litter that accumulates on the mooring lines at Downings Roads Moorings after a storm event, and the concerned Party questioned whether this would persist, having regard to the small reduction in design flows. In response to our question on the matter, the Applicant confirmed that the EA had categorised the CSO as unsatisfactorily due to its adverse impact on the aesthetics particularly given the presence of the houseboat moorings (APP18, answer to Q18.6).
- 15.12 In our follow-up question, the Applicant confirmed that the aesthetic impact is primarily driven by frequency and duration rather than the volume of discharge. Therefore, although there would only be a 28% volume reduction, the proposed solution at Shad Thames would reduce frequency by approximately 73% and duration by approximately 80%. The Applicant stated that this would significantly reduce the sewage derived litter and therefore improve the aesthetics of the area (APP63, answer to Q36.4).
- 15.13 The application included a 44 week period for connection to the Lee Tunnel, which would have required the Lee Tunnel to be taken out of service and sewage overflows diverted to the River Lee for the 44 weeks. The Applicant confirmed in response to our question that the Abbey Mills receiving shaft (now known as shaft G) would be built as part of the Lee Tunnel construction project²⁴⁹. The new

²⁴⁶ APP18, para 5.1.5

²⁴⁷ Base condition volume per year, Doc 7.18, table 3.2

²⁴⁸ Tower Bridge Yacht and Boat Company at IS hearing on 12 November 2013

²⁴⁹ Shaft G was under construction during the examination as part of the Lee Tunnel project

shaft G would receive the tunnel boring machines (TBMs) for both the Lee Tunnel and the Thames Tideway Tunnel, and, by plugging the connection tunnel between shaft G and the Lee Tunnel, the period for final connection would be reduced from 44 weeks to eight weeks (APP18, answer to Q18.7). The EA subsequently confirmed its support of the proposal (REP102). We confirm that construction of shaft G has been removed from the DCO.

- 15.14 We were also concerned about the control of the 10 year maintenance regime, as the operating proposal is for the tunnel to be out of service for two to three weeks each time the tunnel is inspected. The Applicant advised that the infrequent and short duration of maintenance periods, coupled with operating techniques, would be consistent with the allowance for exceptional discharges under Annex 1 to the Urban Waste Water Treatment Directive (UWWTD) (APP63, answer to Q36.1). The EA confirmed that it would *'ensure adequate controls over maintenance including seasonal timing [through] the issue and enforcement of relevant Environmental Permitting Regulation permits. These are currently being drafted with the aim to issue the first permit by April 2014'* (REP234, Q36.3). These are not before us, but we see no reason to consider that this would not have effect.
- 15.15 We received several written representations concerning water quality. An example of the representations is those from Thamesbank, which included a report from Professor Chris Binnie entitled 'Measures to protect the river environment from the adverse effects of waste water discharges' dated 22 October 2013 (WRR096). In particular this report questions whether the Applicant has overstated the benefits of the proposed tunnel once other current and planned improvements have been taken into account (ie the Lee Tunnel and the extensions to the five STWs mentioned above).
- 15.16 We questioned the Applicant on the benefits of the proposed development, in particular having taken into account the benefits that have already been achieved through the completion of the extensions at Mogden STW (ExA's Q36.6, R63.1 and R63.2). The answers from the Applicant did not provide empirical data, but made the following points:
- When the improvement works and the Lee Tunnel are completed, the tidal Thames would still fail the DO water quality standards set by the TTSS²⁵⁰ (APP63, para 6.1.5).
 - The European Commission does not specify the number of CSO discharges that it would regard as acceptable and leaves this to member states to determine (APP63, para 6.1.18).

²⁵⁰ TTSS: Thames Tideway Strategic Study

- The Mogden STW improvements were completed in 2013, and no comparative analysis of health impact has been undertaken since its completion (APP173).
- Analysis of illnesses reported against CSO discharges shows that 77% of cases had been in contact (mostly rowing) within three days of a CSO discharge (APP173).
- Without the Thames Tideway Tunnel the DO standards identified through the TTSS cannot be met, fish kills will occur (albeit at a lower frequency than currently) and fish and aquatic diversity would continue to be inhibited (APP173, para 3.1.4).
- The 10% assumption for litter derived from CSO discharges was used in the original TTSS Cost-benefit Working Group Report. However this quantitative value does not indicate the objectionable nature of the material contained with this 10% of litter (APP173, section 4.1).

15.17 The EA also responded to our question regarding the benefits of the proposed development supporting the views of the Applicant and also confirming its view that:

- TTSS recognised that insufficient information was available about the specific effects CSO discharges have on the health of people using the Thames estuary.
- Even if the possibility exists that the rowers comprising the study²⁵¹ do not exhibit the signs of illness, it was clear that the health risk associated with close contact with the Thames estuary was elevated. *'There are many less well defined groups of people who come into contact with the Tideway, and it is reasonable to suspect that the risk to these individuals is even greater; incidental visitors to the intertidal areas in central London are unlikely to benefit from the other aspect of the rowers also identified in the report: "Having a greater awareness of local hygiene issues"'* (REP440, 63.2a).
- The percentage of sewage related litter is hard to quantify. *'What is important is that this is the portion of litter in the Tideway that is the most objectionable; readily identifiable sanitary products etc., visible to even the casual observer on the foreshore. The Thames Tideway Tunnel is essential to reduce these aesthetics impacts'* (REP440 63.3c).
- The DO standards were developed with the objective to ensure that the ecology in the tideway is sustainable (REP440, 63.2b).

15.18 We note that with the completion of the Lee Tunnel and STW improvements, the WFD status of the tidal Thames in the high/good/moderate categories²⁵² will be 31km/33km/46km. With completion of the proposed development, the ES states that 13km of moderate status would improve to good status, but that 33km

²⁵¹ The Thames Recreational Users Study Final Report (2007)

²⁵² WFD status category for ecological potential

of the Thames would remain as moderate status - therefore resulting in 31km/46km/33km (Doc 6.2.03, appendix L1, table L.13). The 33km of moderate status are located in the Middle Thames and are shown graphically in Plate L17.

- 15.19 We questioned the EA about the acceptability of this (Q18.13). The EA confirmed that *'we recognise that the Thames Middle Waterbody is predicted to remain at Moderate Ecological Potential following completion of the Thames Tunnel. One of the limiting factor[s] that prevents achieving good ecological potential, is CSO discharges in central London. The project would address this problem. To further improve water quality, and achieve good status for DO [it] would involve improvement to sewage treatment works rather than alterations to the design of the tunnel. This situation is acceptable as the tunnel is an integral part of a suite of actions, which will all be necessary to achieve good status, and ultimately Good Ecological Potential in the Thames Middle waterbody by 2027'* (REP102, answer to Q18.13). Given that the predictions given included the Lee Tunnel and the extensions to STWs, we assume that there is a further suite of action required to achieve the good status that the EA is referring to.
- 15.20 The EA also confirmed that the proposed development does not affect the Water Resources Management Plan. The EA also state that it is a key measure in delivery of the River Basin Management Plan (which is developed under the WFD) (REP102, answer to Q18.12).
- 15.21 At the close of the examination there was common ground with the EA set out in an agreed SoCG that covered all matters with regard to water quality and resources (APP215.03).

WATER QUALITY AND RESOURCES COMMITMENTS

- 15.22 We are required by NPS paragraph 4.2.9, to consider if mitigation measures are required for operational, construction and decommissioning phases.
- 15.23 During the course of the examination, the Applicant and the EA agreed the Groundwater Environmental Management - Dewatering and Monitoring Strategy (APP141). This would be secured through the DCO, Requirement PW13 which now includes the words *'Any alterations to the strategy shall be submitted to, and agreed by, the Environment Agency.'*
- 15.24 The EA protective provisions have been agreed and are included in the DCO, schedule 16, Part 3. The aspects that are related to water quality which are included in schedule 16 include:
- scour and accretion monitoring and mitigation
 - emergency powers
 - approval of the Construction Environmental Management Plan (CEMP)

- protection for fish and fisheries.
- 15.25 According to the agreement the aspects of the CEMP which the EA would approve are the:
- Pollution incident response plan
 - Emergency preparedness plan
 - Water management plan
 - Ecology and landscape management plan.
- 15.26 The CEMP is also detailed in CoCP Part A, which is secured by Requirement PW6. There is a discrepancy between this and the agreement with the EA (schedule 16, part 3, para 11). The CoCP states that the reports are sent to the EA (and other consultees) for consultation, and answers will be taken into account in finalising the document for submission to the employer. In the CoCP Part A, the employer is the approving body for CEMP (APP205.01, para 2.3.4 and 2.3.5), whereas in Schedule 16, it is the EA that approves the subsidiary plans. We do not consider that this anomaly presents an issue and confirm that we consider that the wording in schedule 16 should remain.
- 15.27 Other aspects that the EA wished to secure with regard to the WFD are:
- Structures in the river (encroachment), which are secured by CoCP Part A, section 4.7 and site-specific requirements (eg Requirement KEMPF5, detailed design approval for river wall and foreshore structure is approved by the relevant planning authority in consultation with the EA).
 - Construction methodologies, which are secured by CoCP part A and CEMP.
 - Piling and dredging, which are secured by CoCP Part A, section 4.7 and paragraph 6.4.6 et al with regard to underwater noise and vibration.
- 15.28 The impacts on water quality and resources during decommissioning were not addressed; our view is that this is reasonable and appropriate given the nature of the proposed development and its long anticipated design life.

CONCLUSIONS ON WATER QUALITY AND RESOURCES

- 15.29 The purpose of the proposed development is to improve water quality and contribute to the aims of the WFD. We are satisfied that the application would meet the requirements of the WFD as required by NPS paragraph 4.2.8.
- 15.30 However, there were a number of areas that the EA considered needed to be secured to ensure that the construction and permanent location of sites would not impact on the aims of WFD. We are satisfied that these have been secured and therefore the application also complies with NPS paragraph 4.2.9.

16 OTHER MATTERS

ENVIRONMENTAL STATEMENT AND ENVIRONMENTAL IMPACT ASSESSMENT

Introduction and the relationship between the Environmental Statement and the description of the project

- 16.1 All proposals for projects that are subject to the European Environmental Impact Assessment Directive²⁵³ must be accompanied by an Environmental Statement (ES) describing the development, including its physical characteristics, land use, construction and operational phases together with the main characteristics of any production processes and an estimate of expected residues and emissions resulting from the operation of the development.
- 16.2 The ES must provide an outline of the main alternatives studied by the Applicant setting out reasons for the final choice taking into account environmental effects.
- 16.3 The ES must also describe aspects of the environment likely to be significantly affected by the project²⁵⁴ together with a description of the measures envisaged to prevent, reduce and where possible offset any significant effects.
- 16.4 Guidance on the relevant approach to take for Environmental Impact Assessment (EIA) in relation to waste water national infrastructure projects is set out at section 3.2 of the National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS). In particular the NPS, states (para 3.2.1) that when considering a proposal, the Examining authority (ExA) and the decision maker should ensure that likely significant effects at all stages of the project have been adequately assessed, and should request further information where necessary.
- 16.5 In considering flexibility in project proposals paragraph 3.2.6 of the NPS advises that: *'In some instances it may not be possible at the time of the application for development consent for all aspects of the proposal to have been settled in precise detail. Where this is the case, the applicant should explain in its application which elements of the proposal have yet to be finalised, and the reasons why this is the case.'*
- 16.6 The NPS also notes (NPS, para 3.2.7) that where some details are still to be finalised the ES should set out, to the best of the

²⁵³ Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, amended by Directive 97/11/EC and 2003/35/EC (also 2009/31/EC)

²⁵⁴ Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263) schedule 4

Applicant's knowledge, what the maximum extent of the proposed development may be in terms of site and plant specifications, and assess, on that basis, the effects which the project could have to ensure that the impacts of the project as it may be constructed have been properly assessed.

- 16.7 In coming to a conclusion the NPS (NPS, para 3.2.8) advises that should the decision maker determine to grant development consent for an application where details are still to be finalised, it will need to reflect this in appropriate development consent requirements. If development consent is granted for a proposal and at a later stage the developer wishes for technical or commercial reasons to construct it in such a way that its extent will be greater than has been provided for in the terms of the consent, the NPS advises that it may be necessary to apply for a change to be made to the development consent. The application to change the consent may need to be accompanied by further environmental information to supplement the original ES.

Environmental Statement submission, provision of errata and supplementary environmental information

- 16.8 The Applicant submitted an ES as part of the application. The ES consisted of 27 volumes and a separate non-technical summary was also provided.
- 16.9 An introduction to the submitted ES set out in volume 1 (Doc 6.2.01, volume 1: Introduction to the Environmental Statement) provides a high level summary of the proposed development and information on the project alternatives considered. The submitted ES volume 2 (Doc 6.2.02) describes the Applicant's stated environmental assessment methodology. Volume 3 of the submitted ES (Doc 6.2.03) presents the Applicant's assessment and identification of the project-wide effects and volumes 4 to 27 present the Applicant's assessment and identification of the effects for and at each of the 24 works sites. These volumes were supported by a number of technical appendices, figures and standalone reports.
- 16.10 The ES structure is summarised in volume 1 plate 1.2.1 to volume 1 plate 1.2.4 (Doc 6.2.01, volume 1: Introduction to the Environmental Statement) showing the report content and structure.
- 16.11 The Applicant has provided a Guide to the Application (APP199) summarising the proposed application for development consent for the Thames Tideway Tunnel project as made and setting out documents submitted during the examination.
- 16.12 The Applicant submitted (11 March 2014) an ES Update Report (APP208.01) containing updated information on the environmental effects of the Thames Tideway Tunnel project arising at each of

the tunnel drive and reception sites and combined sewer overflow (CSO) interception sites and along the proposed tunnel route as a whole.

Consideration of alternatives

- 16.13 Part 2 of the NPS provides an overview of the strategic alternatives both to the general nationally significant need for waste water infrastructure and to the project specific need for the Thames Tideway Tunnel. These strategic alternatives do not need to be assessed by the ExA or the decision maker.
- 16.14 The NPS makes it clear (NPS, para 3.4.2) that it has not considered the detail of specific sites, routes, designs, layout, construction programmes or operational processes for these particular projects, which are the responsibility of the Applicant to determine, in conjunction with the Government's environmental and economic regulators.
- 16.15 NPS paragraph 3.4.3, and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 also reference the requirement noted above, for the ES to include an outline of the main alternatives studied by the Applicant and an indication of the main reasons for the Applicant's choice, taking into account the environmental, social and economic effects²⁵⁵.
- 16.16 For the Thames Tideway Tunnel the NPS also sets out the context for assessment in paragraph 2.6.34 as set out and considered in chapter 4 above and chapter 17 below.

Revised European Directive - 15 May 2014

- 16.17 Following the close of the examination the European Parliament resolved to amend the EIA Directive 2011/92/EU. The amended EIA directive came into force on 15 May 2014 with a three year deadline for transposition by member states.
- 16.18 The amendments include in particular a requirement for mandatory assessment and reporting of reasonable alternatives that should be included in the environmental impact assessment report, not simply the proposed development as currently reflected in the relevant United Kingdom (UK) Regulations²⁵⁶.
- 16.19 These matters clearly could not have been addressed as part of the application and examination before the Panel as the amended EIA directive came into force after the close of the examination. We therefore can make no recommendation on the amended EIA directive to the Secretary of State for Communities and Local Government and Secretary of State for Environment, Food and

²⁵⁵ Existing guidance on alternatives can be found in the EU Guidance to EIA Scoping section B6.2

²⁵⁶ Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263)

Rural Affairs (Secretaries of State). It is nevertheless a matter that we consider should be brought to the Secretaries of State attention in their role as decision makers under s104 of the Planning Act 2008 (as amended) (PA 2008).

Mitigation measures

- 16.20 The Applicant prepared a mitigation route map, which was first submitted on 23 September 2013, in response to our procedural decision and request (PD003, annex E, para 8.1.3). This was updated throughout the examination and submitted in its final form on 11 March 2014 (APP203.01).
- 16.21 The Applicant states that the document is produced in order to demonstrate that all necessary controls and mitigation for the project have been identified and secured. The purpose of the route map is described at paragraph 1.1.1 as being to:
- (j) *'Provide an audit trail of the controls and mitigation measures on which the Environmental Statement (ES), including related assessment documents, rely to avoid, reduce and/or offset significant (ie moderate or major) impacts of the project (columns (3) and (4) of the table); and*
 - (k) *Set out the way in which they have been, or will be, translated into clear and enforceable controls (column (6)); either via development consent order (DCO) Requirements, Section 106 obligations or other consent regimes, such as Section 61 Consents (Control of Pollution Act 1974), or Environmental Permits (Environmental Permitting Regulations 2010).'*

Issues, questions and responses raised during the examination

- 16.22 In the relevant representations and at the outset of the examination, as early as the Preliminary Meeting (PM) there were submissions from Interested Parties in relation to the need for further environmental information and the extent of alternatives considered. Submissions that were representative of these matters include: London Borough of (LB) Hammersmith and Fulham (RRP1006); LB Lewisham (RRP1099); LB Southwark (RRP1140) Councillor Nicholas Botterill (RRP367); Rt Hon Simon Hughes MP (RRP1231) and Thamesbank and the Blue Green Independent Expert Group (RRP1072 and PM Audio HEA001 and PD007, Written Note paragraph 2.21).
- 16.23 The detailed points raised with regard to the likely impacts as assessed within the ES and the robustness or adequacy of the methodologies used and assumptions made are set out in the chapters of this report dealing with: Air Quality and Emissions; Biodiversity, Biological Environment and Ecology; Design, Landscape and Visual Impact; Historic Environment; Land Use,

(including regeneration and in relation to impacts on open space), Noise and Disturbance; Traffic, Travel and Transportation; and Water Quality and resources. In addition these points are taken through to Socio-Economic Effects, including Effects on Amenity, Health and Well-being matters and Rationale for sites in relation to in-combination impact.

16.24 Of the detailed matters, the questions that went most directly to the issue of missing or adequacy of environmental information related to:

- odour assessment²⁵⁷
- an assessment of the impacts during periods when river transport is unavailable – an 'all-by-road' scenario²⁵⁸
- assessment of likely construction noise impacts upon specific properties when the baseline ambient measurements could not translate directly and the implications of the methodologies used to identify predicted significant impact²⁵⁹
- assessment of impact on groups with relevant protected characteristics and residents of houseboats compared with residents in buildings²⁶⁰.

Issues raised by Thamesbank and the Blue Green Independent Expert Group

16.25 Thamesbank and the Blue Green Independent Expert Group maintained the case throughout the examination that the principle of the Thames Tideway Tunnel scheme had not been proven and that there exist equally effective and less environmentally harmful and less costly alternatives. This position runs counter to the strategic assessment of alternatives carried out at a national level and reflected in the NPS²⁶¹ and the Panel made clear that it could not engage in that debate as part of the examination as it is beyond its remit²⁶².

16.26 Thamesbank also raised matters in relation to consultation in particular with regard to the environmental information and adequacy in the context of the United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters (the Aarhus Convention).

16.27 The provisions of the PA 2008 and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (ES

²⁵⁷ for example LB Hammersmith and Fulham (WRR073, section 4.8)

²⁵⁸ for example LB Southwark (WRR075, section 3.9)

²⁵⁹ for example Save Your Riverside (WRR085)

²⁶⁰ for example Arhag Housing Association (WRR035), Hammersmith and Fulham Local Impact Report (REPO90) and Mark and May Hale (WRR077)

²⁶¹ NPS section 1.4 The Appraisal of sustainability confirms that the NPS has been subject to Appraisal of Sustainability, incorporating the requirements for Strategic Environmental Assessment

²⁶² Preliminary Meeting (HEA001 and HEA002) and the ExA's procedural decisions set out in the Rule 8 letter (PD006)

Regulations) are to be treated as according with the Aarhus Convention²⁶³. Conformity with the process and requirements of this legislation must therefore be assumed to be adequate in the light of the Aarhus Convention. On balance, our view is that it is considered to be reasonable for us to conclude and recommend to the Secretaries of State that the Applicant has fulfilled the requirements of PA 2008 with regard to consultation (as set out in the acceptance decision (PD002)) and with regard to the ES Regulations and therefore accords with the Aarhus Convention.

- 16.28 Two matters however were raised by Thamesbank which appeared to relate to some degree to the adequacy of the environmental information in the ES itself. The first was a complaint about the absence of any reference to the loss of intertidal habitat and that the public had not been able to take part in the workings and considerations of the Habitats Compensation Working Group set up to address the matter. The second matter was a complaint that the ES did not address the 'carbon' contribution made by the project. The merits of these matters as far as they are relevant to the NPS tests are considered in the chapters in this report dealing with Biodiversity, Biological Environment and Ecology (chapter 6) and Flood Risk and Climate Change (chapter 9). We report on the adequacy of the ES in our conclusions below.

Conclusion on Environmental Statement and Environmental Impact Assessment

- 16.29 In reaching our conclusions and making our recommendations we have had regard to authorities such as *R (Blewett) v Derbyshire County Council 2004* and approved by the House of Lords *R (oao Edwards) v Environment Agency 2008*, also recently applied in *R (oao Evans) v Basingstoke and Deane 2013*, that cases where environmental statements are so deficient as not to be environmental statements will be 'few and far between'²⁶⁴.
- 16.30 The EIA Regulations²⁶⁵ are not to be treated as being based upon an unrealistic expectation that an applicant's ES will always contain the full information about the environmental impact of a project, but recognise that an ES may well be deficient, and make provision through the publicity and consultation processes for any deficiencies to be identified so that the resulting environmental

²⁶³ The United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters was adopted on 25 June 1998 in the Danish city of Aarhus at the Fourth Ministerial Conference as part of the 'Environment for Europe' process. It entered into force on 30 October 2001. On the 24 February 2005, the UK ratified the Convention

²⁶⁴ The (EIA) Regulations are not based on the premise that the environmental statement will necessarily contain the full information. The process is designed to identify any deficiencies in the environmental statement so that the local authority has the full picture, so far as it can be ascertained, when it comes to consider the 'environmental information' of which the statement will be but a part. (*Blewitt*)

²⁶⁵ Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263)

information provides the decision maker with as full a picture as possible.

- 16.31 We have also had regard to *Humber Sea Terminal Ltd v Secretary of State for Transport 2005*, in which Ouseley J found that despite the challenge in that case the ES did cover a description of the proposed remedial measures (covering both mitigation and compensation measures) and in any event the fact that the proposed remedial measures changed as the discussions reached a conclusion did not make the ES something other than an ES.
- 16.32 As we stated at the PM and confirmed in our procedural decisions set out in the ExA's Rule 8 letter, Annex B (PD006), we considered the representations and submissions from a number of Parties alleging that the environmental information within the submitted ES was inadequate. At that time we concluded that there was nothing in the Panel's view that would lead to the conclusion that the submitted documentation was so deficient as not to constitute an ES. It was a matter that was nevertheless kept under review throughout the examination and on receipt of detailed submissions.
- 16.33 We have identified in chapters 11, 12, and 13 that a number of impacts in our view are likely to be understated. However, this principally goes to our judgement on some of the conclusions in the light of the totality of the evidence before us and is not so substantial as to render the assessment itself inadequate.
- 16.34 The view we have ultimately formed, taking into account the original ES submitted by the Applicant, the additional environmental and other information submitted during the examination, the Applicant's explained flexibility in relation to design and the context of the NPS, is that there is sufficient environmental information about the environmental effects of the development and Associated Development for the Secretaries of State to take a decision in compliance with the Infrastructure Planning (Environmental Impact Assessment) Regulation 3(2)²⁶⁶.

²⁶⁶ Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263)

3. Prohibition on granting consent without consideration of environmental information

(1) This regulation applies to -

(a) every application for an order granting development consent for EIA development received by the Secretary of State; and

(b) every subsequent application for EIA development received by a relevant authority on after 1 March 2010

(2) Where this regulation applies, the Secretary of State or relevant authority (as the case may be) must not (in the case of the Secretary of State) make an order granting development consent or (in the case of the relevant authority) grant subsequent consent unless it has first taken the environmental information into consideration, and it must state in its decision that it has done so

HABITATS REGULATIONS ASSESSMENT

Introduction and Examination

- 16.35 The NPS advises (NPS, para 3.3.1) that prior to granting a Development Consent Order, the decision maker must, under the Habitats and Species Regulations²⁶⁷, consider whether the project may have a significant effect on a European site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects. In the event that such an effect is identified then an appropriate assessment of the implications for the site or sites in view of the sites' conservation objective must be made²⁶⁸. In such circumstances, as mentioned by the NPS, an Applicant must provide such information as may reasonably be required to enable the competent authority to conduct the appropriate assessment. This should include information on any mitigation measures that are proposed to minimise or avoid likely effects.
- 16.36 The annex to the NPS also sets out the position with regard to the interaction of the NPS as a plan with the Habitats Directive (NPS A1.3.13 to A1.3.15) and concludes that: *'Compliance with the draft NPS should, therefore, ensure that the Thames Tunnel project will not have a significant effect on any European or Ramsar sites and that there will be no adverse effects on the integrity of any such sites. However, it is necessary to undertake a project-level HRA in order to confirm this.'*²⁶⁹
- 16.37 The Habitats Regulations Assessment (HRA) is a matter for the competent authority, which in this case is, the Secretaries of State as decision makers.
- 16.38 The Applicant submitted a Habitats Regulations Assessment: No Significant Effects Report (NSER) (Doc 6.3) which sets out the HRA carried out by the Applicant, and as required by the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(g) (APFP Regulations) and Conservation of Habitats and Species Regulations 2010 (as amended) (Habitats Regulations).
- 16.39 The conclusion of the Applicant's NSER (as the title implies) was that, based on the assessment carried out of the effects of the proposed development on identified European sites, there would be no likely significant effects on any European sites, either alone or in combination with other projects and plans. From this the Applicant concluded that it can be determined that an appropriate assessment is not required.

²⁶⁷ The Conservation of Habitats and Species Regulations 2010 (SI 2010/490) (as amended) (Habitats Regulations)

²⁶⁸ Regulation 61(1) Habitats Regulations

²⁶⁹ NPS Annex, para A1.3.15

- 16.40 In addition, the NSER set out and appended the position of Natural England (NE) in a letter of comfort dated 7 January 2013 (Doc 6.3, appendix E), stating that it accepts these conclusions.
- 16.41 In our first written questions we sought clarification, particularly from relevant nature conservation Interested Parties on the Applicant's approach and conclusions on HRA (PD008, Q2.1).
- 16.42 In our second written questions (PD017, Q21.1) we sought clarification from Interested Parties, in the light of no substantive disagreement with the Applicant's NSER (Doc 6.3), as to whether a Report on the Implications for European Sites (RIES) should be published in this case.
- 16.43 In response to our second written questions (PD017, Q21.1):
- Thamesbank responded that: *'a report on the Implications for European Sites (RIES) is necessary.'* (REP245)
 - NE responded confirming that they did: *'not consider that a Report on the Implications for European Sites (RIES) is required for this project.'* (REP226)
 - EA responded by confirming that: *'The Environment Agency is satisfied with the 'No Significant Effects' report submitted by TWUL with regards to the Habitats Regulations. We have no further position on the topic of RIES.'* (REP234)
 - LB Wandsworth responded that: *'The publishing of a RIES is considered unnecessary.'* (REP238)
 - The Applicant also provided a response (APP48, 1 Question: 21.1) setting out their understanding of the process and the need for the ExA *'to provide the Secretary of State with a report that considers whether the project is likely to have a significant effect on a European Site or a European Marine site, ie, a screening report that considers whether the project would have a significant effect on a European Site or European Marine site.'*
- 16.44 The statutory nature conservation bodies and a number of local authorities did not request the publication of and consultation on a RIES for this project. However, we decided, in order to provide a full opportunity for all Interested Parties themselves to provide evidence in relation to the implications for European Sites and for us to be able to report fully to the Secretaries of State, we would prepare, publish and consult on a RIES for this project. This also allowed us to draw attention to a small number of detailed points of clarification.
- 16.45 We compiled a report (the RIES) from information within the application, within the Applicant's supporting documents and from information submitted to the examination by Interested Parties and others. This information was that received by the examination up to and including 17 January 2014.

- 16.46 The RIES (RIES01) provides a factual account of the information and evidence available for the purposes of undertaking HRA.
- 16.47 The RIES for the Thames Tideway Tunnel was published on 21 January 2014 in accordance with the examination timetable (PD006).
- 16.48 The publication of the RIES ensured that all Interested Parties including statutory nature conservation bodies - NE, the Marine Management Organisation (MMO), and the Environment Agency (EA), were consulted formally on habitats regulations matters. This process may be relied on by the relevant Secretaries of State for the purposes of Regulation 61(3) of the Habitats Regulations in the event that it was to be concluded that an appropriate assessment is required.

Implications for European Sites

- 16.49 The Applicant's NSER identifies that the project is not connected with or necessary to the management for nature conservation of any of the European sites considered within the assessment.
- 16.50 The Applicant's HRA report identified the following European sites for inclusion within the assessment:
- Benfleet and Southend Marshes Special Protection Area (SPA) and Ramsar site
 - Epping Forest Special Area of Conservation (SAC)
 - Lee Valley SPA and Ramsar site
 - Outer Thames Estuary SPA
 - Richmond Park SAC
 - South West London Waterbodies SPA and Ramsar site
 - Thames Estuary and Marshes SPA and Ramsar site
 - Wimbledon Common SAC
 - Wormley-Hoddesdonpark Woods SAC.
- 16.51 As set out above the letter from NE appended at appendix E of the Applicant's NSER (Doc 6.3) also set out that NE agrees with the Applicant as to the European sites identified above and the methodology applied.
- 16.52 Section 3.3 of the Applicant's NSER deals with the wider consultation process undertaken by the Applicant throughout their preparation of the HRA process.
- 16.53 In the Port of London Authority's (PLA) response to our first written questions (REP110) it stated that two additional sites should have been considered or discussed as part of the Applicant's HRA process. The sites identified were:
- Essex Estuaries SAC
 - Margate and Long Sands SAC.

- 16.54 It is noted that in the PLA's comments on responses to the ExA's first written questions (REP155) and SoCG between the PLA and the Applicant (APP85.18, APP159.05 and APP215.02. Also see REP363) the PLA confirms the following: '*... on the basis that Natural England and the Environment Agency are content, notwithstanding PLA's earlier response, PLA is prepared to defer to the views of those organisations.*'
- 16.55 NE responded to our first written questions (REP109) setting out its procedural approach to appropriate assessment under the Habitats Regulations. In conclusion NE confirmed that: '*This close dialogue and consultation has enabled Natural England to review the HRA on a regular basis and to sign off and agree the final HRA report, including its conclusion of no Likely Significant Effects on 7 January 2013, which has been previously submitted to the Inspectorate. This response also answers the First Written Q2.1 asked by the Examining Authority on 26 September 2013.*'
- 16.56 The EA responded to our first written questions (REP102) confirming: '*a) The EA has considered this document, and is satisfied with its findings. We have discussed this with Natural England (NE) and reached an agreed position that this is adequate.*'
- 16.57 The MMO responded to our first written questions (WRR051) confirming: '*2.2 The MMO consider that the Applicant's Habitats Regulations Assessment: No Significant Effects Report was adequate in scope and further the MMO is satisfied with the conclusions of this report.*'
- 16.58 The London Borough (LB) of Southwark confirmed in its submission (REP105) that: '*TW has submitted sufficient information in the Habitats Regulation Assessment: No Significant Effects Report to form the basis of any Appropriate Assessment of the proposals. This has been confirmed by a 'letter of comfort' from Natural England attached as Appendix E of the report.*'
- 16.59 Wandsworth Borough Council and Westminster City Council both confirmed their agreement that the Applicant's Habitats Regulations Assessment NSER provided sufficient information to form the basis of any necessary Appropriate Assessment of the proposals (REP106 and WRR058).

Mitigation measures

- 16.60 Potential impacts upon the identified European sites which are considered within the Applicant's NSER are set out at section 2.6 of the RIES (RIES01) and arise in relation to two main impacts, namely air quality effects from deposition of pollutants arising from traffic on roads adjacent to European sites and potential indirect impacts and effects due to water quality and sediment disturbance upstream of the Thames Estuary & Marshes SPA and

Ramsar site, Benfleet & Southend Marshes SPA and Ramsar site and Outer Thames Estuary SPA site during both construction and operation.

- 16.61 The substance of these matters and mitigation measures are set out in chapter 5 (Air Quality and Emissions), chapter 14 (Traffic, Travel and Transportation) and chapter 15 (Water Quality and Resources) of this report.

Conclusions on Habitats Regulations Assessment

- 16.62 In accordance with NPS Annex, paragraph A1.3.15 the Applicant has undertaken a project level assessment in relation to HRA. It has provided a NSER and other supporting environmental information in response to questions raised by the ExA, and in response to consultation on the published RIES, addressing the necessary information required before a decision is to be made in accordance with NPS, paragraph 3.3.1.
- 16.63 We advise that the Secretaries of State as joint competent authority should have full regard to the contents of the Applicant's NSER (Doc 6.3), the Environmental Statement (ES) as defined at the close of the examination and in the Applicant's draft Development Consent Order (DCO) (APP204.02), SoCGs between the Applicant and NE (APP85.21), MMO (APP159.06 and APP159.06. Also see REP366), EA (APP215.03) and PLA (APP159.05 and APP215.02. Also see REP363), and the Applicant's Route Map to Mitigation (APP203.01), alongside the RIES and the representations of the Interested Parties in relation to the implications of the proposed application project for European Sites.
- 16.64 We have considered all of the application documentation, submissions and representations put before us during the examination of the proposed application relating to the NSER, provided by the Applicant, and HRA from the statutory nature conservation bodies and all other Interested Parties.
- 16.65 We have carefully considered the identification of two additional sites namely, Essex Estuaries SAC and Margate and Long Sands SAC, by the PLA and their final conclusion that '*... on the basis that Natural England and the Environment Agency are content, notwithstanding PLA's earlier response, PLA is prepared to defer to the views of those organisations*'. We have relied upon this final submission and the SoCG between the Applicant and PLA (APP159.05 and APP215.02. Also see REP363) and multi Party SoCG (APP116.32) in not seeking to consider any additional sites outside those identified in the Applicant's HRA report and in our conclusions.
- 16.66 The statutory nature conservation bodies have had a full opportunity to consider further the identification of these additional sites. Work has continued with the Applicant on the

detail of the project, design and mitigation and the EA has confirmed confidence in this continuing approach and outcome of the HRA resulting in no significant effects.

- 16.67 We responded to Thamesbank's submissions (REP245) by preparing and publishing for consultation the RIES (RIES01) which deals specifically with direct and in-combination considerations. We have also carefully considered the submissions of Thamesbank in relation to '*disputed scale, impact and nature of the problem*' and '*the combination of the TTT with other projects that impact upon the SACs and SPAs*', but we do not believe that in the context of the NPS²⁷⁰ that a different project than that applied for can be assessed for HRA purposes. Moreover, the breadth of alternatives cannot reasonably be cast so wide as to include any and every possible alternative strategy, especially when the conclusion of the Applicant and the statutory nature conservation bodies is one of no significant effects. No detailed response was provided by Thamesbank in response to the publication and consultation on the RIES.
- 16.68 The Applicant has reached agreement with the statutory nature conservation bodies and has maintained a working relationship with these bodies in relation to the development of the proposed application project. There is agreement with those bodies that the assessment, approach (including in-combination effects) and controls would be sufficient to secure protection of the integrity of the designated European sites. We have no evidence before us that would contradict this position.
- 16.69 Whilst HRA and the decision as to whether an appropriate assessment is required is a matter for the Secretaries of State as decision makers and the competent authority, based on the above it is the Panel's view that the Applicant has complied with the Habitats Regulations and the advice reflected in the NPS in carrying out the requisite assessment on European sites.

COMMON LAW NUISANCE AND STATUTORY NUISANCE

- 16.70 The NPS at section 3.11 sets out the statutory authority conferred by PA 2008 and the inevitable consequence of what has been authorised.
- 16.71 NPS paragraph 3.11.2 states that: '*It is very important that, at the application stage of an NSIP, possible sources of nuisance under section 79(1) of the 1990 Act²⁷¹ and how they may be mitigated or limited are set out by the applicant and considered by the examining authority so that appropriate requirements can be included in any subsequent order granting development consent.*'

²⁷⁰ The NPS was itself the subject of HRA of the potential effects of a plan or project on nature conservation sites that are designated to be of European importance (NPS, para 1.1.3)

²⁷¹ Environmental Protection Act 1990

- 16.72 The Panel have considered, during the examination, possible sources of nuisance and how they may be mitigated and these matters are reported on particularly in chapters 5 and 12.
- 16.73 The Applicant's Statement in Respect of Statutory Nuisance (Doc 5.2) identifies that the following matters under section 79(1) of the Environmental Protection Act 1990 are potentially engaged by the project:
- (a) *'dust impacts which could engage paragraph (d) of section 79(1)*
 - (b) *fumes and gas impacts which could engage paragraph (c) of section 79(1)*
 - (c) *odour impacts which could engage paragraph (d) of section 79(1)*
 - (d) *accumulations or deposits from the project which could engage paragraph (e) of section 79(1)*
 - (e) *impacts from artificial light which could engage paragraph (fb) of section 79(1)*
 - (f) *noise impacts which could which engage paragraphs (g) and (ga) of section 79(1)*
 - (g) *the state of the water bodies which could engage section 259(1)(a) of the Public Health Act 1936.'*²⁷²
- 16.74 The Applicant states further that: *'For all of the above matters except noise impacts, this Statement concludes that with the embedded and mitigation measures set out in the Environmental Statement and the Design Principles and the Code of Construction Practice (CoCP) Part A and Part B, the project would not give rise to a nuisance or be prejudicial to health.'* and
- 'In respect of noise impacts, the Environmental Statement reports that construction activities at certain work sites are likely to have a significant adverse effect on a number of identified receptors. This Statement concludes that with implementation of the mitigation proposed in the CoCP, and provided that where applicable the additional measures proposed in the Noise insulation and temporary re-housing policy are accepted by the affected receptors, noise emissions from construction activities are not predicted to cause a nuisance or be prejudicial to health.'*
- 16.75 We consider the details and test this position in chapter 12 in relation to noise and disturbance including vibration. We also consider health and well-being in chapter 13.
- 16.76 As set out in chapters 12 and 13 we consider that there is some understatement and uncertainty in relation to the impacts on health and well-being and in relation to minimisation and mitigation of noise impacts.

²⁷² s259 relates to statutory nuisances in connection with watercourses, ditches, ponds etc. under Part III of the Environmental Protection Act 1990

- 16.77 Consideration in relation to Environmental Impact Assessment is set out earlier in this chapter and the detailed considerations in relation to types of impact set out in the relevant chapters of this report such as chapter 12.
- 16.78 During the examination a number of relevant local authorities raised concerns in relation to Article 7 in the DCO, (for example the City of London Corporation (City of London) (WRR066, REP177 and REP214) and the London Borough of (LB) Southwark (WRR075, REP105 and REP197)).
- 16.79 Article 7 of the DCO was subject to amendment during the examination and was constrained to the period up to completion of construction and to the authorised project and associated activities. As a result of these changes we are satisfied that the drafting now proposed has broad agreement, is proportionate and addresses the main practical concerns raised.
- 16.80 In considering whether to disapply the defence of statutory authority as sought by the Applicant under Article 7 of the DCO (APP204.02) we have had regard to whether any particular nuisance is an inevitable consequence of the proposed development²⁷³ and whether the understatement and uncertainty set out in chapters 12 and 13 would outweigh the identified need for the project.

HAZARDOUS SUBSTANCES AND SAFETY

- 16.81 The NPS at section 3.9 sets out the matters to be taken into account with regard to hazardous substances consent and considerations, particularly with regard to the Health and Safety Executive (HSE). The NPS at section 3.8 sets out the matters to be taken into account with regard to safety.
- 16.82 No representations were received from the HSE. The consideration of other consents is set out in chapter 1 of this report. Safety matters in relation to design are set out in chapter 8.

POLLUTION CONTROL AND OTHER ENVIRONMENTAL REGULATORY REGIMES

- 16.83 The NPS at section 3.7 sets out the matters to be taken into account with regard to pollution control and other environmental consenting regime.
- 16.84 At paragraph 3.7.1 the NPS identifies that: *'issues relating to discharges or emission from a proposed project which affect air quality, water quality, land quality, and the marine environment, or which include noise and vibration, may be subject to separate*

²⁷³ In consideration of NPS, para 3.11.3

regulation under the pollution control framework or other consenting and licensing regimes.'

- 16.85 This section of the NPS concludes at paragraph 3.7.9 stating that: *'the decision maker should not refuse consent on the basis of regulated impacts unless it has good reason to believe that any relevant necessary operational pollution control permits or licences or other consent will not subsequently be granted.'*
- 16.86 The Applicant engaged with relevant regulators including the MMO, EA and NE and has agreed a SoCG with each of these organisations (APP159.06, APP215.03, APP159.09 and APP85.21. See also REP366). The Applicant has also concluded and entered into a four way legal agreement (APP183) with the MMO, PLA and EA²⁷⁴.
- 16.87 With regard to relevant marine areas our consideration of the matters, as advised in NPS paragraph 3.7.5, is set out in chapter 3 under the heading Marine and Coastal Access Act 2009 and in relation the deemed marine licence (DML) in chapter 20.

SECURITY CONSIDERATIONS

Introduction

- 16.88 This section of the report considers general matters raised by Interested Parties in relation to security as well as national security considerations.
- 16.89 National security considerations apply across all national infrastructure sectors. Overall responsibility for security of waste water infrastructure lies with the Department for Environment, Food and Rural Affairs (Defra). Defra has lead responsibility for security of the waste water sector. It works closely with Government Agencies including the Centre for the Protection of National Infrastructure (CPNI) to reduce the vulnerability of the most critical infrastructure assets in the sector to terrorism and other national security threats²⁷⁵.
- 16.90 Government policy is to ensure that, where possible, proportionate protective security measures are designed into new infrastructure projects at an early stage in the project development²⁷⁶.
- 16.91 We are advised in paragraph 3.12.3 of the NPS that Defra should be notified by the developer at the pre-application stage about likely future applications for Nationally Significant Infrastructure Projects (NSIPs), so that any national security implications can be identified.

²⁷⁴ This accords with the advice in NPS paragraph 3.7.7

²⁷⁵ NPS paragraph 3.12.1

²⁷⁶ NPS paragraph 3.12.2

- 16.92 We are also advised in paragraph 3.12.4 that the applicant should only include sufficient information in the application as is necessary to enable the Examining authority (ExA) to examine the development consent issues and for the decision maker to make a properly informed decision on the application.
- 16.93 In exceptional cases, where examination of an application would involve public disclosure of information about defence or national security which would not be in the national interest, the relevant Secretary of State may issue a direction that representations be made only to persons of a description so specified (instead of being made in public)²⁷⁷.
- 16.94 The Applicant's Consultation Report (Doc 5.1, sections 1 to 10) indicates that the application was prepared and consulted on in close liaison with and scrutiny by Defra.
- 16.95 The Applicant identifies at section 7.3 of the Planning Statement Main Report (Doc 7.01) national security considerations set out in the NPS.
- 16.96 The Applicant sought to address security matters through its approach to the design principles and site selection as set out in a number of application documents (Doc 7.17, Design Principles²⁷⁸, Doc 5.1, Consultation Report Section 23 Albert Embankment Foreshore, Doc 7.01, appendix N Planning Assessment Albert Embankment, Doc 7.05, Final Report on Site Selection Process volume 15 Albert Embankment Foreshore). No express reference is made to CPNI.

Issues, questions and responses raised during the examination

Local Issues

- 16.97 A small number of Interested Parties identified security considerations in their relevant representations, for example the submissions made by John Harris, Giovanni Fiorentino and SaveKEMP (RRP052, RRP289, RRP1090).
- 16.98 A number of general points and concerns were raised in written submissions about security matters in terms of meeting London Plan policy and site-specific matters. These are illustrated by the submissions made by SaveKEMP, Free Trade Wharf Management Company, the London Borough of Lewisham (LB Lewisham) and Transport for London (TfL) (WRR084, WRR040, WRR074, and WRR092).

²⁷⁷ s95A PA 2008

²⁷⁸ The Design Principles were revised by the Applicant a number of times throughout the examination and are found in full at Doc 9.23, APP76, APP106, APP126, APP179 and APP206

- 16.99 A range of development plan policies, including the London Plan, relating to safety, security and resilience to emergency were referred to in Local Impact Reports (LIRs), for example by LB Lewisham (REP093) and LB Ealing (REP085).
- 16.100 Specific security matters relating to works sites were raised in a number of LIRs including for example: City of London Corporation (REP088) in relation to pipe subway access points and bridge structures; City of Westminster (REP089) in relation to operational pier security and LB Newham (REP087) in relation to limitations to public access due to security requirements.
- 16.101 We sought to raise details particularly in relation to City of London pipe subway access and bridge structures, at Compulsory Acquisition (CA) hearings (10 December 2014 (HEA068 to HEA071)) and at each of the IS DCO and related matters hearings.
- 16.102 Throughout the examination we urged the Applicant and all other Interested Parties to enter into constructive dialogue on matters raised and outstanding representations. We also asked the Applicant to consider and respond to detailed requests for information that would assist Interested Parties in making informed representations.
- 16.103 This is illustrated by the example of the kiosk at King Edward Memorial Park Foreshore. At the CA hearing (HEA080 and HEA081) we asked the Applicant about the options for placing the operational kiosk at King Edward Memorial Park Foreshore below ground. The Applicant responded by explaining some of the physical difficulties of resilience, flooding and maintenance requirements with this approach, but agreed to consider and look at the matters raised again with regard to security, design and proximity to the residential property at Free Trade Wharf.
- 16.104 Although at the end of the examination the kiosk and some other detailed site matters raised were not proposed to be placed underground or dealt with in the way requested by an Interested Party (as set out above) we are satisfied that such matters have been considered by the Applicant and that the design principles²⁷⁹ and CoCP will result in careful consideration of the detailed design which will require a range of factors to be balanced and taken into account in the final design, and that this is a reasonable and balanced approach.

National Issues

- 16.105 No examination representations were received from the Metropolitan Police, CPNI or Defra in relation to security matters.

²⁷⁹ for example, design principle KEMPF.01 states: *'the electrical and control kiosk shall be located no closer than 0.8m from the eastern boundary wall, to avoid interrupting views from the park to the river, and be designed so as not to provide a means of scaling the boundary wall into the adjacent residential development.'*

- 16.106 London Duck Tours Limited identified security matters at the Albert Embankment Foreshore works site including the relationship with the occupiers of 85 Albert Embankment and the need for these matters to be addressed and resolved. These were contained in written submissions (WRR098 and REP450) and in oral submissions at the CA hearings (17 January 2014 HEA092 - HEA095, 27 and 28 January 2014 HEA116 - HEA122). Matters were also raised in relation to design and access by LB Lambeth (REP092, REP227 and REP422), Historic Buildings and Monuments Commission for England (HBMCE) (RRP1041, WRR009, REP118, REP178, REP217, REP233, REP340 and REP423) and the Port of London Authority (PLA) (REP155 and REP242).
- 16.107 Specific security matters relating to the works site at Albert Embankment Foreshore were raised by LB Lambeth in its LIR (REP092).
- 16.108 We sought clarification on the access options at Albert Embankment Foreshore in our first written questions (PD008, Q4.81 to Q4.84) and asked a number of design related questions across the matters raised in representations (PD008).
- 16.109 We sought clarification from LB Lambeth in relation to its concerns regarding impacts arising from proposed access option B²⁸⁰ at Albert Embankment Foreshore in our second written questions (PD017, Q34.20).
- 16.110 We sought to raise details particularly in relation to, London Duck Tours Limited and PLA at CA hearings 10 December 2013 (HEA068 - HEA071), 17 January 2014 (HEA092 - HEA095) and 27 and 28 January 2014 (HEA116 - HEA122).
- 16.111 Throughout the examination we urged the Applicant and all other Interested Parties to enter into constructive dialogue on matters raised and outstanding representations. We also asked the Applicant to consider and respond to detailed requests for information that would assist Interested Parties in making informed representations. This is illustrated in the CA hearing 27 and 28 January 2014 (HEA116 - HEA122) in relation to the London Duck Tours Limited, as set out more fully in chapter 19 below.
- 16.112 On the 25 November 2013 there was a request made by the occupiers of 85 Albert Embankment to the Secretaries of State to make a direction under section 95A(2) PA 2008 for a 'closed' direction hearing on grounds of national defence and security. Following this request a direction was made on 16 January 2014.

²⁸⁰ The application was made with two access options at Albert Embankment Foreshore known as option A and option B. Option A used Lacks Dock only and option B uses two access points, taking main access between Camelford House and Tintagel House and occasional access for certain activities through Lacks Dock

- 16.113 On 20 January 2014, under delegation from the Secretaries of State, the ExA members were appointed as the s95A PA 2008 examiners able to preside at a direction hearing and to make a report to the Secretaries of State setting out the examiners' findings and conclusions in respect of the 'closed' evidence; and a recommendation, if any, as to the decision to be made on the application.
- 16.114 The 'closed' direction hearing took place on 3 February 2014. In accordance with the appointment Jan Bessell, Emrys Parry and David Prentis presided at the direction hearing and were supported by one of the s101 PA 2008 appointed legal advisors Celina Colquhoun. The Applicant, occupiers of 85 Albert Embankment, LB Lambeth, HBMCE, PLA, and London Duck Tours Limited were all represented at the hearing.
- 16.115 Following the 'closed' direction hearing, the occupiers of 85 Albert Embankment provided 'open' unclassified written submissions (REP299, REP300 and REP372) in respect of the DCO and entered into a Statement of Common Ground (SoCG) with the Applicant (APP144). This set out the history of consultation and changes to access options and the need for security measures in design, access and management of the construction works and operation of the proposed site at Albert Embankment Foreshore.
- 16.116 Following the submission of this information, and the Applicant's confirmation that access option B would be used for the Albert Embankment Foreshore works site, we sought further comments particularly from the LB Lambeth, TfL and London Duck Tours Limited (PD031, R61.1) and in relation to public access to the interception structure from HBMCE and LB Lambeth (PD031, R55.2).

Conclusion on all security considerations

- 16.117 Security matters were identified in relation to the application proposal. This was clear at the consultation stage and during the examination from representations made by a range of Interested Parties in relation to general policy approach and site-specific and asset protection matters.
- 16.118 The Applicant set out the consultation undertaken with relevant security experts and Defra at the pre-application stage. There was no formal written confirmation from CPNI and Defra as to whether security issues had been adequately addressed when the application was submitted, or by the close of examination. The Secretary of State for Environment, Food and Rural Affairs may consider it appropriate and be able to provide this confirmation at the decision stage. The absence of such confirmation has not impeded our ability to consider security matters raised within the examination or to conclude on the representations made.

16.119 At the close of the examination there was widespread, but not universal common ground (LB Southwark SoCG (APP159.02), City of Westminster SoCG (APP116.09), London Legacy Development Corporation SoCG (APP116.21), LB Newham SoCG (APP116.11) and LB Tower Hamlets SoCG (APP116.15)) that safety, security and resilience to emergency is adequately addressed. In addition, it was largely accepted that project-wide and detailed security management as well as design issues were agreed and satisfactorily dealt with through incorporation of measures in the following:

- Design Principles (APP206.01)
- CoCP Part A (APP205.01) at project-wide and CoCP Part B (APP178.03 to APP178.50) at site level
- Construction Environmental Management Plan (CEMP) and emergency preparedness plan
- The health, security, safety and the environment (HSSE) standards.

16.120 The City of London reached agreement (apart from one clause) (REP481, COL25) on the drafting concerning protective provisions for the benefit of the City of London in part 7 schedule 16 of the DCO. The final drafting was provided by cover letter of 11 March 2014 from the Applicant (APP216, schedule 16, part 7) and should be read in substitution for the final DCO for schedule 16, part 7). Matters relating to access to and maintenance of pipe subways were also settled.

16.121 At Albert Embankment Foreshore, Requirements ALBEF21 and ALBEF22, relating to protection for the occupiers of 85 Albert Embankment during the proposed construction and operational phases of the proposed development (APP204.02, Requirement ALBEF21 and ALBEF22) deal directly with matters relating to security. These matters were confirmed or broadly agreed with the relevant Interested Parties (confirmation SoCG and letter from the occupiers of 85 Albert Embankment (REP299, REP300, REP372 and APP144), London Duck Tours Limited SoCG (APP116.30 and REP 252), LB Lambeth final written response and SoCG (APP116.07 and REP422). Matters relating to compulsory acquisition in relation to London Duck Tours Limited are dealt with in chapter 19 of this report.

16.122 Therefore by the close of the examination the Applicant, the occupiers of 85 Albert Embankment and other Interested Parties were able to provide adequate 'open' information to allow security matters to be adequately considered by us and for the decision maker to be able to make a properly informed decision in relation to these matters. As a consequence it has not been necessary to provide a 'closed' report to the Secretaries of State setting out the examiners' findings and conclusions in respect of the 'closed' evidence.

16.123 With the submitted documentation on requirements, protective provisions, Design Principles and CoCP offered by the Applicant and the agreement of the occupiers of 85 Albert Embankment, and the broad agreement of the City of London, PLA, HBMCE, London Duck Tours Limited and LB Lambeth on security related matters, it is our view that the Secretaries of State can have confidence that there is an effective system proposed for delivery of an appropriate level of security through design, management and control during the construction and operation of the proposed development.

WASTE MANAGEMENT

Introduction

16.124 The issue of any waste materials and arisings that might occur during the construction and operational phases of the proposed development and the need for waste management is separate from the proposed development's function and delivery in terms of waste water conveyance, which is dealt with at chapter 15 of this report.

16.125 The UK is required to deliver the objectives of the revised Waste Framework Directive 2008/98/EC, which are to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use.

16.126 The Government has a series of waste management policies which taken together seek to deliver the above objectives. In particular, the application of these policies seeks to ensure implementation of the waste hierarchy and its five steps namely:

- Prevention of waste arising
- Preparation for re-use
- Recycling
- Other recovery, including energy recovery; and finally
- Disposal (of which landfill is considered to be the last option).

16.127 This approach and hierarchy is also reflected and implemented in respect of waste water national infrastructure projects through the application of the NPS which states that Government policy on hazardous and non-hazardous waste is intended to protect human health and the environment by producing less waste and by using it as a resource wherever possible. Where this is not possible, waste management regulation ensures that waste is disposed of in a way that is least damaging to the environment and to human health²⁸¹.

²⁸¹ NPS paragraph 4.14.1

- 16.128 The NPS then refers to the waste hierarchy as the means by which sustainable waste management is implemented and we are advised at paragraph 4.14.5 of the NPS that the Applicant should set out the arrangements that it proposes for managing any waste produced by the proposed development and prepare a Site Waste Management Plan²⁸².
- 16.129 The NPS provides that the arrangements described and the Site Waste Management Plan should include information on the proposed waste recovery and disposal system for all waste generated by the proposed development, and an assessment of the impact of the waste arising from the development (NPS, para 4.14.5).
- 16.130 In reaching a decision the NPS provides that the Secretaries of State should consider the extent to which the Applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development. Thereafter the NPS sets out those matters that the Secretaries of State should be satisfied that the Applicant has adequately dealt with (NPS, para 4.14.6).
- 16.131 The Applicant sought to address the assessment requirements in the NPS (NPS, para 4.14.5) by submitting an Excavated Material Strategy (Doc 6.2.03, vol 3, appendix A3) which is supported by the Excavated Materials Options Assessment (Doc 6.2.03, vol 3, appendix A4). Before the close of the examination the Applicant submitted an overall Excavated Materials and Waste Commitments document (APP142) to bring together these matters. It is clear from this information that the proposed development will give rise to waste materials and the need for waste management, both during the construction phase and to a limited extent during operation.
- 16.132 In its Planning Statement (Doc 7.01, Planning Statement Main Report, para 2.5.5f) the Applicant suggests that a project-wide requirement would secure compliance with the principles specified in the Excavated Materials and Waste Strategy. The Applicant continues by setting out the detailed permits that the contractor(s) would be required to obtain in connection with construction of the project.
- 16.133 Although waste arising from decommissioning of the proposed development is not dealt with there are matters relating to decommissioning of existing infrastructure during construction, such as at Acton Storm Tanks (APP204.02, Acton Storm Tanks Work No 2b). This is identified and dealt with fully within the terms of the waste strategy, a condition under the draft Deemed Marine

²⁸² We note that site waste management plans are now voluntary, as the site waste management plan regulations were revoked in December 2013 after the application was made

Licence (DML) (APP204.02, DML part 2 condition 7(j)) and protective provisions applying to the river environment. We consider that is a satisfactory approach.

16.134 We consider that the application and examination submissions identified above set out the matters in relation to waste management in general accordance with the requirements of the NPS (NPS, para 4.14.5).

Issues, questions and responses raised during the examination

16.135 The Mayor of London in his relevant representation (RRP708) set out a number of areas of concern, including matters relating to the disposal of tunnel and shaft excavation material.

16.136 A range of development plan policies relating to waste and the waste hierarchy including those in the London Plan were referred to in several LIRs. The Mayor of London's LIR (REP099) confirms that the approach of the Applicant is consistent with London Plan Policy 5.18 and focuses on waste minimisation and exploiting beneficial uses of waste material.

16.137 We sought information that would assist in considering the extent to which the Applicant had proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development. We also considered the potential relationship with the Habitats Regulations Assessment and the need to ensure that at-sea disposal was precluded from the project. This was undertaken through consideration of the submissions by Interested Parties and others and through our first written questions and written request for information (PD008, Q17.1 and PD031, R62.1 and R62.2). It was also addressed through oral questioning at the IS hearing held on 6 and 7 February 2014.

16.138 The assessment undertaken by the Applicant shows that there are appropriate facilities available to potentially deal with the waste arising, but due to the timescales of the delivery of the proposed project, there needs to be flexibility to allow particularly for re-use opportunities to be identified at the time of the proposed commencement of construction. This is to be within an appropriate defined framework. We accept this is necessary.

16.139 At the outset the EA made it clear that it could not take on responsibility for the approval of any alterations to the waste commitments (REP304). By the close of the examination the Mayor of London had agreed to be the approval body for any such alterations (REP313). In addition, to address any potential environmental concerns, it was agreed that NE would be consulted on any proposed change and the scheme would be set within the terms of the DCO defined Environmental Statement and Habitats

Regulations Assessment. We consider this approach to be practical and acceptable for a project that extends across many administrative areas in London.

- 16.140 A number of individual local authorities who are also waste authorities requested direct responsibility and control in the waste planning process rather than just consultative engagement as proposed. The Applicant did not concede this point. The Applicant considered that sufficient control and delivery of the waste commitments is provided by Requirement PW12 and the CoCP Part A, at the project-wide level (APP205.01, section 10) and that the CEMP (APP205.01, section 2.3 and appendix B) within the terms of the CoCP Part A, secured through project-wide Requirement PW6 (APP204.02). We consider that these requirements provide adequate control and engagement with all relevant bodies.
- 16.141 At the close of the examination there was widespread, but not universal common ground²⁸³ that waste management is not an issue and that project-wide and site-specific waste management issues would be satisfactorily dealt with through the amended drafting in PW12 (APP204.02). We confirm on balance that we consider that these matters are dealt with adequately through the amended drafting on Requirement PW12.

Excavated material and waste commitments

- 16.142 During the course of the examination, the excavated material and waste commitments made by the Applicant were revised and updated.
- 16.143 In response to the ExA's request for information (PD031, R62.2) the Applicant confirmed that no waste disposal at sea would be undertaken under the terms of the DCO, tying any alterations to being within the terms of the Habitats Regulations Assessment and Environmental Statement.
- 16.144 In response to requests for control and certainty in respect of delivery and any change mechanisms by Interested Parties and the ExA, the Applicant provided revised drafting of the project-wide requirement relating to excavated material and waste (APP204.02, PW12).
- 16.145 The final Excavated Material and Waste Commitments document (APP142) sets out in one place the proposed measures that would be undertaken to deliver the management of excavated material and waste arising from the construction, operation and maintenance of the proposed project. It provides for, amongst other matters:

²⁸³ APP215.03, REP358, APP116.02, APP116.04, APP116.05, APP116.07 to APP116.13, APP116.15, APP116.19, APP116.21 and APP159.09

- the project objectives and associated targets in respect of excavated material and waste management
- details on the project-wide waste management plan and site level waste management plans
- the Excavated Materials Options Assessment methodology to be used by contractors (including a commitment to no disposal of excavated material at sea) and for the identification and assessment of additional receptor sites
- the monitoring processes that would be put in place and roles and responsibilities
- the commitments for managing any operational waste.

Conclusion on waste management

- 16.146 Excavated materials and waste generated by the proposed project would be managed using a project-wide waste management plan and individual site waste management plans and there is adequate evidence of a mechanism, secured through the DCO, to ensure that waste will be properly managed both on-site and off-site.
- 16.147 The assessment undertaken by the Applicant shows that there are appropriate facilities available to potentially deal with the waste arising, but due to the timescales of the delivery of the proposed project, there needs to be flexibility to allow particularly for re-use opportunities to be identified at the time of the proposed commencement of construction. This is to be within an appropriate defined framework.
- 16.148 The approach to minimising waste arising, including the application of the waste hierarchy, is contained within supporting documentation that is secured by a requirement in the proposed DCO.
- 16.149 The revision or amendment of the Excavated Material and Waste Commitments document (APP142) is provided for through a requirement approval mechanism, such that the Mayor of London may address the full geographic extent of the proposed project across 14 London local authority administrative areas.
- 16.150 With the submitted documentation, requirements and CoCP offered by the Applicant, and the agreement of the Mayor of London to act across the project-wide area in relation to waste commitment changes, it is the ExA's view that the Secretaries of State can have confidence that there is an effective system proposed for managing hazardous and non-hazardous waste arising from the construction and operation of the proposed development. We consider that the approach, objectives and steps to be taken as set out will seek to minimise waste arising and require waste to be dealt with and secured in accordance with the principles of the waste hierarchy.

17 RATIONALE FOR THE SELECTION OF WORK SITES AND DRIVE STRATEGIES

INTRODUCTION

- 17.1 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) specifically requires the decision maker to consider the impact of noise and vibration on health and quality of life and to consider the location of the tunnel shafts and construction compounds. At the first Issue Specific (IS) hearing²⁸⁴ we drew the Applicant's attention to the third sentence of NPS paragraph 2.6.34, which reads *'It would be for Thames Water to justify in its application the specific design and route of the project that it is proposing, including any other options it has considered and ruled out.'* The Applicant noted this in its written submission after the hearing and also noted that *'Clearly, the specific design and route of the scheme will also have to be justified against the various criteria in Chapter 4 of the NPS'* (APP32.02).
- 17.2 The Applicant's design and route selection process was challenged by Interested Parties in relation to the effects on specific sites, and therefore the examination focused on these. During the examination we considered the tunnel route and the design of all of the work sites, but we report on the challenged sites in particular. Our consideration of alternatives outside the application is solely within the context of testing whether the specific design and route and therefore the location and use of the selected work sites was justified by the Applicant, and if not, whether in the light of possible alternatives the application overall might fail the s104(7) test.
- 17.3 A number of the surface work sites would be located within densely populated residential areas. As stated in chapter 1, there were over 1,200 relevant representations, many of which referred to potential impacts on homes and businesses. Some of the relevant representations also questioned why particular sites had been selected over the alternatives and challenged the selection process itself. Four sites dominated the issues and questions raised: Carnwath Road Riverside, Chambers Wharf, Deptford Church Street and King Edward Memorial Park Foreshore.
- 17.4 Three of these sites have issues with regard to noise and whether the significant impacts predicted could be avoided. Noise is considered in chapter 12, but the issue of whether significant impacts from noise could be avoided²⁸⁵ by a different site selection or by changing the proposed nature of the works that a site would

²⁸⁴ IS hearing: 11 to 15 November 2013

²⁸⁵ NPS para 4.9.9

be used for is discussed in this chapter under the site-specific headings.

17.5 The concerns regarding noise and the queries raised regarding the selection of sites were echoed in the Local Impact Reports (LIRs). LIRs which included objections to site selection and the site selection process were received from:

- London Borough of (LB) Hammersmith and Fulham with regard to Carnwath Road Riverside
- LB Southwark with regard to Chambers Wharf
- LB Lewisham with regard to Deptford Church Street
- LB Tower Hamlets with regard to King Edward Memorial Park Foreshore.

17.6 In their LIRs some of the local authorities noted that, during the selection and consultation process, they had asked for more details of the options which the Applicant had considered. However, they stated that they had not been able to obtain satisfactory answers as to why some sites had been dismissed and therefore why the sites that are the subject of the application had been selected.

17.7 Each of the four sites above also had a representative community group that engaged actively both in writing and in making oral representations in the IS hearings:

- Carnwath Road Coalition for Carnwath Road Riverside
- Save your Riverside (SYR) for Chambers Wharf
- Don't Dump on Deptford Heart for Deptford Church Street
- SaveKEMP for King Edward Memorial Park Foreshore.

17.8 We also received representations concerning options for Putney Embankment Foreshore and Barn Elms.

17.9 The examination of these matters was undertaken in accordance with the approach required under s104 PA 2008 and NPS paragraphs 4.9.9 and A1.3.9.

Issue specific hearings

17.10 The application and documentation submitted during the examination contains a considerable amount of information on the rationale for site selection. As with the subject of noise and disturbance, the Applicant also relies on using professional judgement as the justification or basis for some of its assessments. The Applicant's reporting of this made it difficult to understand fully how conclusions have been arrived at on a consistent basis.

- 17.11 We held an IS hearing on the rationale for the selection of work sites and tunnel drive strategy matters in November 2013²⁸⁶, which lasted five days. At this hearing we considered the six sites mentioned above, two further sites (Shad Thames Pumping Station and Bekesbourne Street) for which there was no site selection report in the application, and on the last day any other alternatives on which Interested Parties wished to put their case. After this first hearing, LB Hammersmith and Fulham requested that the Council be allowed to question the Applicant on the alternative of tunnelling direct from Kirtling Street to Acton, thereby bypassing Carnwath Road Riverside altogether (REP164). This request was granted and questioning permitted during a further IS hearing in January 2014²⁸⁷.
- 17.12 The matters raised in these hearings informed the examination and allowed Interested Parties to raise issues in relation to their case.

Structure of the rationale chapter

- 17.13 This chapter of the report starts by outlining the guidance from the NPS to the Applicant and the decision makers.
- 17.14 We then outline the methodology used for the selection of the work sites and consider whether the methodology was applied consistently across all sites.
- 17.15 This chapter then considers each of the four sites (Carnwath Road Riverside, Chambers Wharf, Deptford Church Street, and King Edward Memorial Park Foreshore) in turn. For each site we consider:
- the proposal before us, the issues that arose during the examination, the mitigation proposed in the draft Development Consent Order (DCO) (APP204.02) and the assessment of residual impacts particularly with regard to air quality, noise, socio-economic and the in-combination impacts on health and well-being
 - the alternatives
 - whether we consider that the Applicant has justified its selection of the site.
- 17.16 A further section considers other matters that were raised with regard to the rationale for site selection including concerns regarding the proposals for Putney Embankment Foreshore, Barn Elms CSO site, Shad Thames Pumping Station and Bekesbourne Street.

²⁸⁶ Issue Specific hearing - Rationale for the selection of work sites and tunnel drive strategy matters 11-15 November 2013

²⁸⁷ IS hearing: 22-23 January 2014

17.17 Finally we then set out our conclusions.

Data submitted

17.18 Documents and other material, submitted by the Applicant, of particular relevance to site selection, includes:

- Final Report on Site Selection Process (Doc 7.05, volumes 1 to 23)
- Engineering Design Statement (Doc 7.18)
- Engineering Options Report, Abbey Mills Route (with appendices in a separate folder) (Doc 9.10.01)
- Site Suitability Reports for Abbey Mills, Barn Elms (two sites), Borthwick Wharf, Carnwath Road, Chambers Wharf, Deptford Church Street, Carnwath Road Riverside, Heckford Street, King Edward Memorial Park (KEMP) and King Edward Memorial Park Foreshore submitted on 23 September 2013 in response to the Examining authority's (ExA's) rule 6 letter (all labelled Doc 9.10.01)
- answers to the ExA's Q14.1 to Q14.31 (APP14 with supporting appendices APP14.01.01 to APP14.30.02)
- IS hearing on rationale (11 to 15 November 2013), audio tapes and written summaries (APP31.01 on Carnwath Road Riverside, APP31.02 on Chambers Wharf, APP31.03 on Deptford Church Street and APP31.04 on King Edward Memorial Park Foreshore)
- Applicant's legal submission on Agenda Items 24-1 and 24-2 at the IS hearing²⁸⁸ (APP32.01)
- Applicant's legal submission relating to Implications of Alternative Scheme Options (APP32.02)
- answers to the ExA's Q32.1 to Q32.27 (APP59 with appendices APP59.07.01 to APP59.22.04)
- answers to ExA's Q33.8 to Q33.10 on Chambers Wharf, Q33.11 to Q33.16 on Deptford and Q33.17 to Q33.19 on King Edward Memorial Park Foreshore (APP60)
- answer to ExA's Q34.13. All by road contingency plan. Lorry movement capacity (APP61 and appendix APP61.13.02)
- IS hearing on rationale (22 January 2014 to 23 January 2014), audio tapes and written summaries (APP102.03 and APP102.04)
- answer to ExA's Q29.2 - Supplementary information (APP97, dated 24 January 2014)
- APP111, APP112 and APP113 issued 3 February 2014 (re Chambers Wharf)
- answer to ExA's R57, appendix A, Chambers Wharf hoardings (APP167)
- answers to the ExA's R60.1 and R60.2 (APP170)
- Summary of additional mitigation measures and revisions to compensation policies (APP185)

²⁸⁸ Last day of IS hearing: 15 November 2013

- Technical Advice Note - Hydraulic assessment of CDM Smith 'Alternative A' drive strategy (APP168, Appendix B)
- Dr Barry New's note on separation distances between TBM drives and existing infrastructure (water mains) (APP168, Appendix C).

17.19 There were many written submissions from Interested Parties with regard to the question of rationale for selection of sites, including:

- LB Hammersmith and Fulham (WRR073 includes CDM Smith report 'Benchmarking and Risk Assessment of Alternative Drive Strategies' 4 November 2013 and REP444 includes CDM Smith's response to the hydraulic technical note)
- LB Southwark (WRR075 including Bureau Veritas noise assessment, Pell Frischmann review barge movements for AM, Phil Jones Associates alternative drive assessment)
- LB Tower Hamlets (WRR097 includes two reports, site reassessment by Temple Group September 2012, review of King Edward Memorial Park Foreshore and Heckford Street, by Temple Group February 2012)
- Free Trade Wharf (FTW) Management Company Ltd (WRR040 includes Traffic Report on Heckford Street business park (Jacobs, March 2013), baseline noise survey for KEMP and FTW (7th Wave Acoustics, November 2013)
- Save Your Riverside (WRR085 includes Rupert Taylor's report on noise and vibration at Chambers Wharf, November 2013, and Dr Tony Swain's evaluation of tunnel drive strategy).

POLICY CONTEXT

17.20 The NPS paragraph 2.6.34 makes it clear that whilst the ExA and the Secretaries of State should undertake the assessment of the application for the proposed development on the basis that the national need for the infrastructure has been demonstrated, it is for 'Thames Water' (the Applicant) to justify the specific design and route of the project that it is proposing, including any other options it has considered and ruled out.

17.21 In the Annex to the NPS which describes the 'Thames Tunnel' at paragraph A1.3.9 it states that the *'key issue for consideration of this scheme by the examining authority and the decision maker is where several shafts from the surface connecting to the tunnel are located and also the location of the construction compounds'*.

17.22 We made it clear at the IS Rationale hearings that the intention of our questions on 'rationale for the sites proposed' was not to question the role of or need for the Tunnel itself, which has been assessed already at a strategic level and identified in the NPS as a Nationally Significant Infrastructure Project (NSIP) for which need has been demonstrated²⁸⁹. Our role as the ExA was therefore to

²⁸⁹ NPS section 2.6

ensure that we could understand and make recommendations to the Secretaries of State as to whether the Applicant had justified the sites chosen for the proposal in the overall context of the NPS and s104(7) Planning Act 2008 (as amended) (PA 2008) and whether a different choice of site or use of a site could avoid or mitigate any adverse impacts.

- 17.23 As set out in the chapter on noise and disturbance (chapter 12), the NPS states specifically when considering noise and vibration (paragraph 4.9.9) that *'the decision maker should not grant development consent unless it is satisfied that the proposals will meet the following aims:*
- *avoid significant adverse impacts on health and quality of life from noise;*
 - *mitigate and minimise adverse impacts on health and quality of life from noise; and*
 - *where possible, contribute to improvements to health and quality of life through the effective management and control of noise'.*
- 17.24 One of the primary methods of avoiding significant impacts from noise or indeed any other harm at a site is to consider whether the use of that site could be either avoided altogether, or its use minimised. We therefore also consider the rationale against these criteria.
- 17.25 NPS paragraph 4.13.10 states that *'water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective'*. This is considered in the Applicant's selection process and is an additional criterion that we consider below.

METHODOLOGY FOR SELECTION OF WORK SITES

Introduction

- 17.26 In this section we review the methodology used by the Applicant for site selection.

Methodology used

- 17.27 The Applicant gave details of the methodology used for site selection and drive strategy in the Final Report on Site Selection Process (Doc 7.05, volume 1) and in answers to our written questions (APP14, answer to Q14.1).
- 17.28 The Applicant had considered three tunnel routes from Acton Storm Tanks to Beckton Sewage Treatment Works. The justification for the proposed route to Abbey Mills Pumping Station, to connect to the Lee Tunnel, was given in the Final Report on Site selection Process (Doc 7.05, volume 1). This decision was not generally challenged by Interested Parties, and we consider that it has been adequately justified.

- 17.29 The basic search for the main tunnel sites was undertaken within a boundary of 500m either side of the River Thames for sites of the following size criteria:
- Drive sites in non-chalk geology: 18,000m² to 15,000m²
 - Drive sites in chalk '*cannot generally be smaller than 20,000m² due to the large area needed for slurry processing activities*' (Doc 7.05, volume 1, para 3.6.9)
 - Reception sites: between 5,000m² and 7,500m² (para 3.6.8).
- 17.30 The search area for CSO sites was more localised as they needed to be close to the existing line of the sewer. The size requirement again depended upon geology:
- CSO sites in non-chalk geology: 1,500m² to 5,000m²
 - CSO sites in chalk which require a large drop shaft, and a large connection tunnel: 12,000m² (Doc 7.05, volume 1, para 3.6.11).
- 17.31 The Applicant's site selection was a multiple stage process. The first stage was identification of possible sites, then a short-listing process and a consultation stage on the Applicant's preferred short-listed sites. The Applicant then reviewed responses and a back-check process was undertaken in the event of material changes in circumstances and/or to find a new replacement site if needed. The process is illustrated in figure 3.1 of the Site Selection Report (Doc 7.05, volume 1).
- 17.32 A site suitability report was prepared for each site on the Applicant's final short list which specifically addressed the suitability of the sites against the following five disciplines:
- engineering
 - planning
 - environment
 - community (and socio-economic)
 - property.
- 17.33 The assessments that resulted in the greatest number of issues from Interested Parties concerning the selected sites were in the environment and community disciplines.
- 17.34 The assessment of environmental matters concentrated on nine technical aspects: transport, archaeology, built heritage and townscape, water resources (hydrogeology and surface water), ecology (aquatic and terrestrial), flood risk, air quality, noise and land quality. The overall assessment of the environmental suitability of each site was based on the potential cumulative environmental impacts and the application of specialist professional judgement (Doc 7.05, volume 1, para 4.8.20 and 4.8.21).

- 17.35 The assessment related to community matters focussed on any important socio-economic and community impacts and issues, based on professional judgement, information gained from site visits and relevant desk top data and research (Doc 7.05, volume 1, para 4.8.22).
- 17.36 Some local authorities had asked for and continued to ask for clarity on the selection process²⁹⁰. In particular the point was made that the comparisons between sites had not been made available (eg LB Tower Hamlets). In this regard we asked for the site suitability reports for each site to be submitted, so that issues might be resolved and as full as possible an understanding gained. These were supplied by the Applicant in two batches in September and November 2013 (Doc 9.10.01 and APP14 appendices APP14.01.17 to APP14.01.35).
- 17.37 The site suitability reports assess the suitability of each site (in each discipline and aspects within the disciplines) using three categories: not suitable, less suitable and suitable. We noted that in some circumstances, sites had been carried forward when three of the five disciplines were considered by the Applicant's own assessment to be less suitable (eg King Edward Memorial Park Foreshore). Some other sites that had been assessed as 'less suitable' in over half the environmental considerations were considered to be suitable in the overall discipline (eg Chambers Wharf on environmental assessment was assessed as 'suitable' when it was considered to be 'less suitable' in six out of the nine categories).
- 17.38 The Applicant had assured us at the Preliminary Meeting (11 September 2013) when this matter was raised in general terms that no weightings had been applied to the assessment and this was confirmed again at the first IS Rationale hearing²⁹¹. The Applicant explained that site selection was based on workshop sessions involving professional judgement, but specifically could not explain how a site had been taken forward as 'suitable' when most of the environmental aspects on that site had been considered as 'less suitable' and did not provide any more detailed reporting that transparently set out or documented the evaluation undertaken within the workshop.
- 17.39 In the written summary of the hearing the Applicant submitted a clarification on how the environmental discipline concluded its assessment of suitability in the site suitability reports (APP31.01 section 8). It explained that the specialists did not take account of mitigation within their assessment of suitability although the ability to deliver mitigation was included within the overall assessment of the suitability of the site.

²⁹⁰ Requests at Preliminary Meeting and in writing from the outset of the Application being made

²⁹¹ IS hearing: 11 November 2013

17.40 Subsequently during one of the Compulsory Acquisition (CA) hearings²⁹², it became apparent that with regard to certain sites within LB Wandsworth that where the local authority had made known its own preferences for sites for the scheme this was a significant factor that led to the Applicant duly selecting these sites.

Summary

17.41 The Applicant sought to rely upon the robustness and effectiveness of its process for site selection, which we were told was a process involving at a critical point the application of individual professional judgement. We do not seek to criticise or question the principle of using professional judgement, but it resulted in apparent inconsistencies on details and outcomes from the reported information.

17.42 As a result, the site selection process did not appear transparent to all Parties. Nor was it clearly explained or documented how sufficient and consistent consideration was given to the impacts on the community at each site and the concerns raised by the local authorities.

17.43 In our examination we looked at site selection in accordance with the NPS, we focussed on some of the key selection decisions as described in the principal issues, informed by our reading and consideration of the relevant and written representations and LIRs, and we noted concerns on transparency which we addressed by getting the site suitability reports into the public domain.

CARNWATH ROAD RIVERSIDE

Introduction

17.44 The identification and use of the Carnwath Road Riverside site has been challenged by the relevant local authority and other Interested Parties including the local representative community group Carnwath Road Coalition.

17.45 In addition to the IS Rationale hearings, two Open Floor (OF) hearings²⁹³ were held in the locality of Carnwath Road, which were very well attended. We also undertook both accompanied and unaccompanied site inspections in and around the surrounding area.

Description of Carnwath Road Riverside site

17.46 The proposed Carnwath Road Riverside site is located adjacent to the River Thames in the London Borough of (LB) Hammersmith

²⁹² CA hearing: 5/6 December 2013

²⁹³ 20 November 2013 and 30 January 2014

and Fulham. It covers the areas of Whiffin Wharf, the safeguarded Hurlingham Wharf, Carnwath Road Industrial Estate and an area of the foreshore. Its total area is 1.73 hectares²⁹⁴.

- 17.47 To the east and west the site is bounded by residential buildings (up to four storeys high) and its boundary to the north is Carnwath Road. Opposite the site on Carnwath Road, there is a two storey commercial building (50 Carnwath Road) and two other residential building blocks (Piper Building and Philpot Square).
- 17.48 The Piper Building is a mixed use development, primarily residential on the upper floors. The complex is arranged in broadly an L-shape with varying heights up to 35 metres. The upper floors have unimpeded views over the proposed site, with the lower floors being screened to a large degree behind the two storey commercial building.
- 17.49 Philpot Square is a four storey residential complex including some sheltered housing situated to the east of the Piper Building. It is located directly opposite the portion of the site which is currently the Carnwath Road Industrial Estate.
- 17.50 The properties to the west of the site are:
- 89-101 Carnwath Road, a four storey property overlooking the river (Arhag Housing Association providing housing for 25 residents, some of whom are classed as vulnerable)
 - 81-87 Carnwath Road, a row of three storey town houses, which face the site boundary (facing eastwards).
- 17.51 The adjoining property to the east of the site is 5 Carnwath Road, which consists of eight flats over four storeys, overlooking the river.
- 17.52 The area directly surrounding the site has four primary, nursery, and secondary schools within a 300m radius of the site. The closest is Thomas's School Fulham, which is 106m from the nearest boundary of the site (APP11, answer to Q11.6). None are on the proposed vehicle access route to the site.
- 17.53 Parts of the site itself are currently used as a temporary commercial compound including vehicle storage. Hurlingham Wharf is identified as a safeguarded wharf within the London Plan 2011. Whiffin Wharf is not a safeguarded wharf.
- 17.54 Road access to the site is from Carnwath Road, which in turn leads onto Wandsworth Bridge Road (A217).
- 17.55 The site is described in detail in the Applicant's ES Non-Technical Summary (Doc 6.1, section 12.1) and in LB Hammersmith and

²⁹⁴ LB Hammersmith and Fulham LIR: REP090

Fulham's LIR (REP090, section 2). The ES Non-Technical Summary includes a location plan of the site (figure 1.10) and an aerial view (figure 12.2).

Applicant's proposals for use as a work site

- 17.56 The Applicant proposes to use the site as a drive site for the main tunnel to Acton Storm Tanks and as a reception site for two tunnels: the main tunnel from Kirtling Street and the Frogmore connection tunnel. This would require a 25m diameter drive shaft which would be constructed on the Whiffin Wharf portion of the site (to the west).
- 17.57 The duration of the construction works would be in the order of six years of standard²⁹⁵ and extended²⁹⁶ working including 29 months of continuous working (ie night-time) (Doc 6.2.10, para 9.2.7c and appendix G plate G8).
- 17.58 The drive shaft is proposed to be used to remove the excavated material from the tunnel, supply precast concrete segments to the tunnel boring machine (TBM) and for installation of the secondary lining.
- 17.59 The Applicant has committed in the River Transport Strategy (RTS) to transport by river 100% of all excavated material from the tunnel and shaft, and sand and aggregate for concrete and secondary lining²⁹⁷ (APP207.02). This would be by use of 800T²⁹⁸ barges loaded by overhead conveyors from the site. The Applicant has retained the option of the barges using either a jetty or campsheds²⁹⁹ in the application, although the photomontages in the ES Non-technical Summary only show use of campsheds (Doc 6.1, figure 12.8). There is no jetty at the site at present and the decision with regard to the provision of a jetty would be made by the contractor.
- 17.60 The site compound is proposed to be fully hoarded. The area within the hoardings would be some 15,800m², which is at the lower end of the area range (15,000m² to 18,000m²) as detailed earlier in this chapter for a drive site in non-chalk geology.
- 17.61 Access to the site would be through two entrances, one at the west end of the site and the other directly opposite the car park to the Piper Building at the Energie Fitness Club end of the Piper Building.

²⁹⁵ Standard hours: 08:00 to 18:00 weekdays and 08:00 to 13:00 Saturday morning plus maintenance periods on Saturday afternoon (13:00 to 17:00) and Sunday (10:00 to 16:00)

²⁹⁶ Extended hours: 18:00 to 22:00 weekdays and 13:00 to 17:00 Saturdays

²⁹⁷ Subject to operational derogations and an expectation that the volume of specified materials by river will not fall below the target of 90% (APP207.02, para 2.1.2)

²⁹⁸ The barge size at this site is restricted to 800T by PLA

²⁹⁹ Campshed: an area of stone, concrete or timber lain on the river/sea bed that is exposed at low tide to allow vessels to rest safely and securely in place (definition from Doc 6.2.28)

- 17.62 The site is designed to accommodate the active air handling facility for the tunnel with active mechanical plant included in a ventilation building. Filtered air would be vented all year through a 15m high ventilation stack. The discharge would be treated 99.7% of the time. Any untreated discharges would be during storm events, should the system be overloaded.
- 17.63 Upon completion, the operational plant and structures would all be located at the Whiffin Wharf end of the site (western end), with an area of public realm provided³⁰⁰ (see drawing DCO-PP-06X-CARRR-090008). However as mentioned in the land use chapter 11 of this report (under the heading 'Regeneration') there may be proposals for some future development on the Whiffin Wharf end of the site. This would be a matter for a future planning application and determination.

Issues raised during the examination

- 17.64 The Applicant's own site selection process assessed the site as being 'less suitable' in terms of socio-economic, community and property. The ES states that there would be significant impacts at two receptors (blocks of residential flats) from noise from river transport, but none from construction impacts and none from road transport.
- 17.65 These matters, as well as the selection of the site itself, formed the basis for our questions. Issues raised in the examination by both the local authority and other Interested Parties included:
- noise and disturbance impacts from the construction works, particularly with regard to the duration of the works
 - traffic impacts from lorries on Carnwath Road
 - impact on commercial premises at 50 Carnwath Road
 - impacts on local schools
 - in-combination impacts on health and well-being from air quality, dust and noise
 - the alternative of using Barn Elms as a drive site
 - the alternative of driving the tunnel directly from Kirtling Street to Acton Storm Tanks without the use of Carnwath Road Riverside.
- 17.66 We received many representations from Interested Parties on these issues, which illustrate the concern in the neighbourhood. Examples include:
- Carnwath Road Coalition (WRR010)
 - Arhag Housing Association concerning the impact on vulnerable residents (WRR035)
 - Assael Architecture concerning the impact on businesses based at 50 Carnwath Road (WRR057)

³⁰⁰ This public realm area also used intermittently for maintenance during operation of the project

- Olaiz Miyar concerning the Piper Building (WRR028)
- Marc Hearn concerning the impacts on residents across the river (REP414).

- 17.67 LB Hammersmith and Fulham, in its LIR, did not accept that the noise assessment had been carried out adequately and did not accept the Applicant's conclusions as to the impacts on residents, schools and businesses (REP090). There was little agreement reached between the Council, other Interested Parties and the Applicant on these matters, as set out below (under the heading 'Local impact report and outstanding concerns').
- 17.68 It was not clear to us why the option had remained open for use of campsheds or a jetty at the site. We asked what the tidal window is at the site and were advised that there is a limited tidal window of 50 minutes on a neap tide. We were further advised by the Applicant that *'The difference in tidal window between the campshed and jetty options was small as the river bed levels are similar for both'* (APP102.03, para 2.8.4).
- 17.69 In view of the apparent limited tidal window at the site (at neap tides), where the opportunity to move barges may be more constrained, we questioned the site's capacity to sustain operations in the event of interruptions to river transport. The Applicant confirmed in answer to the ExA's questions that the site had capacity for four days material storage at average tunnelling rates and 2½ days storage at peak tunnelling rate (APP61, answer to Q34.1).
- 17.70 We also questioned what the implications would be in the event of a failure in river transport. The Applicant confirmed that the capacity of the site would be 360 HGV movements per day, as compared with the HGV needs of 322 movement per day at 'long average drive rate' and 642 movements per day at 'high output drive rate' (APP61, answer to Q34.12). However it also pointed out that, because of this land transport capacity at the site, it would not be practical to sustain an all-by-road derogation, when the onsite storage capacity has been exhausted (APP61, Q34.12, para 12.1.4).

Mitigation measures at Carnwath Road Riverside

- 17.71 During the examination, the local authority expressed concern that mitigation needed to be secured and defined in more detail. The mitigation measures, which we consider include some improvements offered by the Applicant during the examination for the proposed site, would be secured in the Code of Construction Practice (CoCP) Part B, the RTS and by unilateral obligation (APP209.03).
- 17.72 The Applicant proposes that hoardings/noise barriers would surround the site to heights of:

- 5m on the western boundary (ie on the side of 89-101 Carnwath Road)
- 7.5m on the eastern boundary (ie adjacent to 5 Carnwath Road)
- 3.6m on the northern boundary (ie along the road side)
- 2.4m on the southern boundary (ie on river bank).

17.73 The 7.5m high hoarding was shown on the drawings as being on the boundary and therefore less than 1m away from windows in 5 Carnwath Road (a block of eight flats). In response to our question (R60.2) on the matter the Applicant suggested a revised alignment (APP170). The revised hoarding alignment has not been secured, but CoCP Part B has been modified to include a site-specific requirement that the hoarding *'shall be designed to ensure daylight and sunlight has no greater impact than existing conditions at 5 Carnwath Road'*. We are satisfied with this response.

17.74 The CoCP Part B includes the following noise enclosures:

- around the main tunnel shaft, during main tunnel construction and secondary lining (but this would not be in place for the shaft construction)
- around the temporary concrete batching plant, grout plant and conveyors used to load barges
- material storage/handling by three sided and roofed enclosure, with open side not facing sensitive receptors, where practicable
- all static plant screened or enclosed.

17.75 In addition the following are specified:

- all cladding with minimum sound restriction of 20d BR_w¹
- a commitment to consider a 3.6m acrylic noise barrier on the river wall in front of 89-101 Carnwath Road and 5 Carnwath Road, however these would be outside the limits of the land to be acquired or used (LLAU) and not secured by the DCO.

17.76 The final noise assessment, with the above mitigation, still predicts significant effects from river transport at Nos 5 and 89-101 Carnwath Road - day and night. Noise insulation is proposed for both properties and has been secured in the unilateral obligation by a Trigger Action Plan³⁰¹ (TAP).

17.77 The Applicant has stated in the ES Update Report that further on-site mitigation is not practicable (APP208.01.13, appendix 10.1). With the site hoarded on four sides and all working areas covered, we agree.

³⁰¹ Trigger Action Plan for noise insulation – refer to chapter 12

- 17.78 Another important factor that would serve to mitigate the effects on local residents (and the local road network serving the site) during the construction phase is the Applicant's commitment to river transport. This would be secured by the RTS through Requirement PW15. Whilst this commitment would be subject to operational derogations, the circumstances in which these could be granted would be controlled and effects materially greater than those assessed in the ES should not occur (see chapter 14 under the heading 'River Transport Strategy').
- 17.79 Notwithstanding the various commitments entered into regarding mitigation at this site, significant opposition remains to the selection of the site from the Interested Parties. Much of the opposition is based on the duration of the contract, six years with 29 months of night-time working.

Assessment of residual impacts at Carnwath Road Riverside

- 17.80 The Applicant's ES Update Report gives a summary of the predicted residual impacts after the additional mitigation has been taken into account. The impacts for air quality, noise and socio-economic are reported and concluded on in chapters 5, 12 and 13. A brief summary is given below.

Air quality

- 17.81 The Applicant's final assessment of air quality and construction dust at most residential receptors in the immediate vicinity of the site remains as 'minor adverse'³⁰². The effects of construction dust would have a minor adverse effect on 50 Carnwath Road, recreational users of the Thames Path and the River Thames. Thomas's London Day School is assessed as having negligible effect (ES Update Report, APP208.01.13, table 4.10.01).

Noise

- 17.82 The ES Update Report maintains the position that no properties would be significantly affected by noise from the construction site but that two properties on the waterfront (89-101 Carnwath Road and 5 Carnwath Road) would experience a significant impact from river traffic (barges). The report suggests that proposed mitigation measures which have not been secured by the DCO (ie the acrylic screens) could reduce the impacts at the lower floors of these two properties, but even then the second floor and above would remain significantly affected (APP208.01.13, table 9.10.1).
- 17.83 The report also states that there would be no significant impacts on non-residential properties (eg 50 Carnwath Road), from either construction noise or road transport.

³⁰² Definitions for environmental assessments given in the ES Doc 6.2.01, volume 1, table 1.4.1

- 17.84 LB Hammersmith and Fulham does not agree with the noise assessment and in its final written submission states that the noise assessment is still '*not fit for purpose*' in a number of aspects (REP490). We remain concerned by the potential noise impact on Pipers Building in the evening and at night. Also, at Philpot Square from traffic noise in the event of any river transport derogations that result in increased HGV movement.
- 17.85 As stated in chapter 12 of this report, we conclude that the noise impact on the local receptors is likely to have been understated.

Socio-economic

- 17.86 The Applicant's assessment of the residual socio-economic impact from the construction works did not change as a consequence of any points raised and additional mitigation measures added by the Applicant during the examination and remains as follows (APP208.01.13, table 10.10.1):
- Residents: moderate adverse
 - Businesses (Carnwath Road Industrial Estate): minor adverse from displacement of businesses
 - Users of the Thames Path: negligible
 - Users of the River Thames: negligible.
- 17.87 We comment on Carnwath Road Industrial Estate in the socio-economic chapter (chapter 13) as outlets/businesses would be displaced with 120 jobs affected.
- 17.88 The ES gives no indication of the number of people or households that would be impacted by the construction works; however the Health Impact Assessment (HIA) does state that in the 2001 census, there were 2,575 people living within 250m of the site, with 25% children and older people, and 50% of them being within the 20% most deprived areas nationally (Doc 7.12, appendix D, table D.36). During the examination we became aware³⁰³ that there are vulnerable people residing adjacent to the site in both Philpot Square and 89-101 Carnwath Road.
- 17.89 We conclude in chapter 13 that with regard to amenity, it is likely that the ES understates the effects on residential receptors at Carnwath Road Riverside.

In-combination impacts

- 17.90 The Applicant has stated that the overall in-combination effects on quality of life would be a 'negligible to minor adverse' impact when embedded mitigation measures had been taken into account. In chapter 13 we conclude that this assessment on the quality of life

³⁰³ WRR010 and WRR035

determinant within the HIA is likely to be understated at Carnwath Road Riverside.

Local impact report and outstanding concerns

- 17.91 Many Interested Parties remained opposed to the selection of the site. LB Hammersmith and Fulham in its final written submission, states that the contributions proposed in the s106 unilateral '*do not mitigate the adverse impacts that have been identified*' and '*it is insufficient to make the proposed development at Carnwath Road acceptable in planning terms*' (REP490).
- 17.92 In its LIR (REP090), LB Hammersmith and Fulham raised a number of concerns including that the application had not adequately considered impacts on:
- local residents, many of whom are financially vulnerable and have health conditions that could be adversely affected
 - local schools and nurseries and the children travelling to these schools, mainly on foot and by public transport
 - local businesses, some of which would be lost altogether and others would be affected by noise, vibration and dust and by additional traffic congestion.
- 17.93 The matters specific to Carnwath Road Riverside that the Council considers are still outstanding are listed in its final written submission (REP490), and include:
- tunnelling strategy
 - site selection
 - CoCP Part A and B, lacking detail
 - RTS and the limited scope of the local authorities to refuse derogations
 - noise assessment and mitigation
 - TAPs, and the qualification of properties for insulation
 - off-site mitigation
 - s106 does not mitigate the adverse impacts that have been identified.

Alternatives considered

- 17.94 In the site selection process, at the first stage of consultation the preferred site for a main tunnel drive site was Barn Elms. There was also a final short list of eight sites that the Applicant considered suitable as main tunnel reception/intermediate sites only. Carnwath Road was on this second list as two sites: the two wharfs and the industrial estate (Doc 7.05, volume 9).
- 17.95 After the phase 1 consultation, the Applicant reworked the assessment (the back-check process). In the second iteration, the Applicant revised downwards the area required for a main drive tunnel (from 20,000m² down to a range between 18,000m² and 15,000m²), and combined the two smaller sites into Carnwath

Road Riverside, which made this an adequate size for a drive site against the Applicant's revised site criteria.

- 17.96 After the back-check process, the Applicant considered that only two sites were suitable as main tunnel drive sites: Barn Elms and Carnwath Road Riverside. Carnwath Road Riverside became the preferred site at phase 2 consultation.
- 17.97 The Applicant's back-check process of alternatives did not consider whether a drive site at Carnwath Road or Barn Elms could be avoided altogether by means of direct tunnel drive from Kirtling Street to Acton. However, the Mayor of London also asked us to examine the arguments for and against the direct drive suggestion in his LIR (REP099, para 134).

Barn Elms as an alternative drive site

- 17.98 There is some apparent confusion amongst many Interested Parties as to the location of the 'alternative Barn Elms drive site'. Many assumed that it would have been the same site as the currently proposed CSO site. In fact there were two sites considered by the Applicant as the drive site location at Barn Elms.
- 17.99 In the first phase of consultation, the Applicant considered a work site in the corner of Barn Elms playing fields at the outlet of Beverly Brook. The Applicant considered this site to be suitable for all five assessment parameters.
- 17.100 However, in the second phase consultation after the back-check process, the alternative drive site was moved further to the north adjacent to the boat house and further away from residential dwellings. The site selection assessment remained suitable for engineering, planning and environmental, but less suitable for socio-economic and community and property.
- 17.101 The Applicant stated that the less suitable aspects related to:
- the amenity value of the land as a sports facility and open space
 - residential areas near the site and across the river and Barnes Wetland Centre would experience increased noise from the works, especially from site set-up and tunnelling activities
 - road access would impact on the local community
 - replacement land would be extremely difficult to obtain, and a special parliamentary procedure might be required.
- 17.102 The site considered in the second phase of consultation would have been located in part of the Barn Elms Sports Centre, which is designated as Metropolitan Open Land in the Borough of Richmond. Its location is most clearly shown on drawing number 100-DL-PNC-S17RD-144208 attached to the site suitability report for Barn Elms (Main tunnel with CSO site, Doc 9.10.01).

- 17.103 The drawing shows an 18,000m² site compound within the playing fields, with overhead conveyors crossing the Thames Path to load barges at either a jetty or campsheds on the river bank. Four of the playing fields would be removed for a period of six years (APP55, para 2.1.1). LB Wandsworth provides evidence in relation to the level of usage at Barn Elms Sports Centre. It comments that the centre is well used with an increasing total number of users year on year and an increased number of schools and colleges using the facilities (REP198, section 2).
- 17.104 Transport of excavated material would be by river with a maximum barge size of 350T, which is the limitation placed on barges on this stretch of the river by the Port of London Authority (PLA). It was subsequently confirmed that a jetty would need to have been built into the river because of the shallow river banks. The Applicant reported that this stretch of the river is well used by recreational craft and a specific risk assessment (including barge movements) would need the approval of the PLA.
- 17.105 At the IS hearing (11 November 2013) the PLA confirmed that it would have strong reservations about the use of a jetty at Barn Elms, particularly with regard to safety on the river. The PLA concern on safety was in relation to recreational users of the river. Ben Mackworth-Praed³⁰⁴ at the IS hearing (11 November 2013) provided information about the high level of recreational use on this part of the river. In addition to the University Boat Race it is used for many other rowing and sailing events.
- 17.106 The alternative to use of the river for material transfer would be disposal by road. However, the site is remote from the main road network and transport links are poor. The Applicant stated that, even if river transport was available, a new access road would be required via Rocks Lane (from A306).
- 17.107 The site suitability report (APP9.10.01, entitled Barn Elms 2, para 5.2.2) states that the boat house, sailing club and canoe facilities would have had to be temporarily relocated, although it does not explain why the site could not have been located further to the north to avoid the conveyors passing over the sailing club.
- 17.108 In the written summary of the first IS hearing (11 November 2013), the Applicant provided an assessment of noise levels that it predicted would be experienced, from a drive site, at the nearest residential houses, 265m away (Stockhurst Close and Horne Way which would be south of the site on the Putney side of the river). The Applicant states that residents in Stockhurst Close would experience significant noise impact from barges at night, with an increase of +15dB above ambient (38dB to 53dB_{L_{Aeq}}) (APP31.01, appendix B3). Given that Stockhurst Close³⁰⁵ is separated from the

³⁰⁴ Acting Chairman of the Barnes Community Association Environmental Group

³⁰⁵ Stockhurst Close: a medium rise residential block

River Thames by the public open space of Leaders Gardens, and elsewhere the Applicant has sought to assure us that there will be no significant noise impact to houseboats from barges mooring only metres away, in the absence of a clear assessment of this impact, we find it difficult to give much weight to these assurances.

17.109 The Applicant's noise assessment for Barn Elms as a drive site was provided in response to the ExA's Q32.27. It gave a total number of households that would experience a significant effect at the façade of the dwelling from a drive site at Barn Elms as approximately 110 from construction noise and 21 from river traffic and six from road traffic (APP59, table 27.1, answer to Q32.27). Given that the nearest houses to the Barn Elms site would be 265m away, we did not find the assessment credible when compared to that for Carnwath Road Riverside where houses would be far less than 100m from the site and some within a few metres.

17.110 In chapter 6 on biodiversity we identify that the Barn Elms Wetland Centre is a Site of Special Scientific Interest (SSSI) which was notified for breeding bird assemblages. We also note that the tidal Thames is a Site of Interest for Nature Conservation (SINC). LB Wandsworth comments that the river is used extensively by migrating birds flying into and out of the Wetland Centre. These migratory movements could be adversely affected by additional use of the riverbank, such as for overhead conveyors, lighting or additional traffic. The Council also draws attention to the use of the site by bats for foraging and as a route between roosts and forage. Bats are protected by both United Kingdom (UK) and European Union (EU) legislation (REP198, section 2).

17.111 We consider that if Barn Elms were to be used as a drive site there would be implications for biodiversity. If the site were to be considered further for this purpose it would be necessary to carry out more detailed assessments in relation to the effects on the SSSI, the SINC, protected species and biodiversity in general. From the information before us, the potential impact on biodiversity appears to be a factor which adds some weight to the case against locating a drive site at Barn Elms.

Summary on Barn Elms as an alternative drive site

17.112 The Applicant has given a comparison between Carnwath Road Riverside and Barn Elms in the site selection report (Doc 7.05, volume 9, section 5.5). However, it appears to us that relatively little weight was placed on the residential nature and proximity of the large number of properties around the Carnwath Road Riverside site. In fact it states that '*both options could result in construction noise and dust impacts on nearby residential receptors and would require mitigation*' (para 5.5.9). We find this statement lacks consideration of the different circumstances,

number of receptors and potential for avoidance and mitigation of impacts. The nearest residential receptors to the drive site at Barn Elms would have been 265m away, whereas properties at Carnwath Road Riverside, would be much closer to the site. We accept that the properties at Barn Elms would have a lower pre-construction ambient noise level³⁰⁶ than the properties in the vicinity of Carnwath Road Riverside³⁰⁷. This could result in a number of properties being assessed with a significant effect in accordance with the BS5228 ABC methodology. However, we are unconvinced that the assessment was made with similar levels of mitigation or adequate consideration of the number of receptors that might experience impacts at significant observed adverse effect levels (SOAEL) of noise (discussed in chapter 12). Nevertheless, locating a drive site at Barn Elms would introduce a noise source into a relatively low noise environment.

17.113 However, we acknowledge that the site would be on Metropolitan Open Land. The Mayor of London in his LIR (REPO99, para 129) states that *'the scale of works that would be involved in using this as a main tunnel drive site would be significantly greater than those required of a CSO connection site and demonstrating the acceptability of such a development on MOL would be challenging'*. In chapter 11 we note that the Applicant and the Mayor of London agree that the effect of London Plan Policy 7.17 is that, in this case, the NPS advice on Green Belt should apply to MOL. The NPS requires the decision maker to attach substantial weight to harm to Green Belt and, by virtue of Policy 7.17, MOL should have the same level of protection.

17.114 Also NPS paragraph 4.8.13 states that *'the decision maker should not grant consent for development on existing open space, sports and recreational buildings and land unless an assessment has been undertaken either by the local authority or independently, which has clearly shown the open space or the buildings and land to be surplus to requirements'*, and *'The loss of playing fields should only be allowed where applicants can demonstrate that they will be replaced with facilities of equivalent or better quantity or quality in a suitable location.'* We consider that the Barn Elms drive site, with a temporary loss of four playing fields, without mitigation would not meet this test in the NPS.

17.115 In our view the transport implications of locating a drive site at Barn Elms are an important consideration. We found the PLA's submissions on the limitations of river transport to be persuasive. From the information before us, road transport seems unlikely to be a suitable alternative.

³⁰⁶ Properties local to the Barn Elms site generally designated A/A/A in the BS5228 methodology – ref Doc 6.2.06, table 9.4.2

³⁰⁷ Properties local to the Carnwath Road Riverside site generally designated between A/B/A to C/C/C in the ABC methodology – ref Doc 6.2.10, table 9.4.2

- 17.116 In addition to the above factors, the potential impact on biodiversity adds some further weight to the case against locating a drive site at Barn Elms.
- 17.117 Having regard to all the above factors, our overall assessment is that the Applicant has justified the use of Carnwath Road Riverside as a drive site.

Tunnel direct from Kirtling Street to Acton Storm Tanks

- 17.118 LB Hammersmith and Fulham requested that an alternative solution be considered for tunnelling direct from Kirtling Street to Acton Storm Tanks, hence bypassing the Carnwath Road Riverside site completely. The Council submitted a report from CDM Smith which is attached to the Council's written representation (WRR073, appendix 1).
- 17.119 The CDM Smith report suggests that the Applicant could drive a tunnel direct from Kirtling Street to Acton Storm Tanks. The tunnel drive length would be 11.95km, which is within the Applicant's own design parameters of a maximum practical drive length (in clay) of 12km (Doc 7.05, para 4.10.5b).
- 17.120 The report notes that at present the tunnel design provides both a step in invert level and a diameter change at Carnwath Road Riverside to allow sufficient clearance between the tunnel and the Thames Water Lee Valley Raw Water Main, and between the tunnel and the proposed National Grid Cable Tunnel (Wimbledon to Kensal Green).
- 17.121 The design for the direct drive alternative would require a constant diameter over the whole length. This could be a diameter of either 7.2m or 6.8m, which would give the same storage capacity as the application scheme.
- 17.122 The report acknowledges the challenges and risks, including the vertical clearances needed, but suggests that these could be *'mitigated by ground modification if deemed necessary during design and construction. Survey control and real time monitoring of TBM alignment have made major advancements in tunnelling technology today and thus can significantly mitigate issues with line and grade of the tunnel during construction'*.
- 17.123 When questioned at the IS hearing on 11 November 2014, the Applicant stated that it had not considered the report in depth, but did give a written response in APP31.02. This confirmed that the Applicant considered the proposal unacceptable for the following reasons:
- *'It does not facilitate the required step in the main tunnel profile'. A change in gradient would be required as the tunnel needs to avoid a number of existing tunnels. A change in gradient within the tunnel could introduce unacceptable*

hydraulic problems. National Grid had stated that the minimum 6m clearance was required, and the clearances with the Lee Valley and Thames Water Ring Main would be 3.7m and 3.3m respectively. We discuss this further below.

- *'Discounts the need for secondary lining'*. The secondary lining is needed for structural integrity, permeability and durability. Of particular note is that the tunnel would be under pressure when it is full, which would place the tunnel lining in tension.
- *'Exceeds the 9km shaft spacing for operational access'*. We discuss this below.
- *'Creates an increased risk of tunnel boring machine (TBM) failure'*. We discuss this below.
- *'Requires an increase to programme duration and increased impact on the Nine Elms regeneration area'*. The programme would be lengthened by 12 months. We note that this would also increase the duration of impacts at Kirtling Street by 12 months.
- *'Creates an increased procurement risk'*. The Applicant noted that an alternative of using two contractors at Kirtling Street would require a larger site area which is not available. We discuss this below.
- *'Frogmore connection tunnel'*. The Frogmore tunnel would require a direct connection to the main tunnel, which would increase construction complexity and require the deepening of the connection tunnel and shaft at Dormay Street.

17.124 The Applicant's answer in four of these areas was further expanded in answer to the ExA's Q32.1 (APP59).

17.125 We questioned in detail why the clearance from the National Grid Cable Tunnel could not be reduced from 6m³⁰⁸, and what the risks would be to the tunnels if the clearance were to be reduced. The Applicant advised that there would be unacceptable settlement of the cable tunnel. In a written submission from National Grid (REP241) we are advised of the risks to the electricity transmission network for London from disturbance to the integrity of the National Grid Cable Tunnel. National Grid considers that *'any reduction of the clearance between the two tunnels to less than 6m would increase these movements further'*. We are also advised that the tunnel is due to be constructed in 2014, and we understand from the CA hearing (15 January 2014) that construction has commenced. Given this, it would appear that the opportunity to further change the design of the National Grid Cable Tunnel to allow reduced clearance is no longer available.

17.126 The Applicant explained that it chose a maximum spacing of 9km between access shafts. The Applicant explained that 4.5km represents the distance required to evacuate an injured person

³⁰⁸ At both the IS Rationale and CA hearings

from the halfway point in the tunnel to ground surface in 90 minutes. An alternative suggestion of using one of the CSO connection tunnels as an emergency exit point would require a connection at invert level which is a complicated construction technique in a tunnel and presents significant risks. However, at the second IS hearing (22 January 2014) the Applicant did confirm that if the tunnel had been on a slightly different alignment at Putney or Barn Elms, it would have been possible to have designed the CSO site as a direct tunnel connection that could have been used as an access shaft.

17.127 We have reviewed the tunnel connections between Kirtling Street and Acton, and on balance we agree that on this tunnel alignment, from the information before us, there does not appear to be another obvious opportunity to design an access point into a single drive length. However, had the tunnel been on a slightly amended alignment, we note that it would have been possible to design in an access point at a different location.

17.128 The third area we questioned in more depth was why the Applicant now considers that a maximum drive length of 12km poses an unacceptable risk to TBM failure, given that it is the maximum drive length parameter given in the application documents. The Applicant's answer was that the 12km was a theoretical figure and did not take into account whether the tunnel alignment was beneath the river, open space or a developed area. We can understand that risks for a shorter tunnel are less than for a longer tunnel, but given that the tunnel was expected to be in London and under or near the Thames, we would have expected the Applicant to take this into account when setting the 12km design parameter.

17.129 We also questioned the Applicant further on what would be required at Kirtling Street to allow two contractors to work at the site. The Applicant advised that the site area would need to be increased from 22,800m² to 34,000m², and that this increased area would not be feasible due to local constraints.

17.130 A direct drive to Acton would result in the work site at Kirtling Street being required for an additional year. In chapter 11 we discuss the effect of the application on planned regeneration at Battersea Power Station, a matter of concern to LB Wandsworth. Although we concluded that the overall impact on housing delivery would be minor, we consider that any additional delay here would be a disadvantage, particularly in relation to the affordable housing component of the scheme.

17.131 Following the IS hearing on 22 January 2014, LB Hammersmith and Fulham submitted CDM Smith's response to a Technical Advice Note from the Applicant (which had been sent to the Council on 19 February 2014), on the hydraulic performance of the Council's alternative (REP444). The Applicant's Technical Advice Note

evaluates the hydraulic design of the Council's alternative design. It concludes that whilst the design would provide an equivalent storage volume, the change in gradient in the tunnel would result in the project design flow exceeding the capacity of the design of the eastern reach of the proposed alternative. The Applicant therefore considers that the Council's alternative does not meet basic criteria for an acceptable hydraulic solution. CDM Smith's response concludes that the Technical Advice Note does not present sufficient evidence to prove that the alternative is a technically infeasible hydraulic solution (REP444).

Summary on tunnelling direct from Kirtling Street to Acton

- 17.132 Having reviewed all the evidence, our view is that the tunnelling direct option may have been a feasible alternative had it been considered at an earlier stage in the project. This is because we consider that the separation distance limitation from the National Grid Cable Tunnel may have been able to be designed out by mutual agreement at an earlier stage; however we understand that construction of the National Grid tunnel has now started. Also the 9km limitation for safety access could also have been included in the design without the Carnwath Road Riverside site by selection of a slightly amended main tunnel route, which would have allowed direct access at either the Barn Elms or Putney CSO sites.
- 17.133 Whilst we acknowledge that a drive length approaching 12km would increase the risk of TBM breakdown, we do not find this argument against a direct tunnel drive from Kirtling Street to Acton Storm Tanks to be persuasive. This is because it is the Applicant's own design parameter. Notwithstanding this we do find that the long drive would increase the adverse effects at Kirtling Street and that the site is insufficiently sized unless a double drive was awarded to a single contractor/consortium.
- 17.134 However, we consider that the Applicant's hydraulic assessment that the alternative solution does not meet the hydraulic considerations is of key importance. This is compounded by the difficulty of threading a tunnel through existing infrastructure to tie into the invert level of the Lee Tunnel.
- 17.135 Therefore, on the information put before us, and on balance, we agree that the Applicant has justified the use of Carnwath Road Riverside as a drive site.

Conclusion on Carnwath Road Riverside

- 17.136 Under NPS paragraph 4.9.9, the decision maker must consider whether the proposal meets the aim of avoiding significant adverse impacts on health and quality of life from noise. In the case of the Carnwath Road Riverside site, we consider this would include whether significant impacts from noise and/or vibration

could be avoided eg in the case of Carnwath Road Riverside by avoiding the use of the site altogether.

- 17.137 For the reasons given above we consider that the Applicant has justified the use of Carnwath Road Riverside assessed against the alternative at Barn Elms.
- 17.138 We have considered the alternative proposal tunnelling direct from Kirtling Street to Acton Storm Tanks, however, for the reasons given above there appear to be a number of practical difficulties with this approach. Further design development might have addressed some of those difficulties but, on the evidence before us, it does not appear to offer a better solution than the application proposals.
- 17.139 NPS paragraph 4.13.10 states a preference for water-borne transport over road transport where cost-effective and Carnwath Road Riverside would provide a water-borne transport option in relation to this aspect of the NPS. It is a recognised safeguarded wharf.
- 17.140 Therefore overall, we consider that, on the evidence before us, the Applicant has justified in the case of Carnwath Road Riverside, the design and route of the project including any options that it has ruled out (NPS, para 2.6.34).
- 17.141 The site, however, does have its limitations and we accept that mitigation would be required to reduce or prevent unacceptable impacts. We remain concerned that the noise and amenity impacts are likely to have been understated. These are discussed in chapters 12 and 13.

CHAMBERS WHARF

Introduction

- 17.142 The use of the Chambers Wharf site has been challenged by the local authority and other Interested Parties including Save Your Riverside (SYR).
- 17.143 In addition to the IS hearings, two OF hearings³⁰⁹ were held in the vicinity of the Chambers Wharf site. These were very well attended. We also undertook both accompanied and unaccompanied site inspections in and around this area.

Description of Chambers Wharf site

- 17.144 The proposed Chambers Wharf site is located adjacent to the River Thames in LB Southwark. The site is part of a larger site with

³⁰⁹ OF hearings: 22 November 2013 and 3 February 2014

planning permission for residential development, part of which is well progressed.

- 17.145 The area that is being proposed for the Chambers Wharf drive site comprises previously developed land, now mostly cleared, and an adjacent area of foreshore (including a wharf). The wharf deck projects out into the river from the line of the present river wall, and is supported by piles on the foreshore adjacent to the river wall. There has not been a working wharf on the site since the mid 1960s.
- 17.146 The area of the existing site is approximately 11,200m² excluding the decked area and approximately 13,800m² including the decked area (APP59, answer to Q32.4, para 4.1.4).
- 17.147 The site is located in a densely populated residential area, surrounded on the three non-river sides by blocks of residential flats and housing. To the west of the site and on the immediate boundary are two blocks of relatively modern flats (up to eight storeys high), Luna House on the river front and Axis Court behind it. On the eastern side, there are homes (up to three storeys high), in Fountain Green Square on the river front and Loftie Street. The landward side of the site is bounded by a small residential road, Chambers Street, where a new development is currently being built (up to 9 -10 storeys high) comprising 180 dwellings including single aspect flats and social housing. The upper floors of the properties at Luna House, Axis Court and the new development on Chambers Street directly overlook the site.
- 17.148 There are also two sets of houseboats which are located near the site. Downings Roads Moorings is approximately 80m upstream of the site and provides berthing for some 43 houseboats. Hermitage Community Moorings is located approximately 200m north of the site, on the opposite bank, and provides berths for around 20 vessels (APP210.01, appendix C).
- 17.149 Road access to the site would be from Chambers Street, which would be accessed via Bevington Street and Jamaica Road (the A200).
- 17.150 The area has five primary, infant and secondary schools within a 300m radius of the site. The closest is St Michael's Catholic Secondary School at 19m from the site, but it is not directly linked to the site by road and is behind and partially screened by the new development on Chambers Street. Riverside Primary School is located 25m from the site boundary and has teaching rooms and outside space backing onto Bevington Street (APP11, answer to Q11.6).
- 17.151 The site is described in detail in the Applicant's ES Non-Technical Summary (Doc 6.1, section 22.1) and in LB Southwark's LIR (REP095, section 3). The ES Non-Technical Summary includes a

location plan of the site (figure 22.1) and an aerial view taken before the new development on Chambers Street was built (figure 12.2).

Applicant's proposals for Chambers Wharf as a drive site

- 17.152 The Applicant proposes to use Chambers Wharf as a drive site for the main tunnel to Abbey Mills and as the reception site for two tunnels, the main tunnel from Kirtling Street and the Greenwich connection tunnel. This would require a 25m diameter drive shaft which would be constructed at the eastern end of the site behind the gardens of Fountain Green Square (Doc 6.1, figure 22.4).
- 17.153 To create sufficient space for a main drive site, the existing wharf deck would be demolished and a temporary area of reclaimed land on the foreshore would be constructed behind a cofferdam extending approximately 50m beyond the river wall. The resultant total area³¹⁰ of 19,500m² which is close to, but not as large as, the Applicant's suggested minimum area of 20,000m² that would be needed for a drive site in chalk (see earlier in this chapter under the heading 'Methodology').
- 17.154 The duration of the construction works would be in the order of six years of standard and extended working including 33 months of continuous working ie day and night-time (Doc 6.2.20, para 9.2.6c and appendix G plate CW1).
- 17.155 The drive shaft would be used to remove the excavated material from the tunnel, supply precast concrete segments to the TBM and for installation of the secondary lining.
- 17.156 The Applicant has committed in the RTS to transport by river 100% of all excavated material from the tunnel and shaft, main tunnel lining segments and sand and aggregate for secondary lining³¹¹ (APP207.02). This would be by use of 1,500T dumb barges or 2,300T motorised vessels/barges loaded by overhead conveyors from the site.
- 17.157 Restrictions in barge movements at night are now proposed for noise and disturbance reasons, however the Applicant has stated that it would need to dredge the berth to a depth of 4m to accommodate the reduced working hours (APP31.02, para 2.2.15).
- 17.158 The site methodology requires a larger area of land for a chalk tunnel drive than for a clay tunnel drive because the site would need to have a slurry treatment plant and slurry storage facilities as well as material storage. The Applicant proposes to house these in a 50m by 15m by 12m high building (APP31.02).

³¹⁰ Area made up of 10,900m² hoarded area with a cofferdam of 8,600m²

³¹¹ Subject to operational derogations and an expectation that the volume of specified materials by river will not fall below the target of 90% (APP207.02, para 2.1.2)

Photomontages of the construction site were provided in response to our written questions, showing the view down onto the site from Luna House and the view from Fountain Green Square (APP59.07.01, in answer to Q32.7).

- 17.159 Access to the site would be via a single entrance on Chambers Street directly opposite the new residential development.
- 17.160 Upon completion, the cofferdam would be removed and the site prepared to form part of the residential development area. The above-ground structures would be limited to three signature ventilation columns (5m to 6.5m high) and a kiosk (Doc 6.1, figure 22.6)³¹². Details would be agreed with the local planning authority.

Issues raised during the examination

- 17.161 The Applicant's own site selection process assessed the site as less suitable for socio-economic/community. Chambers Wharf was one of the sites where six of the nine environmental assessment parameters were considered to be less suitable and yet the site was assessed as suitable on environmental grounds, although it acknowledged that mitigation would be required. The ES also confirmed that there would be significant noise and vibration impacts even with mitigation.
- 17.162 These matters, as well as the selection of the site itself, formed the basis for most of the issues raised during the examination on this site. In summary the key issues raised in the examination by both the local authority and other Interested Parties with regard to the use of Chambers Wharf as a drive site included:
- noise impacts from the construction works on the local community, including particularly the residential flats and houses adjacent to the site, eg Luna House, Axis Court, Fountain Green Square
 - noise impacts on houses under construction on Chambers Street
 - noise impacts on the local schools, Riverside Primary School and St Michael's Secondary School
 - impacts on houseboats
 - the impacts of traffic on dwellings close to the access road, including particularly Wrayburn House on Bevington Street
 - in-combination effects on health and well-being, having regard to the duration of the works
 - effectiveness of noise insulation
 - inadequacy of noise assessment (challenge by LB Southwark)
 - the small size of the site being inadequate for a drive site
 - the alternative of using the site as a reception site and driving the tunnel from Abbey Mills.

³¹² The height parameters for the columns are in table 1 on the site works parameter plan - drawing DCO-PP-19X-CHAWF-210005 - Rev 1

17.163 We received many written representations on these matters. Examples include the following:

- Save Your Riverside (WRR085, which includes a report on Noise at Chambers Wharf by Rupert Taylor, and a drive strategy review by Dr Tony Swain)
- Save Your Riverside (REP456, which includes comments on the houseboats)
- Save Your Riverside (REP496, which includes comments on the inadequacies of the draft TAP for Luna House)
- Tower Bridge Yacht and Boat Company (Downings Roads Moorings) (WRR110)
- Mr Stuart Tyler of Fountain Green Square, including photographs of the site using a barge during the recent demolition (WRR034)
- Riverside Primary School (WRR106)
- Wrayburn Residents Together (representing 200 residents at Wrayburn House) (REP389)
- Tempus Wharf (WRR090).

17.164 One of the issues frequently raised in the many representations was the small size of the site for a drive site. We are also concerned about the restricted capacity of the site to accommodate material treatment and storage and vehicle movements both on and off-site, particularly if additional HGV movements were needed due to interruptions to river transport. We questioned the Applicant further on this matter. The Applicant stated that the site would have capacity for 3 days³¹³ material storage at average tunnelling rates and 1½ days storage at peak tunnelling rate (APP61, answer to Q34.11). The table gives the storage capacity on site as 5,500m³.

17.165 However the Applicant later reported that it had made an error in the calculations and had omitted to allow for the area of the slurry handling plant (APP102.04, para 4.7.8, dated February 2014). The area of land available for material storage on site would be 1,200m² and not the 2,750m² assumed because the response to the second written question Q34.11 had *'failed to take account of a difference in tunnelling method between Chambers Wharf and the other main drive sites'* and *'did not take into account the processing plant which would also need to be installed in this area, as well as an allowance for the circulation of loading vehicles'*. The Applicant claims to have overcome the effect of this error by increasing the planned stock pile height to 3m from the 2m assumed previously (2m high in APP61, table 11.1). However we consider that even this calculation is doubtful, as table 4.4 (APP102.04), gives the on-site storage area as 1,200m² and a

³¹³ Also given as 3.4 days average and 1.3 at peak production rate in APP102.04, section 4.7

volume³¹⁴ of 3,600m³. This appears to assume vertical sided storage on four sides.

17.166 We note from APP102.04 (para 4.7.2) that the Applicant would now propose to use retaining wall structures to hold the 3m high stockpile in position. This does not seem to be a very practical arrangement³¹⁵ and does not give us confidence that the logistics of using this site have been fully thought through.

17.167 In the event of the need for a river transport derogation and the capacity for storage of excavated material on site being exceeded, the Applicant confirmed that the capacity of the site for HGV movement per day would be 306. This would be only just over the HGV needs of 302 movements per day at long term average drive rate and substantially below the 742 movements per day needed at high output drive rate (APP61, Q34.12). As stated in the appendix to the answer to Q34.13, this maximum site capacity of 306 HGV movements per day equates to '1 excavated material vehicle every 5 minutes + 6 'other' vehicles³¹⁶ per hour; in an 8½ hour operation' (APP61.13.02, table A2). However, the Applicant also pointed out that, because of this land transport capacity, it would not be practical to sustain an all-by-road transport solution from this site, when the on-site storage capacity has been exhausted (APP61, answer to Q34.12).

Mitigation measures at Chambers Wharf as a drive site

17.168 As is clear from earlier chapters, considerable attention was given to the concerns regarding the noise and vibration impacts, during the examination. The mitigation proposals for the site to address these aspects were refined and to some extent the predicted impacts were reduced but as stated in chapters 12 and 13 significant impacts still remain.

17.169 The mitigation measures are now secured in CoCP Part B, the RTS³¹⁷ and by a unilateral obligation in favour of LB Southwark (APP209.03).

17.170 The site would be surrounded with the following hoarding/noise barriers:

- 3.6m on the western and southern boundaries of the site (excluding the cofferdam)

³¹⁴ APP102.04, table 4.4, gives the volume as 3,60m³, but this appears to be a typing error for 3,600m³. We base this reasoning on the Applicant's presentation of facts that an area of 2,750m² would give 5,500m³ at 2m height stockpile, and therefore an area of 1,200m² at 3m height would give 3,600m³ volume stockpile

³¹⁵ CoCP Part B refers to a roofed, 3-sided noise enclosure for night-time activities within the material storage/handling area

³¹⁶ Other vehicles would include tunnel segment delivery, grout constituents and TBM supplies such as temporary track and pipe-work (APP61.13.02, table A2)

³¹⁷ RTS: River Transport Strategy (APP207.02)

- 5m on the eastern boundary of the site (excluding the cofferdam ie adjacent to Fountain Green Court and Loftie Street)
- 2.4m on the western and eastern edge of the cofferdam
- the contractor shall consider positioning the three storey offices or equivalent on the south-western corner to act as a noise barrier to St Michael's Roman Catholic School and Axis Court.

17.171 The CoCP Part B now incorporates the provision of push piling '*unless this is determined to be impossible*'. This additional commitment by the Applicant during examination has reduced the predicted impacts for a number of properties for both noise and vibration.

17.172 The CoCP Part B includes the following noise enclosures:

- the construction area around the main tunnel shaft, during main tunnel construction and secondary lining. We note that this would not be in place for the shaft construction
- around the slurry treatment plant
- around the temporary concrete batching plant, grout plant and conveyors used to load barges
- all static plant screened or enclosed.

17.173 In addition the following are specified:

- night-time activities within the material storage/handling area (screened by three sided and roofed enclosure)
- all cladding with minimum sound restriction of 20dBRw¹
- a commitment to consider a 3.6m acrylic noise barrier on the river wall in front of Fountain Green Square, however this would be outside the LLAU and is not secured by the DCO.

17.174 Another important factor that would serve to mitigate the effects on local residents (and the local road network ie Chambers Street and Bevington Street) is the Applicant's commitment to river transport. The RTS would be secured through Requirement PW15. This commitment is subject to operational derogations (see chapter 14 under the heading 'River transport strategy'). The potential effects of such derogations were an issue during the examination and are discussed below.

17.175 Both the CoCP Part B and the RTS now commit the Applicant to no loading or unloading or movement of vessels onto or off the berth at night (22.00 to 08.00), although this would be subject to the derogation process detailed in the RTS. In this context, the Applicant forecasts that night activity may be necessary for 5% of the time ie one night in 20 (APP31.02, para 2.2.11). The RTS also makes a commitment for tunnel segments to be delivered by river (APP207.02, para 4.1.1), although as with the movement of

barges at night, this could also be subject to derogations ie one night in 20 (APP31.02, para 2.2.19).

- 17.176 This commitment for night-time restriction in barge movements removed the assessment of significant effects from Luna House and Fountain Green Square at night; however at times when river transport is unavailable the contractor would implement contingency plans which would be approved under the RTS. These plans are not before us but could include some night-time barge movements, additional HGV movements or other measures yet to be specified. The plans should not result in any additional environmental effects which are significant in ES terms as this would conflict with the DCO. Even so, we consider that there is a likelihood of additional noise and disturbance, albeit short term, to residential receptors around Chambers Wharf.
- 17.177 As discussed in chapter 14, the RTS does not include for the transportation by river for temporary fill material to or from the site. This is inconsistent with the transport assessment which states that cofferdam fill would be imported and exported by barge (Doc 7.10.17, para 20.2.12).
- 17.178 The Applicant appears to be relying on the effectiveness of noise insulation to overcome the impacts of any potential derogations (see chapter 12 under the heading 'off-site mitigation'). However, those residential receptors who would not qualify for noise insulation may well experience additional noise and disturbance at times when river transport is unavailable. Also as discussed in chapter 12, if push piling is not possible, both Luna House and Fountain Green Square would have significant effects from vibration.
- 17.179 The additional mitigation measures secured would provide specific protection to the local schools, in the form of no lorry movements being scheduled during pick-up and drop-off times during term time. This would be secured through the CoCP Part B. A TAP is also proposed for Riverside Primary School in the unilateral obligation (APP209.03).
- 17.180 The sunlight/daylight impact on Axis Court is discussed in chapter 13. The mitigation has been secured in CoCP Part B which states that *'the site layout, hoarding and noise barriers in the west of the site shall be designed (where practicable) to minimise the potential adverse sunlight/daylight impacts on the lower floors of Axis Court'*.
- 17.181 No mitigation measures have been proposed for the houseboats at Downings Roads Moorings or Hermitage Community Moorings. However, the Non-statutory off-site mitigation and compensation policy does identify houseboats as special cases for the assessment of compensation claims resulting from noise (APP210.01, appendix C).

- 17.182 The Applicant has stated in the ES Update Report that further on-site mitigation is not practicable (APP208.01.26, appendix 20.1). However, it has also stated that there would be further opportunity to explore additional mitigation measures through the Community Liaison Working Group (CLWG) when the contractor is in place (APP31.02, para 2.2.64). Any such additional measures are not before us and are not secured.
- 17.183 With the site hoarded on three sides and all working areas enclosed, it is hard to determine what additional on-site mitigation might be available short of enclosing all site operations.

Assessment of residual impacts at Chambers Wharf

- 17.184 The Applicant's ES Update Report gives a summary of the predicted residual impacts after the mitigation has been taken into account. The impacts for air quality, noise and socio-economic are reported and concluded on in chapters 5, 12 and 13. A brief summary is given below.

Air Quality

- 17.185 The Applicant's assessment of air quality at Riverside Primary School has remained as minor adverse in the ES Update Report. The effects of construction dust on recreational users of the Thames Path, River Thames and users of open space south of Chambers Street also remains as minor adverse (APP208.01.26, table 4.10.1). The assessment of impacts on the residential properties from air quality and construction dust is in the range of negligible to minor adverse effect; the worst affected being the homes that surround the site.

Noise

- 17.186 The mitigation measures now brought forward by the Applicant during the examination process have reduced the predicted impact of noise at night. However, the ES noise assessment states that two properties would still be significantly affected by noise from the construction site during the day and evening (Luna House and Axis Court) and one block of properties on the waterfront would experience a significant impact from river traffic (8-14 Fountain Green Square). Noise insulation (through TAPs) is proposed for the three properties and the commitment is secured by the unilateral obligation in favour of the local authority.

- 17.187 Improvements in the assessments were as a result of:

- the specification of push piling, although there is still a risk that this may prove to be impossible in which case vibration impacts would be significant at Luna House and Fountain Green Square.

- no barge loading or unloading at night, or tunnel segments deliveries at night. However, we note that 5% derogation³¹⁸ could cause additional noise and disturbance to local residents if the derogations allowed night-time barge movements. There is no indication whether such night movements would occur occasionally or be on consecutive nights.

17.188 LB Southwark's noise review by Bureau Veritas reported that a single barge movement at night time would result in significant impacts (APP31.02, appendix D, ref 3.6.36). However, both Luna House and Fountain Green Square have been offered a TAP, which should assist with the disturbance in the event of derogations. The respite accommodation offered in the off-site mitigation policy only addresses vibration and does not consider the impact of disturbance from short term night-time noise impacts.

17.189 As stated in chapter 12, the noise assessment by Bureau Veritas also noted that should river transportation reduce by only 2% then the resulting increase in HGV movements would lead to an increase in traffic noise levels of 3.6dB on Chambers Street. The Applicant's response (APP31.02, appendix D, para 3.6.37) did not dispute this particular point. We consider that the observation by Bureau Veritas does illustrate the sensitivity of the noise assessment with regard to small changes in material being removed or delivered by road. However, as stated in chapter 14, we rely on the control mechanisms included in the RTS to ensure that derogations would be adequately controlled.

17.190 We discuss the houseboats in chapter 12. The noise impact on the two sets of houseboats which are near this site (which was predicted as not significant in the ES from both air-borne noise from construction and river traffic) would also be mitigated by the prohibition of loading and movement of vessels at night from Chambers Wharf. We acknowledge that the Non-statutory off-site mitigation and compensation policy refers to the houseboats as special cases, however as stated in chapter 12 we remain concerned that the impacts on houseboats have not been fully assessed.

17.191 LB Southwark does not agree with the noise assessment and it considers that *'the applicant has underestimated the full extent of the impacts upon people living, learning and working around the site'* and *'the impacts of using Chambers Wharf as a drive site are wholly unacceptable and cannot be adequately mitigated'* (REP491).

17.192 As stated in chapter 12, we conclude that the noise impact on the local receptors is likely to have been understated.

³¹⁸ Tunnel segment derogation could apply to delivery by road as well as night-time delivery by barge

Socio-economic

17.193 The Applicant's assessment of the residual socio-economic impact from the construction works with the mitigation added during the examination has changed during the examination as follows (APP208.01.26, table 10.10.1):

- residents: Moderate adverse (previously major adverse but reduction subject to push piling being possible)
- users of amenity green space (Wrayburn House): Negligible
- users of community facilities (schools): negligible (previously minor adverse). Improvements based on delivery of tunnel segments by river, no lorry movements during school pick-up and drop-off times, and a TAP for Riverside School
- users of the Thames Path and National Cycle Route 4: negligible.

17.194 The ES gives no indication of the number of people or households that would be impacted by the construction works; however the Health Impact Assessment (HIA) does state that in the 2001 census, there were 2,950 people living within 250m of the site, with 33% children or older people, and 29% of them being within the 20% most deprived areas nationally (Doc 7.12, appendix D, table D.93). LB Southwark's LIR also states that there are 14,000 jobs and 260 businesses as well as the three schools within 250m of the site (REP095, para 3.10.13).

17.195 The Applicant's response following the IS hearing also gives an explanation of the assessment given in the ES. It acknowledges the six-year construction programme and that the effects that would be likely to be experienced over a long time period (APP31.02, appendix F.4). The Applicant notes that:

- air assessment was based over the peak year, and the assessment may be less than minor adverse over some phases of construction
- the peak noise levels at day and night would not occur during the same period
- visual effects from night working would only occur during continuous periods of work. However, we note that this would be for 33 months
- there would be major adverse effects at one viewpoint. However, the Applicant considers that views from a residential property form *'one of many elements that contribute to the quality of a residential environment. Many of the dwellings at the receptors represented by this viewpoint are also likely to have views in other directions that are either not as severely affected or are not affected at all'*.

17.196 In the section on amenity, health and well-being in chapter 13, we state that we consider that the proximity of the high hoardings and site offices would result in an overbearing visual impact on the

lower floors of Axis Court and add to the overall impact on the amenity of those living very close to the site. Other residential properties immediately adjacent to the site would also have significant visual impacts for six years because the site would be intensively developed with large temporary structures.

17.197 We conclude that the ES underestimates the likely effects on the amenity of residential receptors at Chambers Wharf.

In-combination impacts

17.198 The Applicant has stated that the overall in-combination effects on the quality of life would be a 'negligible to minor adverse' impact when embedded mitigation measures had been taken into account. The Applicant considered that the impacts would be at the lower end of the range ie towards negligible (APP60, table 4.18). In chapter 13 we conclude that the quality of life health determinant within the HIA is likely to be understated at this site.

Local impact report and outstanding concerns

17.199 There remains significant opposition to the selection of the site from Interested Parties, much of it based on the construction contract duration of six years with 33 months of night-time working.

17.200 In the LIR, LB Southwark raised concerns about the site. It comments that *'the in-combination effects on the area round Chambers Wharf should not be underestimated. The very close proximity to sensitive receptors, the long construction period and the unsatisfactory mitigation provided, coupled with a combination of the recognised impacts including those resulting from noise, air quality, visual amenity and highway safety means that residents and school children will experience significant harm to their living and learning environment for a number of years'* (REP095, para 1.7).

17.201 The Council's position at the end of the examination was stated in its final written submission. The key headlines include: *'the applicant has underestimated the full extent of the impacts upon people living, learning and working around the site at Chambers Wharf'*, and *'the impacts at Chambers Wharf as a drive site are wholly unacceptable and cannot be adequately mitigated. The applicant's unsuccessful efforts to secure mitigation at the site over the course of the six month examination - and the number of comments still necessary in this submission one day before the close of the examination - have only gone to emphasise that point'*. The Council submits that the Applicant has not provided the required certainty concerning mitigation at Chambers Wharf (REP491).

17.202 LB Southwark also states that *'a viable alternative site is available to drive the tunnel at Abbey Mills, with far less impact and the*

drive direction ought to be reversed to take advantage of that opportunity. Crucially, the applicant has not been able to provide information to rebut the council's analysis that the noise impacts of 'all by road' at Abbey Mills are not significant. Reversing the drive direction is the appropriate way for significant impacts at Chambers Wharf to be avoided and adverse impacts to be mitigated and minimised' (REP491).

Alternatives considered for Chambers Wharf

17.203 In the site selection process, the preferred drive strategy at phase 1 was for a main tunnel drive site at Abbey Mills with a reception site at King's Stairs Gardens (in LB Southwark). King's Stairs Gardens would also have served as a drive site to two CSO connection tunnels, one to Greenwich and the other to Druid Street (which was subsequently removed by the proposed development at Shad Thames Pumping Station) (Doc 7.05, volume 18).

17.204 After the phase 1 consultation, and with strong opposition to King's Stairs Gardens, the opportunity arose for the Applicant to buy Chambers Wharf³¹⁹, which it then acquired. This change in circumstances triggered a back-check process (APP31.02, section 2.1). In this back-check process, six sites were assessed as suitable to be either drive sites and/or reception sites. These were Shadwell Basin, King Edward Memorial Park, King's Stairs Gardens, Chambers Wharf, Heckford Street and Limehouse Basin.

17.205 From the phase 2 site selection assessment, the Applicant identified Chambers Wharf as the preferred site for reasons including the following (APP7.05, volume 18, para 3.4.5):

- it was available and a feasible brown-field site that had been earmarked for development
- the site has direct river access
- *'less impact on the natural and built environment'*
- *'planning policies are more favourable'*
- *'fewer programme risks'*.

However the assessment did recognise that there would be a number of residential properties in close proximity to the proposed Chambers Wharf site.

17.206 Having identified the Chambers Wharf site, the Applicant then considered the tunnel drive direction ie whether Abbey Mills or Chambers Wharf would be the drive site. The Applicant states its reasons for selection of Chambers Wharf in the site selection report (Doc 7.05, volume 18, para 3.4.10) as:

³¹⁹ As submitted in IS hearing 12 November 2013

- *'transporting materials to and from the site by the River Lee and Bow Creek was at worst not feasible and at best highly undesirable where materials needed to be transported daily over a two to three year period'*
- at Chambers Wharf, 1,500T or potentially larger barges could be used whereas at Abbey Mills only 350T barges could be used during a short tidal window
- Chambers Wharf would avoid the need to construct campsheds and wharf facilities in the Channelsea River and avoid having to move contaminated materials
- the Greenwich connection tunnel could be driven from Greenwich.

17.207 We note that in the reasoning given in the site selection report, river transport was an important (or perhaps even the determining) factor in the Applicant's selection process. The decision appears to have been weighted in favour of the better river transportation opportunities at Chambers Wharf, even though this site would have significant impacts because of the proximity of residents and housing.

17.208 Chambers Wharf was then taken forward as the Applicant's preferred drive site into the phase 2 consultation. The objections received then were similar to the current objections:

- The site is too small and would need to be extended 50m into the River Thames in order to accommodate the proposals
- The reasons for selecting the site are flawed/questionable
- Drive sites should avoid sites in residential and/or densely populated areas and sites that are close to sensitive receptors (including schools)
- Abbey Mills or King's Stairs Gardens should be considered as a drive site (Doc 7.05, para 4.2.1).

Having considered the consultation responses the Applicant decided to retain Chambers Wharf as the proposed drive site.

Alternative tunnel drive strategy

17.209 In this section, we consider the key alternative put before us by the Interested Parties and LB Southwark. We first review the implications for Chambers Wharf if it were to be a tunnel reception site, then describe the Abbey Mills site and consider Abbey Mills as a potential drive site before giving our conclusions on the drive strategy.

17.210 We did not consider King's Stairs Gardens further, as having reviewed the assessment we agreed that the site would not be suitable as a main tunnel drive site, because of the impact on the local community and open land, and we considered that the Applicant had justified its decision to rule out this site.

Chambers Wharf as a reception site

- 17.211 LB Southwark and local residents remain in opposition to use of the site at all; as they consider that it is too small for use as a drive site. However, LB Southwark and Save Your Riverside have stated that, although they oppose the use of the site at all, they would not oppose the use of the site as a reception site, because *'there would be significantly less impact'*³²⁰. This is because although there would still be significant impacts they would be over a lesser duration and would demonstrate the community's commitment to take their reasonable share of the impact and demonstrate that they are not just anti-development.
- 17.212 In answer to our questions, the Applicant advises that as a reception site the provisional site area requirement would reduce to approximately 9,000m² (APP14, para 27.2.10). We note that this is considerably in excess of the area stated as being needed for a tunnel reception site of 5,000m² to 7,500m² (depending on geology), in the site selection process methodology (Doc 7.05, para 3.6.8).
- 17.213 The Applicant provided a revised layout for the site, which included a smaller cofferdam at the eastern end of the site and only used about half the land portion of the site (APP14.25.01, drawing no DCO-FQ19X-CHAWF-142501). The Applicant also included a plan of the site should it be used as a drive site for the Greenwich tunnel and reception for the other two main tunnels. This was not an alternative promoted by any party and we did not pursue it further.
- 17.214 The Applicant advised that the programme for a reception site at Chambers Wharf would remove a 19 month construction period for the main tunnel drive. However continuous working for the secondary lining of the main tunnel and the Greenwich tunnel would still be needed (APP14, answer to ExA's Q14.27). In addition the site set up work for the construction of the cofferdam would reduce from 6 months to 3 months.
- 17.215 The cofferdam would extend 30m into the river to provide for a 5m space between the back of the cofferdam and the existing wharf to allow for demolition and construction of a new retaining wall (APP14, para 27.2.13). The cofferdam would also allow berthing of a single 1,500T barge.
- 17.216 The area of the site would be sufficiently large to hold a reception site without a cofferdam extension into the river. We asked the Applicant why the shaft could not be moved further into the site to remove the need for temporary works in the river. The Applicant responded that the shaft would have to be moved over 8m to avoid the footprint of the river wall and give clearance to anchor

³²⁰ IS hearing 23 January 2014

blocks. Amongst other things it also noted that relocating the shaft would impact on the consented residential development by reducing the size of the basement and would require redesign of the structural core of the adjacent towers. This may reduce the number of residential units in the future development (APP59, response to Q32.20).

17.217 Given the fact that one of the greatest day-time noise impacts on local residents would be the construction of the cofferdam, we also asked if it would be feasible to use the existing wharf deck, as it was apparently in use for the clearance of the site. The Applicant responded that *'in the absence of a full structural assessment we have assumed that the old jetty and flood defence would not sustain the significant construction impacts from the proposed works'*. The Applicant goes on to state that *'unless we could confirm the integrity of the decking, then we would propose to use conveyor systems to transfer excavated materials from the construction site directly to barges without imposing loading on the decking. The conveyors would most likely be located to the west of the main tunnel shaft. Campsheds would also need to be constructed on the riverbed to allow barges to ground at low tide'* (APP59, answer to Q32.3).

17.218 Having received the responses from the Applicant, the positions of LB Southwark and other local Interested Parties remain unchanged. They accept that even as a reception site there would be disruption but it would be for a shorter period. LB Southwark in the final written representation states that *'a viable alternative site is available to drive this tunnel at Abbey Mills, with far less impact and the drive direction ought to be reversed to take advantage of that opportunity. Crucially, the applicant has not been able to provide information to rebut the council's analysis that the noise impacts of 'all by road' at Abbey Mills are not significant. Reversing the drive direction is the appropriate way for significant impacts at Chambers Wharf to be avoided and adverse impacts to be mitigated and minimised'* (REP491).

Summary

17.219 We can confirm our view that the use of Chambers Wharf as a reception site is entirely feasible and practicable. This is because the site is of a sufficient size to accommodate reception site works. The impacts on the local community would be likely to be reduced. The site would still be in occupation for over four years³²¹ for construction, but the duration of the noisiest activities would be reduced as would the period of continuous working (from 33 months to 14 months).

³²¹ The Applicant did not provide a revised construction duration, but we note that Acton Storm Tanks and Abbey Mills Pumping Station as main tunnel reception sites, both have a 4 year construction duration. Also the Applicant stated that continuous working would reduce by 19 months and cofferdam construction by 3 months

Description of Abbey Mills site

- 17.220 Abbey Mills Pumping Station is an existing Thames Water sewage pumping station site, located in LB Newham³²². The sewage pumping station site itself is a large site. The proposed construction compound (as a reception site) is only part of it, located in its south east corner with an area of 3.7 hectares. Of this, the hoarded area for the reception site would be 22,600m².
- 17.221 The proposed construction compound is bounded to the north and northeast by operational wastewater infrastructure, to the east and southeast by the Channelsea River and Abbey Creek, to the west by Prescott Channel, Three Mills Lock and by Riverside Road to the northwest. Land use in the wider area is predominantly industrial/commercial. The 4km long meandering navigational channel of Bow Creek, between Prescott Lock and Blackwall Point, provides access to the River Thames from the site (APP14, para 25.7.10).
- 17.222 The nearest residential properties are to the northwest in the area of Gay Road and Abbey Lane and houseboats at Three Mills Water to the west, with allotments immediately abutting the site to the northwest. According to the 2001 census data, there are 875 residents within the 250m buffer zone around the sewage pumping station site and 100% of them are amongst the '20% most deprived areas nationally' benchmark (Doc 7.12, appendix D, table D.123).
- 17.223 The proposed construction compound site is currently the work compound for the reception of the Lee Tunnel TBM drive from Beckton sewage treatment works (STW). There are two shafts under construction; one is shaft G, which would be the reception shaft for the main tunnel. When we visited the site on an accompanied site inspection, in October 2013, the site was being used to store excavated material from the shafts prior to the material being moved by barge from the site (excavator loaded). There was capacity for two barges immediately alongside the site which arrived and left on the same tide without use of campsheds. The Lee Tunnel works are due for completion in 2015 and we understand that shaft G has been constructed with a diameter of 25m instead of the 20m diameter shaft described in the application.
- 17.224 The two shafts are located to the east of Three Mills Locks, as shown on drawing no DCO-FQ-26X-ABMPS-142503 (APP14.25.01), at some distance from any residential housing. At the IS hearing³²³ LB Newham drew attention to a development at Sugarhouse Lane, part of which is within 400m of the site, which will include 1,300

³²² This description of the site is taken from the application for a tunnel reception site, but is also relevant to what could be a tunnel drive site

³²³ IS hearing 23 January 2014

residential units. LB Southwark at the same hearing pointed out that not all 1,300 units would be within 400m and that the edge of the development would be 250m from the site. However, there is no evidence before us to show that this development is likely to be significantly affected.

17.225 There are no schools within 300m of the boundary of the work site (APP16, answer to Q16.1).

17.226 Road access to the site would be by Abbey Lane, onto the A11 and A12.

17.227 The site is described in detail in the Applicant's ES Non-technical Summary (Doc 6.1, section 27.1) and in LB Newham's LIR (REP087, section 3) albeit as a reception site. The ES Non-technical Summary includes a location plan of the site and an aerial view showing the LLAU for the currently proposed reception site (Doc 6.1, figures 27.1 and 27.2).

Abbey Mills as a drive site

Site selection assessment

17.228 The site was the preferred main tunnel drive site at the phase 1 consultation. The site selection process described above assessed the site as suitable for engineering, planning, environment, and property, and less suitable for socio-economic/community. One of the reasons for the less suitable assessment for a main tunnel drive site was because *'it would likely lead to the loss or displacement of some of the allotments, which could be difficult to relocate or otherwise mitigate'* (APP7.05, volume 23, para 2.4.11).

17.229 Of the nine technical aspects³²⁴ that form the environment discipline, only two considered the site to be less suitable. These were transport and land quality.

17.230 In phase 1 of the site selection process, the reason given for selecting Abbey Mills over a drive site at King's Stairs Gardens included that *'it was more likely that noise and air quality impacts could be adequately mitigated for a main tunnel drive shaft site at Abbey Mills Pumping Station than at King's Stairs Gardens'* (APP7.05, volume 23, para 2.5.14). However this reasoning is not given in the comparison between Chambers Wharf and Abbey Mills.

17.231 We asked the Applicant to provide us with a comparison of Abbey Mills as a drive site with Chambers Wharf in the first written questions. The responses were received at the same time as LB Southwark's written representation (WRR075), which included detailed supporting appendices on the following subjects:

³²⁴ Refer to 'methodology for selection of work sites' earlier in this chapter

- River Lee feasibility study for transportation of spoil materials (Pell Frischmann Report)
- Abbey Mills drive site assessment ie transport by road (Phil Jones Associates Report)
- Review of Noise and Vibration assessment (Bureau Veritas Report).

17.232 Save Your Riverside's written representation (WRR085) was received at the same time, and also included reports on noise and drive strategy as follows:

- Noise and Vibration effects at Chambers Wharf work site (Rupert Taylor FIOA)
- Evaluation of Thames Water's tunnel drive strategy for the Eastern Tunnel (Dr Tony Swain report).

17.233 The Applicant responded to the ExA's first written questions and then followed up the first IS hearing with a written summary of its oral submissions. This corrected some of the data on HGV movements, noise impacts and duration of barge movements given in answer to our first written questions (APP31.02, section 3). The IS hearing summary also addresses some of the matters raised in LB Southwark's three reports and the Rupert Taylor report given above. There were no comments in APP31.02 concerning Dr Swain's technical report which had concluded that *'not only is it technically feasible to construct the Eastern Tunnel from Abbey Mills to Chambers Wharf, there are a number of technical and economic advantages which supplement the obvious environmental advantages in doing so'* (WRR085, appendix SYR03.10).

17.234 It appears to us that the Applicant's prime reason for the choice of drive direction was the ability to transport by river. Therefore in our report below we mainly focus on the main areas of transport of material, by barge and/or road, the potential noise impacts at Abbey Mills if it were to be a drive site and the implication to the development programme if a possible change in drive direction were to be further explored.

River transport review

17.235 The Applicant initially advised us that it considered that Bow Creek would have capacity for three 350T barges per day. The river does not have capacity for larger vessels, because it is tidally constrained and also because of restrictions from low bridges.

17.236 The report by Pell Frischmann suggested that, with dredging of the River Lee (Bow Creek), capacity could be increased to four barges during each neap or spring tidal window. This would equate to a maximum disposal rate equivalent of 63% of the excavated material (WRR075, appendix 2, section 8).

- 17.237 This was discussed at the IS hearing (12 November 2013) where the PLA noted that in its opinion four barges would be reasonable. This view was subsequently confirmed in a SoCG with PLA, LB Southwark and LB Newham agreeing that *'the maximum daily feasible volume that could be moved on Bow Creek equates to 1,260 tonnes (4 x 350t barges laden to 90 per cent capacity), albeit with an acknowledgement that a slightly larger vessel could be used through bespoke barge design'* (REP362, para 1.2.2c).
- 17.238 The Parties also agreed that there would be no benefit to be gained from dredging the creek, because the constraints on safe navigation also relate to the difficulty associated with manoeuvring a tug and barge around tight bends in a tidal stream, and that the maximum feasible daily volume relies on four tugs and four barges.
- 17.239 The Applicant had previously stated that with three barges per day there would need to be a mixed barge and road transport solution. This would necessitate 2,948 barge movements and 64,800 lorry movements (APP31.02, table 3.1). This compared with 1,912 barge movements and 53,800 lorry movements with the proposal for the drive site at Chambers Wharf (APP31.02, table 3.3).
- 17.240 The Applicant subsequently submitted data for material movement by barge and road for the four barges per day scenario, which showed that it would be possible to remove a greater proportion of the excavated material by barge from Abbey Mills. However, river transport would not have sufficient capacity to remove all the excavated material. The data submitted showed that at the average tunnelling rate around 85% of excavated material could be removed by barge – a figure that would fall to 35% at the maximum tunnelling rate. The number of lorries needed to remove the balance of the material would therefore also vary with the tunnelling rate, from 88 HGVs per week at average tunnelling rate to 1,130 HGVs per week at peak tunnelling rate (APP59.22.03). LB Southwark did not agree³²⁵ with these figures and submitted that the peak rate would be 1,000 HGVs per week (REP309, section 32).
- 17.241 The Applicant also stated that barging at Abbey Mills would be less efficient than Chambers Wharf because of the need to use 350T barges whereas Chambers Wharf would be able to use larger vessels of up to 2,300T carrying capacity. This would make river transport more efficient, for example in terms of the total number of operatives required or the amount of material moved per operative. On the latter measure Chambers Wharf would be almost twice as efficient as Abbey Mills at the average tunnelling rate and over three times more efficient at the peak tunnelling rate (APP59.22.03 and corrected table in REP309). We note that

³²⁵ Disagreement was due to an arithmetical error rather than methodology in principle

this calculation was based on the use of 2,300T barges, whereas the Applicant may also use 1,500T barges at Chambers Wharf (APP61, answer to Q34.10) which would reduce the gap in efficiency.

17.242 The Applicant advanced a number of practical concerns relating to the use of barges at Abbey Mills. One of these was the need to arrange alternative transport for removal of excavated material from the site in the event of a failure of the barging operation. To avoid stoppage of the tunnelling machine, this would require immediate provision of 30 to 50 lorries to take the material away from the site (APP31.02, para 3.5.14). However, there is no evidence that this would be a greater problem at Abbey Mills than at other drive sites. Moreover, from the evidence before us we consider that there is more potential to store materials on site than at Chambers Wharf allowing more time for resolution of any transport problems. Consequently, we do not consider that this is an important point of distinction between Abbey Mills and Chambers Wharf.

17.243 We asked the PLA about the use of Bow Creek at the IS hearing (23 January 2014). We were told that fog is an infrequent and short term problem, closures of the Thames Barrier were normally publicised in advance and were typically for a few hours and that potential risks of grounding in the creek could be managed satisfactorily if navigational procedures were followed correctly³²⁶.

17.244 We asked the Applicant if the drive site could be constrained within the current proposed limits of land to be acquired or used (LLAU) at Abbey Mills. The Applicant advised us that the LLAU would need to be extended from that currently proposed, to accommodate additional facilities needed to load excavated material into barges. Provision of berthing would also require additional works to accommodate campsheds, fendering and associated dredging to facilitate loading and manoeuvring of tugs and barges (APP14, para 25.7.12).

17.245 We also asked about the capacity for storage of excavated material at Abbey Mills with regard to the flexibility there would be to manage road and river transport together. The Applicant advised us that 1,630m² would be available at Abbey Mills which would be equivalent to 4.6 days production³²⁷ (APP102.04, section 4.7). A main tunnel drive site construction layout is given in APP14.25.01. However we note that the Pell Frischmann report also considers the layout of a potential drive site at Abbey Mills. A diagram giving the slurry treatment plants and excavated area storage of 4,000m² is shown on drawing no A12537-C-02, which is not that dissimilar to the Applicant's own drawing. From this, it is

³²⁶ Capt. Lawrence, on behalf of the PLA, at second IS hearing on Rationale for Site Selection and Drive Strategies, 23 January 2014

³²⁷ 4.6 days at long average drive rate

evident that Abbey Mills is a much larger site than Chambers Wharf. The 4.6 days storage capacity at Abbey Mills versus 3.4 days storage capacity at Chambers Wharf is not disputed by the Applicant. Moreover, in our view Abbey Mills is less constrained and would have more capacity to accommodate changes in barge transport capacity than Chambers Wharf.

17.246 One of the matters the Applicant raised about use of 350T barges at Abbey Mills was the need to tranship to larger vessels for transportation to the waste disposal sites. We questioned why this was a particular issue for this site, when other sites would also use 350T barges (eg Albert Embankment Foreshore). The Applicant advised us that double handling of processed chalk should be avoided, as the material breaks down and is affected by the addition of water from rain. The Applicant went on to state that the contractor would be expected to use barges of '*a design and capacity that would avoid the need for transshipment and would seek a receptor with direct river access*' (APP31.02, para 2.7.9). This is contradictory evidence to that given at the IS hearing and therefore we do not attach much weight to this matter.

17.247 Our assessment is that the Applicant has overstated some of the practical issues raised in relation to use of Bow Creek. Even so, it is not disputed that Bow Creek could only remove a proportion of the excavated material from a drive site at Abbey Mills in any event. The scale of the requirement for HGVs at Abbey Mills would vary, depending on the tunnelling rate achieved and whether there was any extended programme of storage and removal. These are important considerations, given the NPS guidance that water-borne transport is preferred over road transport at all stages of the project, where cost-effective (NPS, para 4.13.10) and this is further supported by London Plan Policy 7.26.

17.248 In addition, we consider that Chambers Wharf offers the following advantages over Abbey Mills in terms of the potential for use of river transport:

- Larger vessels could be used, making river transport more efficient and therefore more cost-effective
- Tunnel segments could be transported in addition to excavated material
- The chalk spoil could be transported to the outer estuary without transshipment.

17.249 However, the RTS is subject to a derogation process. At Chambers Wharf the Applicant's estimate, based on historic data, is that river transport may be unavailable for 5% of the time. The Applicant argues that Chambers Wharf would be better placed to deal with these circumstances than Abbey Mills. However we are not convinced by this argument because the site storage capacity at Chambers Wharf would be less than at Abbey Mills. As discussed earlier in this section, (under the heading 'issues raised during the

examination'), we are also not convinced by the storage capacity claimed for Chambers Wharf, because the Applicant confirmed that there had been an error and the volume of the treatment facilities had not been taken into account in its calculations.

17.250 In the event that the storage capacity at Chambers Wharf was to be exceeded, the likely consequence is that some night-time vessel movements and/or additional HGV movements would be required. Otherwise, the generation of material would have to be slowed or tunnelling stopped. Either of the first two outcomes would be likely to result in additional noise and disturbance to residents living immediately adjacent to the wharf and/or in the residential roads around the site. The Applicant stated that stopping the TBM on an unplanned basis is a significant risk which they would wish to avoid³²⁸.

Road transport at Abbey Mills and Chambers Wharf

17.251 The Applicant confirmed that a drive site at Abbey Mills would require both barge and road transport. This is not disputed by any of the Parties. We wished to consider what the impacts would be of road transport, in particular the impact of an all-by-road operation (for transportation of excavated material) on the local community in the event of a restriction in river transport.

17.252 The Applicant provided us with the HGV needs for the 3-barge per day scenario. This would result in a greater impact than four barges per day, and therefore we consider that it provides a worst case 'barge plus road' scenario.

17.253 In answer to our questions the Applicant confirmed that the vehicle movement to and from the Abbey Mills site as a drive site would be (APP31.02, section 3.2):

- 64,800 lorry movements in the three barge scenario
- 122,800 lorry movements in an all by road scenario.

17.254 This compares to Chambers Wharf:

- 53,800 lorry movements in a river and barge scenario
- 190,506 lorry movements in an all-by-road scenario.

However, we note that as discussed earlier, the Chambers Wharf site does not have the capacity for an all-by-road scenario so if this need was to occur, the tunnel progress would be constrained to the site capacity and there could be consequent tunnel programme and delivery risk.

17.255 The Applicant has noted that it considers that '*the fixed and limited maximum capacity of river traffic at Abbey Mills Pumping*

³²⁸ Mr Arnold at IS hearing on 12 November 2013

Station means that the potential for fluctuations in HGV movements is extreme' (APP59, para 22.2.13). LB Southwark disagrees and points out that *'the fact that any tunnelling rate change would occur over days and be informed by engineering judgement would mitigate against change in the number of HGVs. A reasonable logistics plan and contractor would be able to react to this'* (REP309). The Council goes on to point out that the Applicant has *'already argued elsewhere that HGV provision is flexible though when arguing for road based logistics'*. At the IS hearing on 23 January 2014 the Applicant accepted, in answer to our question, that handling fluctuating demand for HGVs at Abbey Mills would not be more difficult than at any other site, although it is a problem that would happen more often³²⁹. Therefore we attach limited weight to the Applicant's submissions about the difficulty in managing variable needs in HGV rates.

- 17.256 LB Southwark's written representation included a report on the traffic implications of the two alternatives, 'Phil Jones Associates alternative drive assessment' (WRR075, appendix 4). The purpose of the report was to determine if Abbey Mills would provide a more suitable location for the drive site in transport terms when compared to Chambers Wharf. This was based on LB Southwark's assumption that a significant amount of material would have to be transported by road.
- 17.257 The conclusion of LB Southwark's consultant's report is that *'based on the results of the assessment detailed above it is concluded that locating the tunnel drive site at Abbey Mills will not have a significant impact on the operation of the highway network, even in the scenario that all construction materials are transported by road. The impact of the construction traffic on the highway network surrounding the Abbey Mills site will also be significantly lower in the 'All by Road' scenario when compared to the anticipated impact if the tunnel drive site was located at Chambers Wharf'* (WRR075, appendix 4, para 5.3.1).
- 17.258 The Applicant responded to the study in the submission after the first IS hearing (APP31.02, appendix B). The Applicant questions the analysis being based on an all-by-road option, as this would not be the case at Chambers Wharf, given the commitments already given. The Applicant considers that the report therefore presents Chambers Wharf *'too severely'*. We understand both positions, and accept that Chambers Wharf would not and could not support an all-by-road option, but on balance consider that the Phil Jones Associates report does illustrate that the road network capacity around Abbey Mills is greater than that around Chambers Wharf.

³²⁹ Mr Stride, for the Applicant, in answer to questions from the Panel at the IS hearing of 23 January 2014

17.259 We note however that LB Newham's position is that it would be concerned about ongoing heavy traffic, particularly after years of traffic from other large projects in the area. The Council's comments in the LIR with regard to environmental health are based purely on the decision to use Abbey Mills as a reception site and not a drive site. The Council states that this would need to be revisited if this was to change (REP087, para 6.1.4).

Transport impact on Abbey Lane

17.260 The Applicant's submission after the IS hearing (12 November 2013) took the opportunity to correct the noise data that had been submitted in answer to the ExA's first written questions. Again, the traffic impact has been assumed in the 3-barge per day scenario (a worse case than the possible four barges a day agreed to be feasible above) and the all-by-road scenario.

17.261 The noise impact from construction traffic on Abbey Lane³³⁰ in the three barge scenario would be 'not significant' with a noise increase of 2.2dB. In the event of an all-by-road scenario, the noise levels on Abbey Lane would be 3.9dB higher than pre-construction, and therefore would be considered to be significant (APP31.02, table 3.7).

17.262 Table 3.7 also gives the vehicles per day as 1,065 pre-construction, which would rise to 1,133 in the 3-barge scenario, and 1,221 in the all-by-road scenario. The percentage of HGV's would be 13% pre-construction, 18% (3-barge scenario) and 24% (all-by-road).

17.263 We asked for the equivalent table for Bevington Street, at Chambers Wharf, which was given in answer to ExA's Q32.8. This table showed a noise increase of 2.6dB, (for normal mixed barge operation) ie similar. However a 5dB increase would be experienced in Bevington Street in the event of an all-by-road operation which is a larger increase than the 3.9dB increase on Abbey Lane in the same scenario. The purpose of this comparison, was to provide a perspective on the Applicant's comments about noise impacts on Abbey Lane.

17.264 The Applicant also advised that in the all-by-road scenario the Abbey Lane/Stratford High Street junction would be operating at close to its design capacity (APP31.02, para 3.2.24), with the 3-barge scenario providing more flexibility than the all-by-road only option.

³³⁰ In table 3.7, Abbey Lane was referred to as Abbey Road. This was confirmed as a typo in answer to ExA's question Q32.21

Noise assessment

- 17.265 We asked the Applicant to provide a noise assessment for Abbey Mills as a drive site, giving the impact at the façades of properties without any professional judgement assessment on internal noise levels ie BS5228, ABC pure. The 3-barge scenario gave a forecast of significant impact at night only on the Three Mills Wall houseboats and 16 properties on Riverside Road, with the highest noise levels at night of 52dB_{L_{Aeq}} (APP59, table 27.7).
- 17.266 LB Southwark's Bureau Veritas report (WRR075, appendix 3) seeks to give a comparison for Chambers Wharf and Abbey Mills for both noise and vibration. It made suggestions for mitigation measures at Chambers Wharf some of which have now been secured through the DCO.
- 17.267 It would add little value for us to make a comparison between residual noise assessment at Chambers Wharf after mitigation measures and impacts at Abbey Mills without mitigation. However, we do note that, in common with other drive sites, the Bureau Veritas report suggests that the worst noise levels would be during the first phase of main tunnel shaft construction; ie shaft G at Abbey Mills which is now already built. Therefore we can reasonably assume that the worst noise levels that would be experienced at the site from shaft construction have already occurred and that further noise could be mitigated by covering the drive shaft as is proposed at other sites. The Applicant's answer to Q32.27 does not make it clear what assumption was made about the shaft G works in its assessment or what noise mitigation measures might be appropriate.
- 17.268 One further matter that arose from the Applicant's answers to our questions was a potential impact on the neighbouring allotments which are located to the northwest on the site (APP14, para 25.7.57). We do not have information on the specifics of such impacts, but we note that the allotments are outside the waste water site boundary and might be impacted in terms of noise and air quality.

Programme implications

- 17.269 At the IS hearing (12 November 2013) we asked the Applicant about the programme implications if consideration were to be given to the drive direction being changed to drive from Abbey Mills to Chambers Wharf; we then followed up with requests for more information in ExA's Q32.20. The reason for our questions is that the application before us gives an environmental assessment for Abbey Mills as a reception site but not as a drive site and a drive site at Abbey Mills is not part of the application before us.
- 17.270 This is consistent with LB Newham's statement in its LIR that *'if the drive tunnel is reversed, there would be considerable concerns*

that these impacts have not been considered as part of the ES accompanying this DCO application, and that the Council has not had an opportunity to consider, explore and assess all the issues and impacts' (REP087, para 10.5).

17.271 The Applicant, when asked to consider the implications of a potential change to the scheme, considered that overall it would take in the region of 20 months to change Abbey Mills to the drive site without changing any other drive strategy (APP31.02, para 5.4.20). This would be made up as follows:

- site selection (back-check), selected site design, land referencing and Preliminary Environmental Information Report (PEIR): 11 months
- consultation, including Statement of Community Consultation (SoCC): three months
- complete ES and finalise application for development consent: six months.

17.272 The Applicant then suggests that it would then take an additional six months for the Planning Inspectorate to action the revised application as follows:

- 28 day (one month) acceptance period
- one month section 56 notice
- two months to advertise and schedule a preliminary meeting
- two months to publish Rule 8 letter.

17.273 Therefore, the Applicant advised that if a revised application needed to be submitted, it would delay the process by approximately two years.

Summary on Abbey Mills as a drive site

17.274 Our view is that in river transport terms, Chambers Wharf site would be a better drive site than Abbey Mills. However, we consider that Abbey Mills appears to be a feasible drive site which has the potential to offer a number of advantages as compared with Chambers Wharf. This is because:

- it is more remote from residents than Chambers Wharf and it seems likely that it would have a lower impact on the community
- it appears to have better road links than Chambers Wharf
- if there was a failure in river transport, the site would be capable of sustaining an all-by-road option
- it has the potential to have a larger site storage area, so that more material could be stored on site to allow for flexibility in HGV movements and minimise derogation to road transport and risks to the tunnelling programme.

Conclusion on Chambers Wharf

- 17.275 Under NPS paragraph 4.9.9, the decision maker must consider whether the proposals meet the aim of avoiding significant adverse impacts on health and quality of life from noise. In the case of Chambers Wharf, we consider that the first aim of paragraph 4.9.9, in conjunction with the requirement to consider the location of the construction compounds (NPS, para A1.3.9), leads us to review the options that had been ruled out by the Applicant, and whether significant impacts from noise and/or vibration could be avoided.
- 17.276 In addition, NPS paragraph 4.13.10 states that '*water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective.*' This guidance in the NPS appears to have been a key reason why the Applicant chose Chambers Wharf over Abbey Mills as the drive site. Whilst we take account of this guidance, the NPS is to be applied as a whole. We agree that Chambers Wharf would be better than Abbey Mills for river transport, but river transport is possible from Abbey Mills and it is just one aspect of the assessment.
- 17.277 It is for the Applicant to justify its design and route of the project including any options that it has ruled out, in accordance with NPS paragraph 2.6.34. These options included use of Chambers Wharf as a drive site. The Applicant's own assessment is that:
- 'the comparison between Chambers Wharf and Abbey Mills was closely balanced. Central to the assessment and decision making process were the more remote location of the Abbey Mills site from immediate residential neighbours, its restricted river access and a sensitive road access, while Chambers Wharf is close to residential dwellings but has particularly good access to the river'* (APP14, para 25.5.2).
- 17.278 The examination has highlighted particular problems with the site at Chambers Wharf which have been discussed above and in separate chapters.
- 17.279 Chambers Wharf is a relatively small site. At 19,500m² it is below the minimum size for a drive site of 20,000m² initially identified in the site selection process (Doc 7.05, volume 1, para 3.6.9)³³¹. This point is not determinative because clearly the Applicant now regards Chambers Wharf as a feasible drive site. Nevertheless, it is an indication of the challenges associated with driving the tunnel from this location.
- 17.280 A temporary cofferdam extension into the river would be required to create the working compound at Chambers Wharf. At a late

³³¹ Doc 7.05 states that 'the size of sites in chalk cannot generally be smaller than 20,000m² due to the large area needed for slurry processing activities'

stage in the examination, the Applicant reported errors in assumptions with regard to storage volumes and increased storage heights to achieve 3.4 days excavated material storage on site. This does not give us confidence that the logistics of using this site during construction had been fully thought through.

17.281 Chambers Wharf is located in a densely populated residential area, with homes directly on the boundary and overlooking the site. We consider that the noise assessment is likely to have understated the impacts on several receptors. During the examination additional mitigation measures have been identified which would avoid some of the adverse impacts, particularly at night. However, even with mitigation measures secured in the DCO, there would be a number of properties which would experience a significant adverse effect for noise and major adverse effect for amenity.

17.282 Moreover, it appears that residential receptors at Chambers Wharf would be likely to experience additional noise and disturbance as a result of night-time barge movements and/or additional HGV movements at times when river transport is unavailable, but that this would only occur through an approved derogation.

17.283 Access to the site has limited capacity for road transport, and the site itself has limited capacity for loading of HGVs. As such the site is dependent on river transport, and the Applicant has confirmed that *'it would not be practical to sustain an all road transport solution at this site'*.

17.284 There exists an alternative that would avoid some of these impacts, which is to drive the tunnel from Abbey Mills. LB Southwark considers that this would be a preferable option. There would still remain significant impacts at Chambers Wharf during construction, but they would be for a lesser duration and the periods of 24 hour working would also be reduced.

17.285 The alternative drive strategy has been explored during the examination, as a means of testing the site selection process. As the alternative drive strategy is not within the framework of the application before us, it has not been developed to the same level of detail as the application scheme. LB Newham points out that no decision on the use of Abbey Mills as a drive site could be taken before the environmental impacts of such a strategy had been fully and properly assessed. We agree. It would also be necessary for all those affected by the drive strategy, and any associated physical works or environmental impacts, to have a full opportunity to participate in any decision making process.

17.286 The Applicant has stated that this would take 20 months, with a further six months in the NSIP planning process.

17.287 It is not the role of the ExA to recommend on the drive direction between Chambers Wharf and Abbey Mills. Our recommendation

must be based on the application before us. Moreover, we cannot prejudge any future decision making processes which may be required. What we can say, on the basis of the evidence before us, is that Abbey Mills appears to be feasible as a drive site and that it appears to offer some significant advantages over Chambers Wharf in terms of reduced community impacts during construction.

17.288 We turn now to the question of whether the Applicant has justified the drive strategy it is promoting. The Applicant's primary justification is that Chambers Wharf is preferable in terms of river transport. We agree on this point because:

- subject to derogations, 100% of excavated material could be removed by river. The figure at Abbey Mills would be a maximum of 85% at average tunnelling rates. If faster rates were achieved, the figure could fall to 35%
- at Chambers Wharf, tunnel segments could also be transported by river
- larger vessels could be used at Chambers Wharf. This would be more cost-effective
- there are fewer navigational constraints at Chambers Wharf.

17.289 However, we consider that a broader balancing exercise is needed. Within that exercise, the following factors seem to us to be particularly important:

- Abbey Mills was regarded by the Applicant as a suitable drive site at an earlier stage in the development of the project³³² (see section in this chapter under the heading 'Abbey Mills as a drive site - site selection assessment')
- The large number of residential receptors in close proximity to Chambers Wharf subject to adverse impacts, including in relation to noise, visual impact, amenity and quality of life
- The significant visual and amenity impacts of the works and associated hoardings and noise enclosures, on a confined site, on the public realm in the vicinity of Chambers Wharf.

17.290 On the other hand it must be acknowledged that use of Abbey Mills as a drive site would generate additional HGV movements within LB Newham. The number of movements would be variable, depending on the tunnelling rates achieved. At higher tunnelling rates the number of additional movements would be large.

17.291 It must also be taken into account that Abbey Mills (as a drive site) is not within the framework of the application before us and has not been fully assessed. The due processes associated with considering the option of driving from Abbey Mills would cause delay to the delivery of a NSIP. There would also be broader risks

³³² At that stage, Abbey Mills was regarded as preferable to King's Stairs Gardens because it was more likely that noise and air quality impacts could be mitigated against. Chambers Wharf was not then under consideration

to delivery in that the outcome of the processes cannot be assumed and other factors may change in the interim.

- 17.292 We have noted that the Applicant itself had assessed Abbey Mills as a preferable drive site to King's Stairs Gardens because it was more likely that noise and air quality impacts could be adequately mitigated against (see section in this chapter under the heading 'Abbey Mills as a drive site – site selection assessment'). Therefore we consider that it is not unreasonable to take a consistent approach to Abbey Mills when compared to Chambers Wharf.
- 17.293 Our overall assessment is that Chambers Wharf as presented has serious deficiencies in terms of the NPS requirements and therefore we have considered the site selection process and alternatives. In looking at the alternatives as a means of testing the site selection process, the potential advantages of Abbey Mills, in terms of reduced community impacts at Chambers Wharf, are sufficient to call into question the Applicant's justification for the use of Chambers Wharf as a drive site. Therefore, we conclude that the Applicant has not justified its design and the ruling out of the option of Chambers Wharf as a reception site.

DEPTFORD CHURCH STREET

Introduction

- 17.294 The location of the Deptford Church Street site has been challenged by the relevant local authority and other Interested Parties including the local representative community group 'Don't Dump on Deptford's Heart'.
- 17.295 In addition to the IS hearings, two OF hearings³³³ were held in the Deptford area. The first was well attended, and the second was very well attended. We also undertook both accompanied and unaccompanied site inspections to the site, surroundings and St Paul's Church.

Description of Deptford Church Street proposed site

- 17.296 The proposed Deptford Church Street site is located in LB Lewisham. It comprises a main site and four small highway works sites on Deptford Church Street.
- 17.297 The main site is a triangular area of public open space, Crossfield Amenity Green, which is used for dog walking, informal recreation, and a portion in the apex of the triangle is planned to become a community garden.
- 17.298 The Green is bounded to the north by Grade I listed St Paul's Church, to the east by Deptford Church Street (A2209) and to the

³³³ 21 November 2013 and 5 February 2014 in two separate venues

southwest by Crossfield Street. Crossfield Street borders the railway line, with commercial businesses located under the railway arches.

- 17.299 St Paul's Church is discussed in detail in the chapter on the historic environment (chapter 10). It is renowned for its excellent acoustics and is frequently used by the BBC and others for recordings (eg the Messiah).
- 17.300 To the west of the site across Crossfield Street is St Joseph's Roman Catholic Primary School, which is 25m from the boundary of the site (APP11, answer to Q11.6). There are three other primary and nursery schools within a 300m radius of the site.
- 17.301 The nearest residential buildings are located across Deptford Church Street to the east of the site, and include Congers House and Farrer House. To the west of the site are the rear façades of properties on Resolution Way which overlook the site from the far side of the railway line.
- 17.302 Road access to the site is from Crossfield Street and Coffey Street, which both link to Deptford Church Street. Crossfield Street also links through to Deptford High Street. These streets are also the access roads to St Joseph's Roman Catholic Primary School.
- 17.303 The St Paul's Churchyard and Crossfield Open Space Site of Importance for Nature Conservation covers the majority of the main site and is designated because of its diversity of flora and local nesting habitat for birds.
- 17.304 The site is described in detail in the Applicant's ES Non-Technical Summary (Doc 6.1, section 25.1) and in LB Lewisham's LIR (REP093, section 6.3). The ES Non-Technical Summary includes a location plan and an aerial view of the site (figures 25.1 and 25.2).

Applicant's proposals for use as a work site

- 17.305 The Applicant proposes to use the site as a CSO interception site to pick up Deptford Storm Relief Sewer which is located under Deptford Church Street.
- 17.306 To intercept the existing storm sewer, the Applicant proposes to construct a chamber beneath Deptford Church Street. This would require the temporary closure of the northbound bus and traffic lanes in Deptford Church Street adjacent to the site.
- 17.307 The proposal is that flows would be transferred to a new 17m diameter drop shaft, which would be located on the triangular piece of open land. This shaft would drop directly onto the Greenwich tunnel which would then flow to Earl Pumping Station and Chambers Wharf, to intercept the main tunnel.

- 17.308 The hoarded area of the site would use all of the triangular piece of land, an area of 4,200m², within an LLAU of 11,800m² (Doc 7.18, para 26.3.2).
- 17.309 The duration of the construction works would be in the order of 3½ years, for standard and extended hours³³⁴ (Doc 6.2.23, para 9.2.6 and appendix G plate G7). Access to the site would be from Crossfield Street and exit onto Coffey Street. All transportation would be by road.
- 17.310 Upon completion, the site would be landscaped and returned to the public realm. The above-ground structures would be limited to four signature ventilation columns (6.0 - 6.5m high) and an electrical and control kiosk³³⁵.
- 17.311 The Applicant states that the legacy proposals at the site would be substantial and beneficial, improving links through the park and improving public realm (APP14, para 16.7.58). The proposals require local authority approval which is secured by a site-specific requirement (Requirement DEPCS4).

Issues raised during the examination

- 17.312 The Applicant's site selection process assessed the site as being 'less suitable' in the planning, environment and socio-economic/community categories. The aspects of environment that were assessed as less suitable were transport, built heritage, townscape, hydrogeology, ecology and air quality and the Applicant noted that these would require mitigation. Although the Applicant did not flag noise as an issue, it did note under the socio-economic and community section that there would be some noise and visual disruption to St Paul's Church and St Joseph's Roman Catholic Primary School (Doc 7.05, volume 21). Both were confirmed in the ES as being predicted to have a significant effect.
- 17.313 The key issues raised in the examination by the local authority and other Interested Parties included:
- the impact on the school from both noise and traffic
 - the impact on the church and its parishioners from noise and vibration, as well as the structure of the church itself
 - loss of use of the Green
 - the impact of the works on an area of high social deprivation
 - alternatives that could be available to the proposals.
 - impacts from traffic and air quality
 - commercial impacts on businesses in Deptford High Street
 - objections to the change of proposed site from Borthwick Wharf to the Green.

³³⁴ Standard and Extended hours as defined by CoCP Part A, table 4.1

³³⁵ The height parameters were amended during the examination. They are shown on the site works parameter plan, drawing DCO-PP-22X-DEPCS-230005-Rev 1

17.314 There was strong objection made in respect of this site at the OF hearings. The following representations are examples of the local views:

- Don't Dump on Deptford's Heart (REP160)
- Delia Gaze, concerning the church (REP373)
- Nick Williams (WRR054)
- Crossfields Tenant and Residents Association (REP303), concerning transport assessment
- Sue Lawes, concerning traffic impacts (REP458).

Mitigation measures for Deptford Church Street site

17.315 During the examination further mitigation proposals for the site, to address the issues concerning the proposal before us, were considered. In some areas mitigation measures were improved by the Applicant and refined in more detail. The following mitigation measures are now secured in CoCP Part B and by legal agreement with the local authority (APP209.03).

17.316 The ES predicted significant noise impact on the St Joseph's Roman Catholic Primary School, with an increase above ambient of +11dB_{L_{Aeq}} at the external teaching area. The proposed mitigation measures for the school are off-site and outside the LLAU, however we are satisfied that they have been secured through a TAP and by legal agreement with the Council.

17.317 Other noise related mitigation measures that have been secured include:

- 3.6m high hoardings/noise barriers around the site
- planting of the hoardings on Crossfield Street and Coffey Street between Deptford Church Street and the site entrances
- consideration to be given to minimising high noise-generating activities during church services and school examination periods and avoiding extended working hours (where practical) during special events at the church.

17.318 We received representations from both the public and the commercial businesses under the railway arches on Crossfield Street. There is considerable local concern both about the effect that the proposal to close off one carriageway of Church Street during part of the works would have on traffic flows in the area, and the effect that removing the parking currently available in front of the existing businesses on Crossfield Street would have on those businesses. In relation to the first matter, whilst the Applicant is firmly of the view that the impacts reported in the ES are correct, the proposals would in any event need to be reconsidered in due course should the project proceed (see chapter 14). In relation to the second, this is an area where we

acknowledge that existing businesses would be disadvantaged although mitigation is proposed as given below.

17.319 Notwithstanding this the following mitigation measures have been agreed and included in CoCP Part B:

- one way system for lorry movement up Crossfield Street and return down Coffey Street
- on-street parking bays shall be introduced along Crossfield Street
- during term time, no lorry movements would be scheduled during school arrival and departure times
- pedestrian and vehicular access to the school to be maintained at all times, including a segregated pedestrian route to the school along Crossfield Street.

17.320 The proposed development would also have a significant impact on the open space area of the Green, the whole of which would be used for construction purposes. Church Yard Gardens would also be significantly affected by a predicted total noise level of over 5dB above ambient (APP11, answer to Q11.19). We are concerned that the Green would be returned to public use as soon as possible and not retained as a site compound until tunnel commissioning. This is discussed further in chapter 11 under the heading 'Duration of works in public spaces'.

17.321 The Applicant has stated in the ES Update Report that further onsite mitigation is not practicable (APP208.01.29, appendix 23.1). However, we note that there are noise enclosures specified in CoCP Part B for other sites that could equally be included at this site eg all static plant screened or enclosed and specified noise restrictions for any cladding. We are satisfied that these could be addressed in the s61 consent process.

17.322 As stated in the chapter on the historic environment (chapter 10), with regard to St Paul's Church, we were particularly concerned that the predicted ground movements from the tunnelling activity could cause damage to the Grade I listed church. This aspect is discussed in chapter 10, and we are satisfied that appropriate mitigation measures have been secured.

17.323 We also asked for noise limits to be included as a requirement, but as discussed in chapter 12, a suitable requirement is not before us.

Assessment of residual impacts at Deptford Church Street

17.324 The Applicant's ES Update Report gives a summary of the predicted residual impacts after the mitigation has been taken into account. The impacts for air quality, noise and socio-economic are reported and concluded on in chapters, 5, 12 and 13. A brief summary is given below.

Air Quality

- 17.325 Air quality is a matter that was raised at the OF hearings. The local community undertook an air quality monitoring survey in early 2014, but as stated in chapter 5, the data collected was not before us by the end of the examination.
- 17.326 The assessment of air quality has remained as negligible for most receptors in the ES Update Report, with minor adverse impacts from construction dust predicted for residents of Berthon Street, St Joseph's Roman Catholic Primary School, Sue Godfrey Local Nature Reserve, and the commercial businesses on Crossfield Street. Minor adverse impacts on air quality (from construction road traffic and plant emissions) are predicted for St Joseph's Roman Catholic Primary School.

Noise

- 17.327 There has been no change in the prediction of significant effects for noise, with St Joseph's Roman Catholic Primary School and St Paul's Church both being predicted as having a significant effect. No significant impact from road traffic is predicted at any receptor.
- 17.328 As stated a TAP has been proposed for St Joseph's Roman Catholic Primary School. In chapter 13 we conclude that the TAP would offer a reasonable degree of protection to the interior of the school. However, external play and teaching areas, and the general surroundings of the school, would experience in-combination impacts which would not be fully mitigated by the TAP and s106 measures.
- 17.329 LB Lewisham has questioned the process of signing off TAPs and the apparently limited involvement that it would have in that process. The Council is concerned that its role, in ensuring the works are delivered satisfactorily, requires further involvement and a right to approve the final form of the TAP (REP445, para 2.2). The Applicant's response was that the Council would be consulted on a proposed TAP but would only approve the TAP if it was the beneficiary (APP198.22). This response was dated 11 March 2014, and we do not know if it satisfied the Council's concerns.

Socio-economic

- 17.330 The Applicant's assessment of the residual socio-economic impact from the construction works with the mitigation works is as follows (APP208.01.29, table 10.10.1):
- residents: minor adverse
 - St Joseph's Roman Catholic Primary school: moderate adverse

- St Paul's Church: minor adverse. Improved from moderate adverse through mitigation (a dedicated project officer would be appointed)
- Tidemill Academy: negligible
- users of public open space, Crossfield Street Open Space (The Green): minor adverse
- users of open space: St Paul's Churchyard, Sue Godfrey Local Nature Reserve and Ferranti Park: minor adverse.

17.331 The ES gives no indication of the number of people or households that would be impacted by the construction works; however the Health Impact Assessment (HIA) does state that in the 2001 census, there were 3,225 people living within 250m of the site, with 31% children or older people and 79% of them being within the 20% most deprived areas nationally (Doc 7.12, appendix D, table D.111).

17.332 In chapter 11 we conclude that the ES understates the likely effect of the proposed development on open space at Deptford Church Street. In our view the use of the Green as a work site would be a serious loss to the local community which must be fully acknowledged in the overall planning balance. We have no reason to doubt that the s106 process for securing the reinstatement of the Green after the works would result in an appropriate design coming forward in due course. However, at this stage there is no commitment to any particular design approach and therefore only limited weight can be attached to any enhancement to the quality of open space which may be achieved.

In-combination impacts

17.333 The Applicant has stated that the overall in-combination effects on quality of life would be a 'minor to moderate adverse' impact when embedded mitigation measures had been taken into account (APP60, table 4.21).

Local impact report and outstanding concerns

17.334 Many Interested Parties remained opposed to the selection of the site. LB Lewisham's LIR stated that the ES acknowledges that several of the likely construction related effects from the site would be both significant and adverse, however the Council considers that in some cases the likely effects will be greater and more damaging than that identified in the ES (REP093, para 8.2.20). In summary the Council's concerns are:

- staff and pupils of St Joseph's Roman Catholic Primary School from construction noise, dust, traffic safety, and the temporary but long term loss of adjacent green open space
- businesses on Crossfield Street
- pedestrians on Deptford Church Street, and all those (including dog walkers) who use the Green

- clergy, visitors and parishioners of St Paul's Church, intrusive noise, vibration, dust and loss of parking
- residents of the Crossfield estate from visual intrusion
- traffic disruption
- loss of all trees on the Green
- impact on Sue Godfrey Nature Reserve from dust and displaced dog walkers
- nearby historical buildings including St Pauls' Church
- St Paul's conservation area and the change to the setting to St Paul's Church and Deptford High Street.

17.335 Many of these issues remain and further mitigation measures have not been proposed. As stated earlier, a TAP has been agreed for the school, and an agreement has been reached with the St Paul's Church which is reported on in chapter 10 under the heading 'St Paul's Church, Deptford'.

17.336 We also take account of the s106 agreement with the Council, as discussed in chapter 11, as being directly related to the proposed works and reasonable. However, this measure would only offer a small degree of mitigation in relation to the magnitude of the impact on the community arising from the loss of the Green during construction.

17.337 Even with the secured mitigation measures in place, we consider that there would remain significant impacts on St Joseph's Roman Catholic Primary School. Moreover, the temporary use of the Green would be a serious loss to the local community.

Alternatives considered for Deptford Church Street

17.338 In the site selection process, the preferred site for the CSO interception at phase 1 was at the point of discharge into the River Thames at Borthwick Wharf. The Applicant assessed over 20 sites along the route of the storm sewer between Greenwich and the river foreshore to intercept the sewer. Borthwick Wharf had been selected for a number of reasons, including that *'the constraints at this site were better able to be addressed and mitigated than at the alternative sites'* (Doc 7.05, volume 21, para 2.5.2). We questioned why Deptford Church Street hadn't been included in the list of sites at phase 1, and the Applicant responded (IS hearing, 13 November 2013) that it was just outside and between two search areas.

17.339 In the phase 2 back-check process, the proposed site at Deptford Church Street was identified and included in the short list of Borthwick Wharf, Bronze Street and Deptford Church Street.

17.340 From the phase 2 site selection assessment, the Applicant identified Deptford Church Street as the preferred site for reasons including in particular the following (Doc 7.05, volume 21, para 3.4.3):

- *'It has much better access for construction vehicles than Borthwick Wharf Foreshore and is close to the existing CSO where the interception could be made without working in the river*
- *Unlike, C32XA (Borthwick Wharf), there would be no encroachment into the River Thames as Deptford Church Street is a land-based site and the Environment Agency favours the use of land-based sites where viable'.*

17.341 The reasons for choosing Deptford Church Street over Bronze Street are not given by the Applicant, but having visited the Bronze Street site we can confirm that the site is close to residential houses. Therefore we can understand the basis for the Applicant's decision.

17.342 We also noted that the Applicant had not presented the alternative of avoiding the use of an interception site altogether by redirecting the storm overflow direct to Greenwich Pumping Station, which is only approximately 400m from the Deptford Church Street site.

17.343 In this report we have not considered all the alternative shortlisted sites in this area, but have restricted ourselves to the possible site at Borthwick Wharf. This is the key alternative put before us by Interested Parties. We have also considered the alternative of a direct sewer transfer to Greenwich to avoid the need for a site through specific design and route considerations.

Borthwick Wharf

17.344 Borthwick Wharf is located in LB Greenwich, on the foreshore directly in front of the AHOY Centre (a charitable sailing centre offering disability activities). The site is rectangular in shape and is accessed by Glaisher Street (a private road), part of the Thames Path and Borthwick Street. A site location plan and an aerial view are shown in the site suitability report (Doc 9.10.01, appendix 2 and 4). A layout of the works and a visualisation are also given in answer to our written questions (APP14, figure 16.1 and figure 16.2).

17.345 The site suitability report (Doc 9.10.01) pointed out some of the constraints associated with the site, the most notable being that road access would be very constrained through narrow residential streets, the potential impacts on the AHOY Centre and the adjacent residential properties.

17.346 We undertook an unaccompanied site inspection to the site and walked the transport route and can confirm that we would expect the route for HGV's, through the residential housing, to be likely to have a significant impact on the local community.

17.347 The NPS paragraph 4.13.10 advises that *'water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective'*. We questioned the Applicant on the

possibility of use of river transport at Borthwick Wharf as it appears to be a major decision factor on other sites. The Applicant provided us with the comparative HGV and barge numbers for the two sites as follows (APP31.03, table A.1):

- all-by-road: Borthwick Wharf 13,150 HGVs
- by barge and road at Borthwick Wharf: 280 barges plus 7,650 HGV's
- road at Deptford Church Street: 8,700 HGVs.

17.348 From this we can confirm that there would still be a substantial requirement for HGVs at the site even if barges were to be used. Also, there would not be a substantial reduction in HGVs on the road network by use of the Borthwick Wharf site.

17.349 Noise levels at sensitive receptors at Borthwick Wharf were assessed in answer to ExA Q32.27. The Applicant's answer confirms that significant impacts would occur at the façades of over 100 households from construction effects and at a further 165 households on Glaisher Road from transport impacts (APP59, tables 27.3 and 27.4).

Summary on Borthwick Wharf

17.350 From the assessment and the evidence before us, it is our view that Borthwick Wharf would not have been a suitable site, because of the impact of constrained transport to the site and proximity to residential property. There may well have been suitable sites to the west of the outfall, but these are now under development and the opportunity has passed.

Direct sewer connection to Greenwich Pumping Station

17.351 In view of the close proximity of Deptford to Greenwich Pumping Station we asked the Applicant to review the options to intercept the Deptford Storm relief sewer and divert flows to Greenwich Pumping Station therefore avoiding the need to use the Green at all.

17.352 The Applicant responded that there are no practical alternatives to the proposal as is. It had considered an alternative site at the head of Deptford Creek, including the Birds Nest Public House, which would need a 3m diameter tunnel between that point and Greenwich Pumping Station. This would require a significant construction site covering an area on Deptford Church Street at its busy junction with Reginald Road and Creekside. The Applicant's submission is that the Public House would need to be demolished. Further limitations included difficulties arising from the need to construct a larger shaft on the Greenwich Pumping Station site (APP59, answer to ExA Q32.10). Outline plans are shown in the written summary to the IS hearing on the 22 January 2014 (APP102.03 figures C1 and C2).

17.353 Having reviewed the plans and visited the sites, on balance, from the information before us, we agree with the Applicant's assessment that the alternative of a direct sewer connection to Greenwich Pumping Station would be likely to be more disruptive and would not avoid impacts on the community.

Conclusion on Deptford Church Street

17.354 Under the NPS paragraph 2.6.34, it is for the Applicant to justify the specific design and route of the project including any other options it has considered and ruled out.

17.355 Under NPS paragraph 4.9.9, the decision maker must consider whether the proposal meets the aim of avoiding significant adverse impacts on health and quality of life from noise. In the case of the Deptford Church Street site, our view is that the first aim of paragraph 4.9.9, in conjunction with the requirement to consider the location of the construction compounds (NPS, paragraph A1.3.9), leads us to consider whether significant impacts from noise and/or vibration could be avoided by avoiding use of the site altogether.

17.356 The NPS states that the decision maker should not grant consent for development on existing open space, sports and recreational buildings and land unless an assessment has shown that the open space or the buildings and land are surplus to requirements or the decision maker determines that the benefits of the project outweigh the potential loss of such facilities. In making a judgement the decision maker should consider whether any adverse effect is temporary and whether any adverse impact on the landscape will be capable of being reversed in a timescale that the decision maker considers reasonable (NPS, para 4.8.13 to 4.8.14). Crossfield Amenity Green is not surplus to requirements. Moreover, in chapter 11, under the heading 'Open space, sport and recreation', we conclude that the ES understates the likely effect of the proposed development on open space at Deptford Church Street. We consider that the use of Crossfield Amenity Green as a work site would be a serious loss to the local community. Although the s106 obligation would provide funding for the Green to be reinstated following the works it would be unavailable to the community for an extended period.

17.357 In addition, NPS paragraph 4.13.10 states that '*water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective.*' On this point we have considered whether use of Borthwick Wharf would have provided some benefits in use of river transport, but the impacts of noise and disturbance on local residents in our view would outweigh the benefits of river transport without a material saving in road transport.

17.358 We have assessed the use of Deptford Church Street against two alternatives. We appreciate that the proposed site is a difficult site with respect to the impact on the community from loss of open space during construction and impact on schooling and the church, particularly in an area of deprivation. However, we consider that a suitable alternative is not before us.

17.359 As such, we consider that the Applicant has justified its design and tunnel route in accordance with NPS paragraph 2.6.34.

KING EDWARD MEMORIAL PARK FORESHORE

Introduction

17.360 The location of the King Edward Memorial Park Foreshore site has been challenged by the local authority and other Interested Parties including the local representative community group SaveKEMP.

17.361 In addition to the IS hearings, two OF hearings³³⁶ were held. The first was not well attended; a second was held in a local location identified specifically by community representatives, in the evening, although this also had low attendance. However, SaveKEMP and FTW Management Company were active participants in the IS hearings. We also undertook both accompanied and unaccompanied site inspections including visits to residential flats that would overlook the site.

Description of King Edward Memorial Park Foreshore work site

17.362 The proposed development site is located in LB Tower Hamlets and it is located on the northern bank of the River Thames, immediately in front of and occupying most of the river frontage section of the King Edward Memorial Park (KEMP).

17.363 KEMP is a relatively tranquil park³³⁷, which is bounded to the north by The Highway (A1203), to the east by a block of residential flats (FTW), to the southwest by Shadwell Basin Activity Centre (with Pier Head Prep School on the first floor) and to the west by a quiet residential road (Glamis Road). The park sits below the level of the main road, so it becomes more tranquil as one moves into the park towards the river.

17.364 The Park itself is 3.3ha in area and was opened in 1922 for the people of east London in memory of King Edward VII. It is the only open space in St Katherine's, Wapping and Shadwell that provides accessible sports facilities for the local community. It includes a multi-use games area, tennis courts, children's playground, bowling green, amenity grassland areas, hard standing, a band

³³⁶ 19 November 2013 and 29 January 2014

³³⁷ Ref LIR REP096, section 3.1

stand as well as seating, including seats that afford views over the Thames. It is well used by the local community including local schools as an external teaching area. The riverside aspect of the frontage is particularly valued, and the LB Tower Hamlets confirms that *'the park is a very important asset which contributes to the quality of life and wellbeing of the local community'* (REP096, section 3.1).

- 17.365 The local area has three primary and nursery schools within a 300m radius of the site. The closest is Pier Head Prep Montessori School which is only 8 metres from the boundary of the site (APP11, answer to Q11.6).
- 17.366 The North East Storm Relief CSO runs diagonally across the Park and discharges to the Thames near the eastern corner of the park. Also underneath the park is the Rotherhithe Tunnel, and its Grade II listed ventilation shaft is located near the water front on the southwest edge of the park.
- 17.367 There are two vehicle accesses to the park at either end of Glamis Road and a further four pedestrian accesses at various points around the perimeter of the park. The Thames Path crosses the riverfront of the park, but is diverted onto The Highway when the park is closed at night.
- 17.368 The site is described in detail in the Applicant's ES Non-Technical Summary (Doc 6.1, section 23.1) and in LB Tower Hamlet's LIR (REP096, section 3.1). The ES Non-Technical Summary includes a location plan and an aerial view of the site (figures 23.1 and 23.2).

Applicant's proposals for use as a work site

- 17.369 The Applicant proposes to use the foreshore site as a CSO site. An interception chamber would be built on the outlet to the NE Storm Relief Sewer and flows would be directed to a 20m diameter drop shaft directly over the main tunnel in the foreshore (Doc 6.1, figure 23.4). This would require the construction of a temporary area of reclaimed land on the foreshore behind a cofferdam. The cofferdam would extend into the river and be located close to FTW and along a substantial part of the river frontage of the park. An aerial visualisation of the construction layout is shown in APP14, figure 9.6.
- 17.370 The duration of the construction works would be in the order of 3½ years of standard and extended working (Doc 6.2.21, para 9.2.6 and appendix G plate G13). Road access to the site would be via Glamis Road and along the front of the park, effectively severing the remainder of the park from the river frontage. A controlled pedestrian crossing across the site access road would be provided to allow both park and Thames Path users to access the foreshore area.

- 17.371 As well as the foreshore cofferdam, the contractor's compound would occupy the current river frontage, an area of grassed park with trees (which would be removed) and the southern end of the playing fields, as shown on figure 9.5 (APP14). The area of park temporarily removed from public use is detailed in chapter 11 under the heading 'King Edward Memorial Park'.
- 17.372 Before construction starts on site the Applicant would relocate the children's playground to a new site in the park, and reconfigure the sports area to facilitate construction of an access road. The bandstand and benches would also need to be moved.
- 17.373 The temporary cofferdam would provide a working compound for construction of the drop shaft to the tunnel, and for the facilities required to load and unload barges. The cofferdam would provide berthing for 1,000T barges, with a tidal window of 5 hours 45 minutes (APP61, Q34.19). Barge loading/unloading and movements on or off the berth would be restricted to standard hours only (ie 08.00 to 18.00 weekdays and 08.00 to 13.00 Saturdays).
- 17.374 The Applicant has committed in the RTS to transport by river 100% of the excavated material from the shaft, and temporary fill for the cofferdam³³⁸ (APP207.02). Road transport would be used for materials not delivered by barge.
- 17.375 When the project is complete, the cofferdam would be removed, and a new river wall constructed that would extend onto the current foreshore to accommodate the drop shaft, valve chambers and ventilation columns. This area would be reinstated to form an area of new public realm and would form part of an extended park.
- 17.376 The above-ground structures would be limited to three signature ventilation columns and an electrical and control kiosk (Doc 6.1, figure 23.6). Details have yet to be agreed with the local planning authority. A permanent access for maintenance purposes would also be constructed from Glamis Road through the southern part of the park along the approximate alignment of the construction access route.

Issues raised during the examination

- 17.377 The site selection process assessed the site as less suitable for planning, socio-economic/community and property. The aspects of the environmental assessment of the site that were assessed as less suitable were ecology, flood risk, surface water, air quality and noise. The Applicant noted that these would require mitigation and acknowledged the socio-economic impact on FTW and the

³³⁸ Subject to operation derogations and an expectation that the volume of specified materials by river will not fall below the target of 90% (APP207.02, para 2.1.2)

users of the Park but made no mention of the Pier Head Prep School (Doc 7.05, volume 19).

17.378 The ES confirmed that significant impacts would be experienced at these receptors, even with on-site mitigation.

17.379 These subjects, as well as the selection of the site itself, formed much of the issues raised during the examination. In summary the key issues raised in the examination by both the local authority and other Interested Parties include:

- loss of use of the park, particularly loss of use of the river frontage and loss of 40 trees
- resultant noise and dust in the remaining part of the park and the impact on its amenity use
- measurement of ambient noise levels in the park and at FTW
- method of assessment of significance of impact
- noise and vibration impact on FTW
- the alternative of using Heckford Street site to reduce the impact on the park.

17.380 We received many representations concerning the issues on this site. Examples include:

- SaveKEMP which gave a detailed review of the proposals, and includes a comparative impact assessment for the two alternative sites (WRR084)
- FTW Management Company Ltd (including a report from Jacobs on vehicle trips to/from the Highway Trading Centre and Business Park at Heckford Street, and a baseline noise level survey by 7th Wave Acoustics in KEMP and FTW) (WRR040)
- Trafalgar Court, also known as Prospect Wharf (RRP838).

17.381 We were also particularly concerned about the impacts on Pier Head Prep School, which is located on the first floor of Shadwell Activity Centre (RRP1014). It is a small school, which would experience significant noise levels for over 26 months with a maximum increase of 11dB_{L_{Aeq}}.

Mitigation measures for King Edward Memorial Park Foreshore

17.382 During the examination mitigation measures for the use of King Edward Memorial Park Foreshore site were improved and refined in more detail. The mitigation measures are secured in CoCP Part B, RTS and by legal agreement with the local authorities.

17.383 The site would be surrounded with the following hoarding/noise barriers:

- 2.4m high and planted on public facing sections
- 3.6m high around CSO drop shaft

- 6m high between the main shaft working area and FTW
- 2.4m high noise barriers on the western and eastern sides of the cofferdam perpendicular to the river wall (plywood and acrylic)
- 2.4m high noise barrier on the southern boundary of the access road (which contradicts the next point)
- 2.4m high open mesh along site access route, with gated access and traffic marshal. Fencing to be removed outside approved working hours.

17.384 The alignment of the 6m high hoarding by FTW is given in answer to the ExA's R60.2 (APP170, appendix A). This shows that the hoarding would not have a material impact on daylight and sunlight amenity to the flats. This alignment is secured by the application drawings. The external appearance of the hoardings also requires approval by the local authority (CoCP Part B). It might be visually intrusive to the apartments on the lower floors, but we consider that it should not obstruct sunlight and daylight.

17.385 The CoCP Part B also includes the requirement for push piling 'unless this is determined to be impossible'. This additional requirement has reduced the predicted impacts at FTW, however if push piling were to prove to be impossible, the impact would be significant.

17.386 The CoCP Part B includes for the following noise enclosures:

- plant shall be electrically powered where practicable
- all static plant screened or enclosed.

17.387 The CoCP Part B commits to loading or unloading or movement of vessels onto or off the berth only during standard working hours. However this is not secured in the RTS. This is an inconsistency between CoCP Part B and the RTS. However we consider that we can rely on the requirement in CoCP Part B (which has effect through requirement PW6) to provide adequate control, as it is only subject to change through approval by the relevant planning authority.

17.388 Even with the mitigation measures proposed, significant effects from noise are predicted at FTW and Pier Head Prep School for 24 months. The proposed 6m high hoardings adjacent to FTW would provide mitigation for the lower two floors only, but higher floors would still be significantly affected by noise, and the lower floors may be impacted visually from the hoardings themselves.

17.389 Provision of TAPs for noise insulation for both FTW (south) and the school have been secured through legal agreement with the Council and the Non-statutory off-site mitigation and compensation policy. For the school we have been advised in answer to our questions that the measures are expected to include secondary glazing to the main hall, blinds to reduce solar gain and

cooling/ventilation equipment (APP167, section 11). On this basis there appears to be a reasonable prospect that appropriate mitigation would be provided. However, with the level and duration of disruption at FTW (a staggered multi-level building with balconies) we are not clear how mitigation to a reasonable level can be ensured.

- 17.390 In addition if push piling proved not to be possible, then FTW would be significantly impacted by vibration as well as noise impacts.
- 17.391 The Applicant has now committed itself to improvements to the park and contributions to improve play facilities and other open spaces in the locality through a s106 agreement with LB Tower Hamlets. Improvements include contributions towards Glamis Road Adventure Playground, landscaping works in KEMP, a local open space contribution, and a temporary play facility at Brussels Wharf. These measures are discussed in chapter 11 under the heading 'King Edward Memorial Park'.
- 17.392 The Applicant has stated in the ES Update Report that further on-site mitigation is not practicable (APP208.01.27, appendix 21.1). However, as discussed in chapters 11 and 12, with regard to land use and noise respectively, LB Tower Hamlets has repeatedly requested no Saturday working. SaveKEMP also support this approach and suggested that if a specific need for Saturday working arose it should be arranged through the community liaison group. As stated in chapter 12, we consider that even with a small extension of time (3.7 months) on site the restriction on Saturday working would be beneficial for the residents of FTW and for general respite for the users of the Park from noise and dust.
- 17.393 We also note that there are noise matters specified in CoCP Part B for other sites that could equally be included at this site eg specified noise restrictions for any cladding. We are satisfied that these could be addressed in the s61 consent process.

Assessment of residual impacts at King Edward Memorial Park Foreshore

- 17.394 The Applicant's ES Update Report gives a summary of the predicted residual impacts after the mitigation has been taken into account. The impacts for air quality, noise and socio-economic are reported on in chapters 5, 12 and 13. A brief summary is given below.

Air quality

- 17.395 The Applicant's assessment of air quality has remained as negligible for all receptors, with minor adverse impacts from construction dust predicted for residents in the area (including FTW), Pier Head Prep School, and recreational users of King

Edward Memorial Park, the tennis courts, Thames Path and river users.

Noise and vibration

- 17.396 The mitigation measures now offered by the Applicant have reduced the predicted vibration impact from piling, and as a result what had been assessed as a significant impact from vibration at FTW has been reduced to not significant. This of course is subject to push piling being possible. However, we do consider that the Applicant has endeavoured to ensure this construction method as far as it could.
- 17.397 A significant effect from noise is still predicted for FTW (south) and Pier Head Prep School. The ES Update Report (APP208.01, section 21.7) confirms that even with the mitigation measures in place these two receptors would experience the following residual impacts:
- FTW (south): 63 to 80dB_{L_{Aeq}}, exceeding the significant impact criteria for 24 months. The worst-case predicted noise level would be 80dB_{L_{Aeq}} and is predicted to occur for one month from breaking out of hard standing (para 21.7.5).
 - Pier Head Prep School would experience daytime noise levels 47 to 65dB_{L_{Aeq}}, worst case above ambient of +11dB_{L_{Aeq}}, overall duration above ambient 26 months (table 21.6).
- 17.398 As stated earlier TAPs have been proposed for FTW (south) and Pier Head Prep School.
- 17.399 LB Tower Hamlets remains concerned about the impacts on FTW (Middle and North), which is a definition used by the Applicant and the differentiation between the north, middle and south block is not necessarily clear on the ground or to the residents. In fact the written representation from FTW Management Company (3 March 2014), stated that it was not clear which part of FTW constitutes FTW 'South' and that there remain unacceptable effects at FTW 'Middle'. It requested that the whole of FTW be the subject of a TAP and to benefit from treatment as a special case (REP442). The Applicant has responded that the TAP is limited to FTW South because that is where it considers the possible effects would be. It goes on to state that the impact would not be experienced by the whole of the building therefore it considers it would be *'unreasonable and unnecessary'* to include the whole of FTW in the TAP (APP198.15). The qualifying façades of FTW South are now shown in the legal agreement for securing of off-site mitigation (APP209.03).
- 17.400 In chapter 12 (under the heading 'open space: impacts from construction') we consider the impacts from noise on the park during construction and conclude that the ES does understate the impact on the park.

17.401 No significant noise impact from road or river traffic is predicted at any receptor.

Socio-economic

17.402 The Applicant's assessment of the residual socio-economic impact from the construction works with the mitigation works is as follows (APP208.01.27, table 10.10.1):

- residents: moderate adverse
- Pier Head Prep School: moderate adverse
- users of KEMP: moderate adverse (from both the reduction in open space and on amenity of the park)
- Shadwell Basin Outdoor Activity Centre: minor adverse
- users of Thames Path from temporary diversion: negligible
- users of Thames Path on amenity: negligible.

17.403 The ES gives no indication of the number of people or households that would be impacted by the construction works; however the Health Impact Assessment (HIA) does state that in the 2001 census, there were 4,175 people living within 250m of the site, with 31% children or older people and 79% of them being within the 20% most deprived areas nationally (Doc 7.12, appendix D, table D.99).

17.404 We remain concerned about the impacts of the loss of the park to the local community, during construction, when there are so few other similar facilities nearby. In chapter 11 we conclude that the use of part of King Edward Memorial Park during construction would be a serious loss to the local community which must be fully acknowledged in the s104 balance.

17.405 We agree with the Applicant and LB Tower Hamlets that the additional public realm created on the foreshore structure should be regarded as a benefit in terms of open space provision.

17.406 However, in chapter 8 we disagree with the Applicant's assessment of the effect on the character and appearance of the park. We conclude that the new landscape works would do no more than compensate for the harm arising from the proposed development and we agree with the Council that the overall effect would be negligible rather than beneficial.

In-combination impacts

17.407 The Applicant has stated that the overall in-combination effects on quality of life would be a minor to moderate adverse impact when embedded mitigation measures had been taken into account. The Applicant considered that the impacts on residents would be at the lower end of the range (ie towards minor) and vulnerable people and children would be at the higher end of the range ie moderate adverse (APP60, table 4.19).

Local impact report and outstanding concerns

17.408 Many Interested Parties remain opposed to the selection of the site. LB Tower Hamlets' case is summarised in its written representation dated 3 March 2014 and has not materially changed from that set out in the LIR (REP096). As well as its comment about the alternatives, to be discussed below, the Council's position is that *'notwithstanding these welcome improvements to the proposals for mitigation, the council still remains fundamentally opposed to the KEMP Foreshore site as was made clear at the Hearing. It considers that the Heckford Street/Park option, if fully developed, would have less harmful impacts on both local residents and the wider community as a whole for the reasons set out in the Local Impact report'* (REP447).

17.409 Even with the secured mitigation measures in place, significant impacts would remain during construction for occupiers of FTW (south), Pier Head Prep School, users of the park and the park itself.

Alternatives considered

17.410 In the site selection process King Edward Memorial Park Foreshore was the Applicant's preferred site, although with an access route to the east of the park. Alternative sites were considered but the only two sites that went to the final short list were King Edward Memorial Park Foreshore and King Edward Memorial Park (a CSO entirely within the park). The foreshore option was taken forward to the final selection because it was judged by the Applicant to have a lesser impact on the park than a CSO connection in the park itself.

17.411 In the back-check process, the Applicant also considered the alternative of a small site in King Edward Memorial Park to intercept the CSO, which would connect to the main tunnel at Heckford Street industrial estate via a connection tunnel. The main tunnel alignment would therefore be inland (from that proposed at present) and pass through a deep intermediate drop shaft at the Heckford Street site (Doc 7.05, volume 19, para 3.4.5). However, King Edward Memorial Park Foreshore remained the preferred option at phase 2 consultation because the Applicant considered the impacts at King Edward Memorial Park Foreshore would be the lesser of the two alternatives and the overall engineering solution would only require use of one site.

17.412 There is considerable local opposition to loss of use of the park. During the consultation phase, LB Tower Hamlets had asked the Applicant to consider in more detail the possibility of using the Heckford Street site instead of King Edward Memorial Park Foreshore. Despite many requests the Applicant declined to provide the full details requested by the local authority to assist its

understanding of why King Edward Memorial Park Foreshore was the Applicant's preferred option over Heckford Street.

17.413 Moreover, LB Tower Hamlets had undertaken its own assessment of the two sites, with the Council's weightings on the five disciplines (WRR097, appendix B). It found that:

- engineering: King Edward Memorial Park Foreshore is clearly the preferable option
- planning: Heckford Street is preferable
- environmental: Heckford Street is preferable
- community: Heckford Street is preferable
- property: King Edward Memorial Park Foreshore is marginally preferable.

17.414 It summarises that '*when the combined scores for all the areas of consideration are taken into account the overall scores for the two options are similar*'. In the analysis Heckford Street scored 14% greater than King Edward Memorial Park Foreshore option and the report suggested that both options be carried forward by the Applicant and be subject to detailed analysis before a preferred site was selected.

17.415 We received many relevant and written representations about the loss of the park asking for Heckford Street to be considered. These included representations from the Council, SaveKEMP and FTW Management Company Ltd.

17.416 We decided to consider two options as alternatives, because the application documents did not provide sufficient detail for us to review the Applicant's justification for the site compound and whether there were suitable alternatives that would avoid the impacts before us. These alternatives are 'Heckford Street and Park' and the option for direct connection to tunnel in the park itself in an area away from the foreshore.

Heckford Street and Park

17.417 The Applicant provided more information about the 'Heckford Street and Park option' in response to our written question (APP14, section 9.6). The option would require two sites:

- Heckford Street for a 20m diameter shaft connection to the main tunnel on a revised alignment (shown on figure 9.1)
- CSO connection site in KEMP to divert the North East Storm Relief sewer to a 17m diameter shaft in the park (shown on figure 9.11).

The two sites would be connected by a 3.5m diameter, 295m long connection tunnel between the shaft in the Park and the shaft at Heckford Street. Heckford Street would be used as the drive site for the connection tunnel.

- 17.418 Heckford Street site is currently two industrial estates known as 'The Highway Trading Centre' and 'Highway Business Park'. The site is accessed by Heckford Street which adjoins The Highway (A1203). The site is land bound (100m from the river) with roads on three sides including residential dwellings on the opposite side of Cable Street (16m from the site) and residential flats and the Shadwell Centre on Schoolhouse Lane. Use of the site would require relocation of 29 commercial units, warehouses and offices currently located on the site.
- 17.419 The Applicant's outline drawings of the site in the park show a larger site area than had been indicated in the final report on site selection (Doc 7.05, volume 19, figure 3.2). We questioned the Applicant on the reasons for this, and opportunities to reduce the impact on the park, but were assured that the layout provided in answer to our question '*represents an efficient use of space*' and that the area could not be materially reduced (APP59, section 13.1).
- 17.420 The Applicant argued that the use of two sites would not be a favourable engineering solution and neither would be the need to drive two tunnels almost vertically above each other on the same alignment. We agree.
- 17.421 However, we did ask for further information about the relative environmental impacts of the two options. The first response from the Applicant concerning noise impacts at Heckford Street did not give us comparative information with the application as it had not considered mitigation measures (APP14, answer to Q14.9). The answer to our second written question on the possible mitigation measures for Heckford Street confirmed that significant effects would be experienced by households on Cable Street for ten months and Schoolhouse Lane for 21 months, traffic impacts would be significant on Schoolhouse Lane for 21 months and Pier Head School would have an exposure of 6dB above ambient for 15 months (APP59, answer to Q32.14).
- 17.422 The summary table given in answer to Q32.27 for a noise assessment appears to be flawed as it combines both options into one table and it isn't clear which significant impact is from which alternative. However, it appears from the table that there would be approximately 84 households significantly affected at the façade with the 'Heckford Street and Park option' and 32 households significantly affected with the King Edward Memorial Park Foreshore option (APP59, table 27.4).
- 17.423 We also considered the traffic implications of the two options. The Applicant advised us that the Heckford Street option would require 20,100 lorries as compared to the King Edward Memorial Park

Foreshore site which would use 10,750 lorries and 210 barges³³⁹ (APP14, tables 9.1 and 9.3).

17.424 FTW Management Company pointed out that the Applicant's traffic assessment had not allowed for the reduction in traffic currently generated by the use of the industrial estates at Heckford Street. The survey appended to that representation had assessed that in excess of 9,500 HGV 2-way journeys (movements) would be re-routed from Heckford Street with the results that the Applicant's estimate of traffic is overestimated for the Heckford Street option (WRR040, para 27 and appendix C).

17.425 We have reviewed the traffic data before us, and note that the opportunity to use barging is not available with the Heckford Street and Park option. Traffic currently using the site would be displaced with the closure of Heckford Street Industrial Estate. Our view is that the comparisons of lorry numbers for the two site options should not attract any more than minimal weight.

17.426 The socio-economic comparison between the two options is also given in answer to Q14.9. Of particular note, the Applicant considered that the impact of the works in the Park for the Heckford Street and Park option would be 'significant adverse' with regard to the temporary reduction in the provision of open space and the amenity of users of the Park. Both the Council and SaveKEMP at the IS hearing stated that a site at the back of the park would have less impact than the proposed development on the foreshore at the front of the park.

17.427 Whilst we take account of these comments, in our view the Heckford Street and Park option would have some important impacts on the park. On our site inspections at King Edward Memorial Park Foreshore we saw that this option would result in:

- loss of significant elements of the built heritage of the park – including part of the retaining wall and terrace, the grand steps leading up to the monument and the monument itself (non-designated heritage assets)
- loss of the central axis linking the monument, steps and listed air shaft
- loss of several substantial trees which are part of the landscape structure of the more formal part of the park
- noise and construction impacts that would be widely experienced within the park due to the central location of the work site.

17.428 The final point we sought to clarify was concerning the operational structures and impact on the park after completion. The Applicant confirmed that there would be an electrical control kiosk, ventilation columns and a small control pillar. Such works are

³³⁹ Lorry numbers as given by the Applicant. For lorry movements multiply by two

similar to that proposed within the King Edward Memorial Park Foreshore proposal. The Applicant considers that the structures (valve chamber, interception chamber and drop shaft) would protrude beyond the line of the terraces and be visible above-ground level (APP59, para 18.1.6).

17.429 The sewer to be intercepted passes beneath the terrace at an angle. Whilst no detailed design is before us, it seems unlikely that the existing features could be reinstated without some degree of adverse impact from the permanent works.

17.430 We note that, if this option had been pursued, some improvements might have been expected as a result of design development. Even so, our overall assessment is that the impacts of the Heckford Street and Park option on King Edward Memorial Park would be of a similar order to those resulting from the application proposals.

17.431 In LB Tower Hamlets' written representation on 3 March 2014, it summarised the history of the Council's view of the current position as follows:

'The assessment carried out by Thames Water concluded that the construction site at both Heckford Street and at KEMPF would be significantly larger, and construction work more complicated and therefore lengthier than was envisaged during the original site selection review. As a result, since the applicant considered the adverse impacts of the council's preferred option to be greater than originally predicted, in the applicant's view, the advantages of the KEMPF were thus significantly greater.'

It is at best, highly regrettable that this assessment was not carried out when originally 'requested by the council, since this would have provided the opportunity and time for a technical assessment of the applicants revised proposals, which was clearly not possible within the timescale of the Hearing. However, as has been demonstrated by Thames Water in respect to the KEMPF site, detailed development work will often result in improvements to construction methodology and consequent reduced impacts both in terms of land take and adverse environmental impacts. In the council's opinion it is therefore possible that, with further development work, the adverse impacts of the Heckford Street/Park could be significantly reduced' (REP447, section 2).

17.432 Our view is that, while we agree with LB Tower Hamlets that in all probability the Heckford Street and Park option could be refined further, we consider that the Applicant's proposal for use of King Edward Memorial Park Foreshore has been justified for the following reasons:

- the loss of park open space would not be avoided by the alternative proposal, albeit the foreshore would not be as affected
- the engineering construction of one tunnel running on top of (and in parallel with) another although feasible is not desirable
- the engineering solution of two sites is not efficient
- there would be noise impacts on a wider group of residents than would experience noise at King Edward Memorial Park Foreshore. Therefore the noise impact would not have been avoided
- the use of Heckford Street would result in socio-economic impacts on businesses.

Direct CSO connection to tunnel

17.433 One of the options considered in the site selection report was a direct connection to the tunnel in the western area of the park (Doc 7.05, volume 19) with a direct drop shaft to a realigned tunnel. This would have used less area in the river frontage area of the park but would have used a greater area of the park itself, including the playground.

17.434 Notwithstanding our conclusions on the Heckford Street and Park option, we remain concerned about the impacts on the use of the park from loss of river frontage in the King Edward Memorial Park Foreshore proposal. We therefore asked for more information regarding this alternative in ExA's Q32.16 with information on the impacts on the park in Q32.19.

17.435 The Applicant's answer confirmed that such an alternative would impact on the multi-use game area, tennis courts, children's playground and park works area.

17.436 At the IS hearing (23 January 2014), LB Tower Hamlets and SaveKEMP confirmed their views that such a proposal would not offer any advantages over the foreshore site. We did not consider this alternative further.

Conclusion on King Edward Memorial Park Foreshore

17.437 Under the NPS paragraph 2.6.34, it is for the Applicant to justify the specific design and route of the project including any other options it has considered and ruled out.

17.438 Under NPS paragraph 4.9.9, the decision maker must consider whether the proposal meets the aim of avoiding significant adverse impacts on health and quality of life from noise. In the case of the King Edward Memorial Park Foreshore, our view is that the first aim of paragraph 4.9.9, in conjunction with the requirement to consider the location of the construction compounds (NPS, paragraph A1.3.9), leads us to consider whether significant impacts from noise and/or vibration could have been

avoided by use of one of the options which were ruled out by the Applicant.

- 17.439 We have assessed the use of King Edward Memorial Park Foreshore against two alternatives to satisfy ourselves that the specific design and route of the tunnel at this site is justified. We appreciate that the proposed site is a difficult site with respect to the impact on the community from loss of open space and amenity during construction. We are also mindful of the noise impacts on FTW (south) and Pier Head Prep School which would both experience significant effects for two years.
- 17.440 We are concerned about the reduction in amenity of the park in a borough with limited open space. Although physically a large area of the park would be unaffected we are concerned that the elevated noise levels and loss of river frontage during construction would reduce the public's use of the park during the period of construction (over three years).
- 17.441 The NPS states that the decision maker should not grant consent for development on existing open space, sports and recreational buildings and land unless an assessment has shown that the open space or the buildings and land are surplus to requirements or the decision maker determines that the benefits of the project outweigh the potential loss of such facilities. In making a judgement the decision maker should consider whether any adverse effect is temporary and whether any adverse impact on the landscape will be capable of being reversed in a timescale that the decision maker considers reasonable (NPS, para 4.8.13 to 4.8.14).
- 17.442 LB Tower Hamlets has an overall shortage of open space and this part of the Borough is particularly densely developed with many residents living in flats. Plainly, King Edward Memorial Park is not surplus to requirements. In chapter 11, under the heading 'Open space, sport and recreation', we conclude that the ES understates the likely effect on the community of the construction impacts on the park. We acknowledge that the s106 obligations would offer some useful mitigation but, even so, we consider that the use of part of King Edward Memorial Park would be a serious loss to the local community during construction. Although the s106 obligations would provide funding for the park to be reinstated following the works, the effects of construction would be experienced by the community for an extended period.
- 17.443 However we acknowledge that an alternative that would avoid the significant impacts and not create as great an impact elsewhere is not before us and not available. As such, we consider that in the case of this site, the Applicant has justified the design and route of the project in accordance with NPS paragraph 2.6.34.

17.444 However, we remain concerned about the significant impacts on the local community and we consider that should the Secretaries of State decide to approve the application then additional mitigation measures should be secured in the DCO for limits on Saturday working as requested by the Council and as discussed in chapters 11 and 12 and set out in chapter 20.

OTHER SUBMISSIONS ON ALTERNATIVE SITES

17.445 As stated earlier, we are required to apply the relevant approach under s104 PA 2008 and in particular we are required by the NPS to consider the location of the tunnel shafts and the construction compounds as a key issue (NPS, para A1.3.9).

17.446 As stated in the introduction to this chapter we questioned the Applicant further on two sites (Shad Thames Pumping Station and Bekesbourne Street) where site selection reports had not been submitted. We are satisfied with the answers given for these two sites (APP31.05) and we did not consider alternatives for these locations further.

17.447 However, we had also received written submissions on two other sites which are considered below: Barn Elms CSO site and Putney Embankment Foreshore. We consider first the transfer of flows between Putney, Barn Elms and another site and then consider in more depth the suggested relocation of the Putney Embankment Foreshore site to the east of Putney Bridge.

CSO flow transfers (Barn Elms and Putney)

17.448 The proposals for Putney Embankment Foreshore are the subject of representations from Capitalstart Ltd, owners of restaurant premises adjacent to the proposed work site. The written representation from Capitalstart submitted that the Applicant had failed to demonstrate the need for a replacement CSO site at Putney and argued that an alternative engineering solution would be more appropriate (WRR052, sections 4 and 5). It suggested a number of options:

- increasing the capacity of land based sewers
- transferring flows to the proposed CSO at Bell Creek (ie at Dormay Street)
- an alternative work site location east of the bridge would be more suitable.

17.449 The written submissions from Unity Harvey (RRP058 and REP115) suggested that the flows could be piped alongside Beverley Brook and then underground along Putney embankment to the Putney CSO, thereby avoiding the need for the CSO site at Barn Elms.

17.450 These alternatives were discussed at the IS hearing (11 November 2013) and the Applicant provided details of the possible flow

transfer alternatives in the written summary of the hearing (APP31.01 section 7).

17.451 The Applicant confirmed that:

- Flow transfers from Barn Elms to Putney along the embankment would be feasible and lower cost, but it would require an increase in size of the foreshore construction site at Putney and would be very disruptive to a large number of sensitive residential receptors. As the excavation in the embankment would be in an area that currently floods at high spring tides, the necessary flood protection works would increase the complexity, duration and disruption along the carriageway. The Applicant estimates that the duration of the works would be in the region of 32 months (as opposed to 30 months in the current proposal at Barn Elms CSO site) (APP31.01, paragraphs 7.3.5 to 7.3.25).
- Modifications to the upstream sewerage system would require either upsizing or duplication of significant proportions of the existing network or the provision of below ground storage facilities. It considers that this would increase the construction impacts on the local area (APP31.01, paragraphs 7.3.26 to 7.3.42).
- Transfer of flows to the Dormay Street work site would require a land-based interception of the Putney CSO which is considered to be impractical and the transfer pipework would require complex and significant excavation within roads in the Putney area. The Applicant considers that the cost and duration of such a solution would equal, if not exceed the current proposals, and the level of disruption would be significantly more (APP31.01, paragraphs 7.4.28 to 7.4.38).

17.452 LB Wandsworth in its written representation stated that it would not support either the transferring of flows from Barn Elms to Putney or the flows from Putney to Dormay Street because of the levels of disruption (REP198, sections 3 and 4).

17.453 We have reviewed the information before us, and our conclusion is that on balance, the Applicant has justified its decision for the work site at Barn Elms and for a CSO interception site at Putney.

17.454 We discuss below the location of the CSO site at Putney.

Putney Embankment Foreshore

17.455 Capitalstart states that, if a connection is needed at Putney, it disputes the proposed location. Capitalstart considers that there is a strong heritage case for selecting a site to the east of Putney Bridge, in an area known as Putney Wharf, instead of the proposed site to the west of the bridge (WRR052).

17.456 Capitalstart draws attention to Policy PL 9 of the Wandsworth Core Strategy (CS) which deals with the River Thames and the

riverside. PL 9(d) is specific to Putney Embankment and states that its special recreational character and function, particularly in connection with river sports, will continue, with facilities and activities which contribute to this character supported and protected. The Putney Embankment designation, for the purposes of Policy PL 9(d), encompasses the proposed work site west of Putney Bridge but does not include the Putney Wharf area to the east³⁴⁰. It is suggested that this is an important distinction which supports the case for a work site east of the bridge (WRR052, section 5.5).

- 17.457 The submission from Capitalstart also highlights the Putney Embankment Conservation Area Appraisal and Management Strategy. This states that the riverside setting, wharf and in particular the Embankment and boathouses, coupled with the deliberate landscaping of the 1890s ensures that the character of the area is unique within the borough, and indeed within London. In contrast, the area to the east of the bridge is said to have been almost completely transformed by redevelopment over the last 10 years.
- 17.458 Capitalstart argues that the ensemble around the historic slipway and Putney Pier, together with the bridge and other listed and locally listed heritage assets, create a relatively unspoilt riverscape that retains much of its 19th century character. It is said that the insertion of a large modern structure here would be more damaging visually than it would be in the more modern riverscape to the east. It is suggested that the Applicant's selection process placed too much weight on the setting of the Grade II* listed St Mary's Church, a setting which is greatly altered by modern development (WRR052, section 5.5).
- 17.459 LB Wandsworth, responding to these submissions, comments that it would not support the relocation of the work site to the east of Putney Bridge. Reasons given relate to the setting of St Mary's Church; proximity to a nursery (within the church premises); access restrictions and impacts on the Putney Wharf area which includes multi-storey residential development and is very popular in the evenings with restaurants and a public house (REP198, section 4). The Putney Wharf Association also objects to Capitalstart's suggestion, drawing attention to the 210 residential units, two restaurants, two public houses and ten offices within the Putney Wharf Estate (WRR007).
- 17.460 We do not agree with Capitalstart's assessment that the proposed foreshore structure would have a major adverse effect on the character of the conservation area, for reasons set out in chapter 10 under the heading 'Putney Embankment Foreshore'. Moreover, we note that the Historic Buildings and Monuments Commission

³⁴⁰ The policy, together with Map 10 showing the Putney Embankment special recreational character, is attached to the LIR from LB Wandsworth (REP098)

for England considers that alternative sites to the east of Putney Bridge would be likely to have more direct impacts on the setting of St Mary's Church (WRR069, para 4.10). Clearly, a location east of the bridge would have different impacts on the historic environment – less impact in relation to the 19th century riverfront and more impact in relation to the setting of St Mary's Church. However, from the evidence before us, there is no reason to conclude that the overall impact would be materially less.

- 17.461 In chapter 8 we comment on how the design at Putney Embankment Foreshore was amended to reduce the degree of change to the historic public slipway. In our view this would avoid material harm to existing river infrastructure and would be in accordance with part (c) of CS Policy PL 9.
- 17.462 In chapter 10 we comment that the simple plan form of the foreshore structure would allow for flexibility of use, for example in relation to events on the river. Design Principle PUTEF.17 (APP206.01) notes that the structure would be on the start line of the University Boat Race. It states that the University Boat Race Stone would be retained in its current position and a physical marker, featuring as a work of public art, would run from the stone to the new river wall. We consider that the proposals for Putney Embankment Foreshore would support the recreational character and function of the embankment, in accordance with part (d) of CS Policy PL 9.
- 17.463 On our unaccompanied site inspection to Putney Wharf we noted that vehicular access to the riverfront east of the bridge would be via a pedestrian area which is flanked by restaurants and a public house with extensive outside seating areas. There is high density residential accommodation in close proximity to the suggested alternative work site. Whilst there are no detailed proposals before us, having regard to the nature of the area, we consider that the concerns expressed by LB Wandsworth and the Putney Wharf Association are well founded.
- 17.464 Our overall conclusion is that the Applicant has justified its decision to select a work site west of the Putney Bridge.

CONCLUSIONS ON RATIONAL FOR THE SELECTION OF WORK SITES AND DRIVE STRATEGIES

- 17.465 As stated above, the NPS³⁴¹ requires that the Applicant justifies the specific design and route of the project, including any other options it has considered and ruled out.
- 17.466 There was generally no challenge to the overall tunnel route³⁴² proposed by the Applicant and we consider that it has been

³⁴¹ NPS, paragraph 2.6.34

³⁴² From Acton Storm tank to Abbey Mills Pumping Station

justified³⁴³. We examined the design and location of all the work sites in detail and consider that the work sites adopted by the Applicant, which are not the subject of the individual detailed considerations set out in this chapter, are justified.

17.467 There were however, concerns about the design and location of specific sites³⁴⁴. As a means of testing the design and site selection process we considered these individually, in accordance with the NPS, the Applicant's justification for the specific design and route and against the options that it considered and ruled out.

17.468 In summary we find that the Applicant has justified its specific design and the options ruled out for the following sites that were the subject of concerns raised in representations for the reasons set out in this chapter:

- Carnwath Road Riverside
- Deptford Church Street
- King Edward Memorial Park
- Barn Elms CSO site
- Putney Embankment Foreshore.

17.469 We consider that there are still residual issues about the site selection of Chambers Wharf that relate to the design and justification for this site. When testing this against the options ruled out we consider that it is more likely that noise and overall community impacts could be adequately mitigated at Abbey Mills and therefore the justification for selecting Chambers Wharf as a drive site relies on the Applicant's stated river transport benefits. We consider that on balance the Applicant's justification for ruling out Abbey Mills as a drive site, and the use of Chambers Wharf only as a reception site, has not been made out. Therefore, we conclude that the Applicant has not justified its design and the ruling out of the option of Chambers Wharf as a reception site.

³⁴³ In the context of the NPS confirming the need for a tunnel, and taken as a whole and not in discrete parts

³⁴⁴ Both in the context of the need for the site at the location or in the context of discrete parts of the tunnel

18 THE PANEL'S RECOMMENDATION ON THE CASE FOR DEVELOPMENT

INTRODUCTION

- 18.1 The PA 2008 at s104 requires that an application must be decided in accordance with any relevant national policy statement, except to the extent that one or more of subsection s104(4)-(8) applies.
- 18.2 The National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS), para 3.1.2 sets out that: *'Given the level and urgency of need for infrastructure of the types covered by this NPS, set out in Part 2 of this NPS, the decision maker should start with a presumption in favour of granting consent to applications for waste water NSIPs. That presumption applies unless any more specific and relevant policies set out in this NPS clearly indicate that consent should be refused. The presumption is also subject to the provisions of the Planning Act 2008 referred to at paragraph 1.1.1 of this NPS.'*
- 18.3 Our overall conclusion on the case for granting development consent for this application is based on an examination and assessment of those matters which we consider are both important and relevant to the decision, including the Local Impact Reports (LIRs) submitted to the examination, considered against the tests set out in the NPS.
- 18.4 In chapter 3 of this report we set out the legal and policy context that we consider is both important and relevant to our examination and assessment of the application. In chapters 4 to 17 we refer to specific parts of the NPS as our starting point, together with other relevant policies, in considering and concluding on the issues examined in those chapters.

REASONS FOR OUR CONCLUSIONS

- 18.5 We have set out the reasons for our conclusions on each of the matters in chapters 4 to 17 which in summary are:

Air quality and emissions

- 18.6 We conclude that, with the various safeguards proposed, the proposal would not lead to new breaches of national air quality limits or result in any substantial changes to air quality in the area. With the safeguards proposed we are also satisfied that all reasonable steps would be taken to control any odours that could arise from constructing and operating the project.
- 18.7 Accordingly, we take the view that the Secretaries of State can be satisfied that air quality considerations (including matters related to dust and odour) are not a matter that should attract significant

weight in the decision as to whether or not to make the Development Consent Order (DCO).

Biodiversity, biological environment and ecology

- 18.8 We conclude that the proposed development is unlikely to result in significant harm to any nationally designated site or to any protected species. Further, the Code of Construction Practice (CoCP) Part A includes measures to identify and control any impacts on protected species that may emerge before construction starts or during the construction period.
- 18.9 In our view the Applicant has set out the likely effects on locally designated sites and has taken the opportunity to conserve and enhance biodiversity. The construction of the proposed development would avoid significant harm to biodiversity in accordance with the NPS. Mitigation measures would be an integral part of the proposed development and would be appropriately secured through the DCO, related documentation and s106 obligations.
- 18.10 The operation of the project would improve the water quality of the River Thames, thereby resulting in benefits to the ecology of the River Thames and Tidal Tributaries Site of Interest for Nature Conservation. This is a matter which weighs in favour of making the DCO.

Coastal/river change

- 18.11 The general extent of scour protection works has been explored and assessed within the Environmental Statement (ES). The mitigation proposals have been developed during the course of the examination through discussions between the Applicant, Marine Management Organisation (MMO), Environment Agency (EA) and Port of London Authority (PLA). We consider that the Deemed Marine Licence (DML) and protective provisions would provide appropriate controls in relation to works in the river.
- 18.12 We conclude that the Applicant has brought forward satisfactory mitigation measures which would include monitoring arrangements and trigger levels for remedial action in accordance with the requirements of the NPS. These measures would be adequately secured through legal agreements and the DCO as a whole. We conclude that coastal and river change is not a matter that should attract significant weight in the decision as to whether or not to make the DCO.

Design, landscape and visual impact

- 18.13 During construction, the proposed development would have widespread significant adverse effects. Most of the work sites would be highly visible and many of them would be in sensitive locations. Although the Applicant has sought to minimise visual

impacts through mitigation measures, because of the scale and nature of the works we consider that such measures could only partially mitigate the adverse effects. This is a matter which weighs against making the DCO.

- 18.14 The Applicant has described the approach to securing good design, and has shown how an understanding of the townscape context has guided the evolution of the designs at each site. The design of the permanent above-ground works has attracted support from the Historic Buildings and Monuments Commission for England and Design Council CABE. In our view the Applicant has demonstrated good design in terms of siting relative to existing townscape character and vegetation, in accordance with the NPS.
- 18.15 In respect of the permanent works, significant adverse effects are identified at one site, Chelsea Embankment Foreshore. In that case we are satisfied that the adverse townscape effects would be minimised through appropriate siting, design and landscaping in accordance with the NPS. Elsewhere, we see no reason to disagree with the Applicant's assessment that the townscape and visual impacts of the permanent works would be negligible or beneficial. However, we consider that the Applicant overstates the benefits at two sites, Deptford Church Street and King Edward Memorial Park Foreshore.
- 18.16 The Applicant has considered the functionality of the design and has addressed operational and safety matters.
- 18.17 Overall, in respect of the visual effects of the permanent works, we consider that the achievement of good design would minimise adverse effects and result in some beneficial effects. On balance, our view is that this is not a matter that should attract significant weight in the decision as to whether to make the DCO or not.

Flood risk and climate change

- 18.18 Having regard to the submitted documentation (including the Statements of Common Ground (SoCGs), requirements and the protective provisions for the EA), it is our view that the Secretaries of State can have confidence that the proposed development has properly taken into account flooding and climate change. We conclude that this is not a matter that should attract significant weight in the decision as to whether or not to make the DCO.

Historic environment

- 18.19 The proposed development would have widespread impacts on the historic environment, resulting in harm to a wide range of heritage assets:
- *Archaeology*: Although there is potential for impacts at several work sites, we consider that appropriate mitigation

has been identified and secured through the Overarching Archaeological Written Scheme of Investigation.

- *Settlement:* There is potential for harm to several designated heritage assets. However, appropriate mitigation has been identified and in the case of the most sensitive assets it is unlikely that there would be material harm to the significance of the heritage assets. Adverse impacts are predicted at two Grade II listed buildings. The harm to their significance is likely to be less than substantial and we would characterise it as minor.
- *Setting of heritage assets during construction:* There would be widespread harm to the settings of designated heritage assets, including assets of the highest statutory grades. That said, it is necessary to bear in mind that these impacts would be temporary.
- *Effect of permanent works on above-ground heritage assets:* Although there would be changes to the historic environment in parts of London which are particularly sensitive in heritage terms, the design of the proposed development would offer significant mitigation. However, residual adverse impacts would remain in relation to conservation areas, listed river walls, listed bridges and other heritage assets.

18.20 We have not identified any instances, during construction or operation, where the proposed development is likely to result in substantial harm to or loss of the significance of a listed building (of any grade), a conservation area or a registered park and garden. Nor would there be substantial harm to the significance of the Palace of Westminster World Heritage Site or the Tower of London World Heritage Site.

18.21 Nevertheless, such harm to the significance of heritage assets as we have identified above should be weighed against the public benefit of the development, recognising that the greater the harm the greater the justification needed. The harm we have identified in relation to heritage assets is a matter which weighs against making the DCO.

Land use, including regeneration and open space

18.22 The greater part of the proposed development would be on previously developed land and the Applicant has sought to minimise the use of land that is not previously developed. This is not a matter which weighs against making the DCO.

18.23 The proposed development at Barn Elms and King George's Park would be inappropriate development in MOL, which is by definition harmful. We would characterise the degree of harm to openness as relatively minor in both locations. Nevertheless, the NPS requires the decision maker to attach substantial weight to any harm to the Green Belt and, by virtue of London Plan Policy 7.17, MOL should have the same level of protection. The question of

very special circumstances is addressed below under the heading 'Matters weighing against making the DCO'.

- 18.24 The proposed development would result in a temporary loss of parts of some open spaces, including playing fields at Barn Elms. In most cases we consider that these temporary losses would result in minor impacts. Moreover, the permanent works would be well designed and would avoid significant harm to the open spaces in question. In our view the impacts on open spaces, other than those identified below, do not attract significant weight in the decision as to whether or not to make the DCO.
- 18.25 However, we consider that the Applicant understates the likely effect of the proposed development on open space at Deptford Church Street and at King Edward Memorial Park Foreshore. In our view the use of these spaces during construction, albeit temporary, would be a serious loss to the local communities concerned. We consider that this is an important factor weighing against making the DCO.
- 18.26 The proposed development would result in the provision of new public realm at a number of sites. This would be a benefit in terms of public open space provision, particularly at Victoria Embankment Foreshore and Blackfriars Bridge Foreshore, and weighs in favour of making the DCO.
- 18.27 With regard to impacts on planned regeneration, some planned housing would be precluded or delayed. These impacts would also affect affordable housing. However, our overall assessment is that the impacts would be minor because the number of dwellings precluded would be low and there is no evidence that the delay to some dwellings would have a significant impact on strategic housing delivery. We conclude that this matter should not attract significant weight in the decision as to whether or not to make the DCO.

Noise and disturbance

- 18.28 Significant noise impacts would occur during the construction of the proposed development. With regard to the three aims in NPS paragraph 4.9.9:
- We do not consider that the proposals meet the first aim, which is to avoid significant adverse impacts on health and quality of life from noise, although we do take into account NPS paragraph 4.9.13 below
 - We consider that on balance the proposals can be said to meet the second aim of mitigating and minimising adverse impacts on health and quality of life from noise. However we consider that there are significant uncertainties as set out in chapter 12 above on which we are unable to report

- We note that the third aim, which is to contribute to improvements to health and quality of life, is to be achieved 'where possible'. We consider that the proposals would meet this aim.

18.29 We have considered the off-site mitigation measures, offered by the Applicant in accordance with NPS paragraph 4.9.13, and consider that they would be satisfactory subject to the requirements we propose and discuss in chapter 20.

18.30 Our overall assessment is that the impact of noise during construction is an important factor weighing against making the DCO. In reaching that conclusion we have had regard to the mitigation offered by the Applicant. We have also had regard to:

- the significant adverse impacts identified in the ES
- our finding that the ES is likely to have understated the impacts from noise and disturbance
- our finding that, at the end of the examination, there remained some uncertainties in relation to noise.

Socio-economic effects, including effects on amenity, health and well-being

18.31 We consider that the equalities impact assessment provides an appropriate level of detail for effects on equalities groups to be identified and taken into account as part of the decision making process in accordance with the NPS and the Public Sector Equality Duty. The Applicant has shown how effects on equalities groups have been taken into account in the development of the scheme and in mitigation.

18.32 The proposed development would result in the creation of additional employment opportunities during the construction phase. This would be a significant socio-economic benefit. There would also be some adverse effects on employment, both through direct displacement and amenity impacts on businesses.

18.33 The ES identifies adverse effects on amenity for residential receptors at most of the work sites, including major adverse effects at some sites. We consider that the ES understates the likely effects on the amenity of residential receptors at Carnwath Road Riverside, Chambers Wharf, King Edward Memorial Park Foreshore and Earl Pumping Station. There would also be adverse effects on amenity in relation to schools, open spaces, businesses and community facilities.

18.34 The Health Impact Assessment identifies potential significant health impacts and measures to avoid, reduce or compensate for these impacts as required by the NPS. We consider that the effects on the quality of life health determinant are likely to be understated at Carnwath Road Riverside and Chambers Wharf.

- 18.35 The Applicant has offered a wide-ranging package of measures which would do much to mitigate adverse effects on amenity, health and well-being. Nevertheless, there are uncertainties in the proposed mitigation for the impacts of construction noise. Given that construction noise is an important component of the assessments in relation to amenity, health and well-being, it follows that we cannot be satisfied that the overall mitigation package is adequate. Consequently, we conclude that adverse effects on amenity, health and well-being are matters which weigh against making the DCO.
- 18.36 We have not identified any significant adverse socio-economic effects during the operational phase. There would be benefits resulting from the provision of new public open space and improved river related recreational opportunities as a result of improved water quality.

Traffic, travel and transportation

- 18.37 We conclude that the proposal would substantially comply with the transport policies set out in the NPS. The River Transport Strategy (RTS) would ensure that the majority of the excavated material, together with much of the fill material required to construct cofferdams, would be transported by river. During construction, the proposed requirements would secure appropriate measures to regulate traffic generated at each construction site and would avoid unacceptable impacts on the highway network.
- 18.38 The Applicant's proposal to replace LoPS with a bespoke scheme was accepted in principle by most Parties. However, the terms of the bespoke scheme were not agreed by all the highway authorities involved, including TfL, by the close of the examination. Accordingly, we consider that the DCO should be modified to retain LoPS as recommended in chapter 20 below.
- 18.39 Overall, we consider that the proposed development could give rise to a range of impacts on London's transport infrastructure during the construction phase of the project. However, the RTS would reduce the impacts on the highway network and the evidence before us indicates that other impacts could be sufficiently and appropriately mitigated.
- 18.40 With the requirements included in the DCO and the other obligations entered into by the Applicant, our view is that the Secretaries of State can be confident that the project would not result in any residual effects on the surrounding transport infrastructure that should attract more than limited weight.

Water quality and resources

- 18.41 The purpose of the proposed development is to improve river water quality and contribute to the aims of the Water Framework Directive (WFD). We are satisfied that the application would meet

the requirements of the WFD as required by NPS. This is a key factor weighing in favour of making the DCO.

- 18.42 Appropriate mitigation for potential adverse impacts on water quality would be secured through requirements and protective provisions within the DCO.

Other Matters

Environmental statement and environmental impact assessment

- 18.43 At the outset of the examination the ExA stated that it had considered representations alleging that the environmental information within the submitted ES was inadequate. The Panel did not agree with those representations but, nevertheless, the matter was kept under review throughout the examination.
- 18.44 We conclude in chapters 11, 12, and 13 that some impacts identified in the ES are, in our view, likely to be understated. However, this is a matter of our judgement on some of the conclusions of the ES in the light of the totality of the evidence before us. Our judgements on these matters do not render the ES itself inadequate. Moreover, the fact that some assessments changed as a result of additional mitigation proposed during the examination does not invalidate the ES.
- 18.45 Taking into account the original ES submitted by the Applicant, the additional environmental and other information submitted during the examination, the Applicant's approach to flexibility and the context of the NPS, we conclude that there is sufficient environmental information about the environmental effects of the proposed Authorised Development and Associated Development for the Secretaries of State to take a decision in compliance with Regulation 3(2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations.

Habitats Regulations assessment

- 18.46 The Applicant has undertaken a project level assessment in relation to Habitats Regulations assessment (HRA). This resulted in a No Significant Effects Report (NSER) which was submitted with the application. Other supporting environmental information has been provided in response to questions raised by the ExA and in response to consultation on the published Report on the Implications for European Sites (RIES), addressing the necessary information required before a decision is to be made in accordance with NPS.
- 18.47 We advise that the Secretaries of State, as joint competent authority, should have full regard to the contents of the Applicant's NSER, the ES as defined at the close of the examination and in the Applicant's draft DCO, SoCGs between the Applicant and NE, MMO,

EA and PLA and the Applicant's Route Map to Mitigation, alongside the RIES and the representations of the Interested Parties in relation to the implications of the proposed application project for European Sites.

- 18.48 The Applicant has reached agreement with the statutory nature conservation bodies that the assessment, approach (including in-combination effects) and controls would be sufficient to secure protection of the integrity of the designated European sites. We have no evidence before us that would contradict this position.
- 18.49 The HRA and the decision as to whether an appropriate assessment is required are matters for the Secretaries of State as decision makers and the joint competent authority. It is the Panel's view that the Applicant has complied with the Habitats Regulations and the advice reflected in the NPS in carrying out the requisite assessment of potential effects on European sites.

Common law nuisance and statutory nuisance

- 18.50 We have considered possible sources of nuisance and how they may be mitigated. These matters are reported on in chapters 5 and 12. In considering whether to disapply the defence of statutory authority, as sought by the Applicant under Article 7 of the DCO, we have had regard to whether any particular nuisance is an inevitable consequence of the proposed development. No general matters not already addressed in the main issues have been identified which, in our view, should attract significant weight in the decision as to whether or not to make the DCO.

Hazardous substances and safety

- 18.51 We have considered the matters to be taken into account with regard to hazardous substances consent and safety considerations in accordance with the NPS. No matters have been identified which, in our view, should attract significant weight in the decision as to whether or not to make the DCO.

Pollution control and other environmental regulatory regimes

- 18.52 We have considered the matters to be taken into account with regard to pollution control and other environmental consenting regimes. No matters have been identified which, in our view, should attract significant weight in the decision as to whether or not to make the DCO.

Security considerations

- 18.53 Security matters were identified in relation to the application proposal. At the close of the examination there was widespread, but not universal, common ground that safety, security and resilience to emergency is adequately addressed.

- 18.54 Although there was a 'closed' hearing in relation to certain security issues, by the end of the examination the Applicant and the relevant Interested Parties were able to provide sufficient 'open' information to allow security matters to be discussed in chapter 16 of this report. Consequently, it has not been necessary to provide a separate 'closed' report to the Secretaries of State in relation to these issues.
- 18.55 With the submitted documentation, requirements, protective provisions, Design Principles and CoCP, it is our view that the Secretaries of State can have confidence that there would be an appropriate level of security through design, management and control systems during the construction and operation of the proposed development. We conclude that security considerations should not attract significant weight in the decision as to whether or not to make the DCO.

Waste management

- 18.56 Excavated materials and waste generated by the proposed project would be managed using a project-wide waste management plan and individual site waste management plans. The approach to minimising waste arising, including the application of the waste hierarchy, is contained within supporting documentation that is secured by a requirement in the proposed DCO.
- 18.57 Any subsequent revision of the Excavated Material and Waste Commitments would need to be approved under a requirement, thereby enabling the Mayor of London to address the full geographic extent of the proposed project across 14 London local authority administrative areas.
- 18.58 With the submitted documentation, requirements and CoCP offered by the Applicant, it is our view that the Secretaries of State can have confidence that there would be an effective system for managing waste arising from the construction and operation of the proposed development. We conclude that waste management is not a matter which should attract significant weight in the decision as to whether or not to make the DCO.

Rationale for the selection of work sites and drive strategies

- 18.59 The overall tunnel route proposed by the Applicant was not generally controversial and we consider that it has been justified.
- 18.60 Whilst the Panel considered all of the proposed work sites, the examination focussed in particular on the sites listed below. We conclude that the Applicant has justified its specific design and site selection decisions in respect of:
- Carnwath Road Riverside
 - Deptford Church Street

- King Edward Memorial Park
- Barn Elms CSO site
- Putney Embankment Foreshore.

- 18.61 We remain concerned about the implications of selecting Chambers Wharf as a drive site. When testing this against the options ruled out, we consider that it is likely that overall noise, and community impacts would be less if Abbey Mills were to be used as a drive site, with Chambers Wharf used as a reception site.
- 18.62 The alternative drive strategy has been explored during the examination but it has not been developed to the same level of detail as the application scheme. No decision on the use of Abbey Mills as a drive site could be taken before the environmental impacts of such a strategy have been fully and properly assessed and appropriate public consultation carried out.
- 18.63 We cannot prejudge any future decision making processes which may be required. However, on the basis of the evidence before us, we consider that Abbey Mills appears to be feasible as a drive site and that it appears to offer some significant advantages over Chambers Wharf in terms of reduced community impacts during construction. On the other hand, we agree with the Applicant that Chambers Wharf is preferable in terms of river transport. Moreover, use of Abbey Mills as a drive site would generate additional HGV movements within LB Newham.
- 18.64 If the option of driving from Abbey Mills were fully explored we consider that there is a good prospect that it would be found to be preferable in terms of overall environmental and community impacts. In our view these potential benefits could well be sufficient to outweigh the advantages of Chambers Wharf in terms of river transport.
- 18.65 We conclude that the Applicant has not justified the use of Chambers Wharf as a drive site. This is a matter which weighs against making the DCO.

CONCLUSIONS ON THE CASE FOR DEVELOPMENT

- 18.66 We consider that the following assessments are adequate in terms of statutory and policy requirements. We have taken them into account in reaching our recommendation and in our view the Secretaries of State can rely on them, together with the other evidence before the examination, in determining the application:
- Environmental statement and environmental impact assessment (as defined in the DCO)
 - Habitats Regulations assessment
 - Equalities Impact Assessment.

18.67 We have considered the following matters and, for the reasons given above, we have concluded that they should not attract significant weight in the decision as to whether or not to make the DCO:

- Air quality
- Coastal and river change
- Visual impact in relation to the permanent works
- Flood risk
- Use of previously developed land
- Loss of open space, including playing fields, during construction other than at Deptford Church Street and King Edward Memorial Park Foreshore
- Regeneration
- Traffic, travel and transport
- Hazardous substances
- Pollution control
- Security
- Waste management.

18.68 We comment next on the matters weighing significantly in favour of making the DCO, then with those matters weighing significantly against, before concluding on the balance of issues.

Matters weighing significantly in favour of making the DCO

18.69 The proposed development would deliver a Nationally Significant Infrastructure Project (NSIP), the need for which has been demonstrated as a matter of Government policy. The purpose of the proposed development is to improve river water quality and contribute to the aims of the WFD, the Urban Waste Water Treatment Directive (UWWTD) and the Freshwater Fish Directive (FFD). We are satisfied that the application would meet the requirements of the WFD, UWWTD and FFD as required by NPS.

18.70 We consider that the following are further matters weighing significantly in favour of making the DCO:

- Benefits to the ecology of the River Thames and Tidal Tributaries Site of Interest for Nature Conservation resulting from improved water quality
- Provision of new public realm and public open space
- Socio-economic benefits resulting from generation of employment during construction
- Improved river recreational opportunities resulting from improved water quality.

Matters weighing significantly against making the DCO

18.71 We consider that the following are matters weighing significantly against making the DCO:

- Visual impacts during construction

- Harm to heritage assets
- Inappropriate development within Metropolitan Open Land
- Loss of public open space at Deptford Church Street and King Edward Memorial Park Foreshore during construction
- Noise during construction
- Adverse socio-economic effects resulting from displacement of businesses and amenity impacts on businesses during construction
- Adverse effects on amenity, health and well-being during construction
- The Applicant has not justified the use of Chambers Wharf as a drive site.

18.72 In respect of harm to heritage assets, the decision maker must have regard to the duties set out in The Infrastructure Planning (Decisions) Regulations 2010. Moreover, the NPS states that there should be a presumption in favour of the conservation of designated heritage assets. It follows that particular importance attaches to situations where the proposed development would result in harm to designated heritage assets.

18.73 In this case, we consider that there would be appropriate mitigation in relation to effects on archaeological resources and the effects of settlement on heritage assets, albeit that some minor residual harm would remain. There would be widespread harm to the settings of designated heritage assets, including assets of the highest statutory grades, during construction. In respect of the permanent works, the design of the proposed development would offer significant mitigation. However, residual adverse impacts would remain in relation to conservation areas, listed river walls, listed bridges and other heritage assets.

18.74 All harm to heritage assets must be weighed against the public benefit of the proposed development. Our assessment is that the benefits set out above are sufficient to outweigh the harm to heritage assets, whether considered individually or collectively. Consequently, harm to heritage assets is not a determining factor, although it remains an important one in the overall balance.

18.75 Metropolitan Open Land is to be given the same degree of protection as Green Belt, in accordance with the London Plan. The NPS therefore requires that substantial weight should be attached to harm by reason of inappropriateness and to the harm to the openness of Metropolitan Open Land. Even so, we consider that the benefits set out above are sufficient to clearly outweigh such harm. The very special circumstances required to justify development in Metropolitan Open Land therefore exist.

The balance of issues

18.76 The national need for this infrastructure is a powerful factor weighing in favour of making the DCO. This is reflected in the

presumption in favour of granting consent to applications for waste water NSIPs set out in the NPS. Even so, in this case we find the issues to be finely balanced.

- 18.77 The key issues of greatest concern to the Panel are the community impacts of construction noise, and the closely related effects on amenity, health and well-being, together with loss of public open space during construction at Deptford Church Street and King Edward Memorial Park Foreshore.
- 18.78 Our concerns in relation to noise are increased by the duration of the proposed works, our finding that the ES is likely to have understated noise impacts and our conclusion that there are outstanding uncertainties in the noise assessment.
- 18.79 At Chambers Wharf, these points are compounded by our finding that it seems likely that the impacts here could be reduced by an alternative drive strategy.
- 18.80 Our concerns in relation to loss of public open space at Deptford Church Street and King Edward Memorial Park Foreshore are increased by the duration of the proposed works, the fact that the areas in question are deficient in open space and the high value placed on the open spaces by the affected communities.
- 18.81 On the other hand, we also take account of the following:
- Our greatest concerns relate to the construction phase. Although of long duration, these effects would not be permanent. Whilst we have found harm in relation to the permanent works, in our judgement such harm would be clearly outweighed by the benefits described above.
 - Although there are some gaps and uncertainties, we acknowledge that the Applicant has offered a wide-ranging package of measures which would do much to mitigate adverse effects on amenity, health and well-being.
 - In chapter 20 we recommend some changes and additions to the requirements. These would not resolve all of the uncertainties in relation to the noise assessment but, in our view, they would make an important contribution to mitigation.
- 18.82 Having regard to all of the above matters, our conclusion is that, on balance, the matters weighing in favour of making the DCO outweigh the matters weighing against. We therefore find that the case for development is made out and we recommend accordingly in chapter 21.

19 COMPULSORY ACQUISITION AND RELATED MATTERS

THE REQUEST FOR COMPULSORY ACQUISITION POWERS

- 19.1 Compulsory Acquisition (CA) powers are sought in respect of all the land within the application extending across 12 London Boroughs and the Cities of London and Westminster (the London Boroughs). The land is referred to in the draft Development Consent Order (DCO) (Doc 3.1 (as submitted) Doc 9.20.01 (as amended following the Applicant's changes to the application) APP204.02, Article 28 (in final submission by the Applicant)³⁴⁵) as the Order land and in this chapter as the CA land. A Book of Reference, Land Plan (Land plans) and Funding Statement (Doc 4.2 and updated September 2013 Doc 9.10.06) were submitted with the application. The CA land is shown on the Land plans (Doc 2.03) and is within the limits of the land to be acquired or used (LLAU) as described in the Book of Reference which comprises a number of volumes dealing with each London Borough and the Cities of London and Westminster in turn (Doc 4.3.01 to 4.3.14). The development runs in a generally west to east direction following the route of the River Thames. Powers of surface acquisition are sought over 24 work sites, whereas the main tunnel that connects the work sites and associated connection tunnels would be restricted to subsoil acquisition only more than 9m below the surface.
- 19.2 The application is described in summary in chapter 2, 'Main Features of the Proposal and Site'. This sets out the project for which CA powers are sought. The Statement of Reasons submitted with the application (Doc 4.1, subject to errata Doc 9.04.01) sets out at section 7 the location and description of the Order land site by site. Following changes requested and made by the Applicant this was further updated (APP79.1).

THE PURPOSES FOR WHICH THE LAND IS REQUIRED

- 19.3 The Applicant submits that the land is required for the construction, use and maintenance of the Thames Tideway Tunnel. The works required for the tunnel are described above in chapter 2, 'Main Features of the Proposal and Site'.
- 19.4 The Book of Reference identifies all the plots of land required and these are shown on the Land plans comprising 57 sheets. On the Land plans plot numbers relate to the London Borough in which they are located.
- 19.5 The Land plans submitted by the Applicant were revised and amended as the examination proceeded and a final set of Land plans was submitted on 3 March 2014 (APP120.02) and the Book

³⁴⁵ The draft DCO was updated and submitted by the Applicant in six different versions as described and set out in chapter 20 of this report

of Reference updated accordingly, as referenced in the Book of Reference change log (APP138.01).

- 19.6 The identification of CA land is complex because different CA powers are required in the same land at different levels. Furthermore, in many parts of the same land temporary possession powers (which are not CA powers) are also required (referred to later in this chapter under the heading 'Powers of temporary possession'). This is dealt with on the Land plans by adding shoulder notes to the Land plans which set out which powers are required in each plot.
- 19.7 To further assist the identification of the land and the interests required the Land plans are supplemented by Land Acquisition Plans which adopt a different approach to that required for the Land plans. They identify both the work site boundaries and the interests which are sought to be acquired³⁴⁶ and show by different distinguishing characteristics the total areas of land required for each purpose, they do not however identify the plot boundaries or the plot numbers as the Land plans are required to do.
- 19.8 The table following paragraph 9.2.8 of the Statement of Reasons (Doc 4.1, subject to errata Doc 9.04.01 and revised 13 January 2014 (APP79.1)) sets out in summary form the purposes for which land at the work sites is required or for which temporary possession may be taken.
- 19.9 The CA powers sought are:
- to acquire the freehold
 - to acquire the freehold more than 9m below the surface
 - to acquire new rights over land
 - to extinguish and/or override existing rights.
- These powers are referred to collectively in this chapter as the CA powers, save where the context requires otherwise.
- 19.10 The DCO seeks to incorporate the provisions of The Compulsory Purchase (General Vesting Declarations) Act 1981 with some modifications and also the provisions set out in section 158 of the Act with modifications and makes it clear that where section 158 applies compensation shall be payable pursuant to the provisions of section 10 of the Compulsory Purchase Act 1965.
- 19.11 Crown land is involved at various locations along the route of the tunnel. The Crown agencies involved are:
- The Crown Estate
 - The Duchy of Cornwall

³⁴⁶ Paragraph 5(2)(i) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

- The Department for Work and Pensions
- The Foreign and Commonwealth Office.

Where Crown interests arise the relevant plots are listed in Part 4 of the Book of Reference as required. They are also listed in Part 1 of the Book of Reference but it is stated that they are excluded from the CA powers sought.

- 19.12 Statutory undertakers' land and electronic communications code operators' land is extensively involved along the route and CA powers are sought to acquire land, interfere with interests, override interests and remove apparatus. All the land involved is included under the relevant London Borough in Part 1 and Part 3 of the Book of Reference.
- 19.13 A power is sought under section 120(5) of the Planning Act 2008 (as amended) (PA 2008) to take temporary possession of land. This power would be used for those areas of the work sites which are needed to accommodate construction works; they may include areas which are to be permanently acquired and for which CA powers are also sought. These sites would be occupied for periods between 1 to 8 years and on completion any areas not identified for permanent acquisition would be handed back to owners, subject in some cases to permanent rights of access or other similar rights needed to operate and maintain the permanent structures in or on the land.
- 19.14 The Applicant has also applied to the relevant Secretaries of State for the grant of certificates under s127 PA 2008 and consents under s138 PA 2008; further, since the power to acquire open space land and rights over it without providing replacement land is sought, the Applicant has also applied to the Secretary of State for Communities and Local Government for certificates under sections 131 and 132 PA 2008.
- 19.15 The applications for the grant of certificates under section 127 and consents under section 138 are made to the Department for Transport, the Department of Energy and Climate Change, the Department for Environment, Food and Rural Affairs, and the Department for Culture, Media and Sport. These Secretaries of State have delegated to the Examining authority (ExA) the power to consider these applications and to report to the relevant Secretaries of State³⁴⁷.
- 19.16 Applications for the grant of certificates under sections 131 and 132 are made by the Applicant to the Department for Communities and Local Government. In this case there was no delegation to the ExA to consider the specific tests under s131 and s132, which have been dealt with by the Department as a separate procedure

³⁴⁷ The delegation letters can be found on the Planning Portal National Infrastructure website at: <http://infrastructure.planningportal.gov.uk/legislation-and-advice/guidance/>

outside of the examination. Accordingly, we only considered sections 131 and 132 in relation to CA issues and the relevant consideration in accordance with the National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) (NPS, section 4.8).

THE REQUIREMENTS OF THE PLANNING ACT 2008 (AS AMENDED)

- 19.17 CA powers can only be granted if the conditions set out in sections 122 and 123 of PA 2008 are met.
- 19.18 Section 122(2) requires that the land must be required for the development to which the development consent relates or is required to facilitate or is incidental to the development. In respect of land required for the development, the land to be taken must be no more than is reasonably required and be proportionate³⁴⁸.
- 19.19 Section 122(3) requires that there must be a compelling case in the public interest which means that the public benefit derived from the CA must outweigh the private loss that would be suffered by those whose land is affected. In balancing public interest against private loss, CA must be justified in its own right.
- 19.20 Section 123 requires that one of three conditions is met by the proposal. The ExA is satisfied that the condition in s123(2) is met because the application for the DCO included a request for CA of the land to be authorised.
- 19.21 A number of general considerations also have to be addressed either as a result of following applicable guidance or in accordance with legal duties on decision makers:
- All reasonable alternatives to CA must be explored
 - The Applicant must have a clear idea of how it intends to use the land and to demonstrate funds are available
 - The decision maker must be satisfied that the purposes stated for the acquisition are legitimate and sufficiently justify the inevitable interference with the human rights of those affected.

HOW THE EXAMINING AUTHORITY EXAMINED THE CASE FOR COMPULSORY ACQUISITION

- 19.22 The Applicant has identified the CA land on the Land plans by reference to the London Borough in which it is located and has done so following the route of the tunnel from west to east. We adopted the same approach in consideration of the request for CA powers and the objections to the request for CA powers.

³⁴⁸ Guidance related to procedures for compulsory acquisition DCLG September 2013

- 19.23 In its Rule 8 letter dated 26 September 2013 (PD006) the ExA raised its first written questions (PD008) concerning the Book of Reference and the Land plans for each London Borough and other related matters. In addition, specific queries were raised on the proposals for CA both at surface and at subsoil levels in each of the surface sites located within each London Borough. The ExA also raised specific questions regarding the Funding Statement submitted with the application and the use of temporary possession powers.
- 19.24 The Applicant responded to the ExA's first written questions (APP04 CA and related matters including appendices APP04.03.01 to APP04.102.01) and to its second written questions (PD017) and oral questioning during the course of the CA hearings (APP50, APP42.1 to 42.14, APP90.01 to 90.04, REP291, REP292, APP102.06, APP102.07). The ExA also made a further request for information (PD031) and the Applicant provided an update in accordance with this request (APP160 to APP173).
- 19.25 A CA hearing was requested by 20 Interested Parties. There were more than 200 objections to the request for the grant of CA powers. A list of Interested Parties who requested a CA hearing is set out in appendix E1. A list of all Interested Parties who objected to the grant of CA powers is set out in appendix E2.
- 19.26 CA hearings were held over a period of six weeks. During weeks 1 to 4 the Panel considered the Applicant's case for the grant of CA powers as well as all objections by objectors who had indicated that they wished to present their objection orally at a hearing, regardless of whether they had also made written representations. Objections were dealt with at the CA hearings London Borough by London Borough working from west to east.
- 19.27 Week 5 of the hearings was set aside to consider the Applicant's case for the grant of certificates under section 127 and consents under section 138 and to consider CA issues relating to the proposed acquisition of open space land. During this week we also considered representations from Affected Persons with interests that were affected in more than one London Borough. Week 6 considered a number of specific matters either held over or needing to be revisited and generally a review of the position in relation to all outstanding CA matters. A list of the dates for all CA hearings is set out in appendix B.
- 19.28 The following representations and objections to the grant of CA powers were withdrawn on the dates set out below:
- Statutory undertakers:
 - (i) London Legacy Development Corporation 31 October 2013 (OD053)

- (ii) Royal Mail Group Limited, Royal Mail Estates Limited and Post Office Limited 20 December 2013 (OD054)
 - (iii) National Grid 6 March 2014 (REP465)
 - (iv) Canal and River Trust 7 March 2014 (REP467)
 - (v) Port of London Authority 10 March 2014 (REP470).
- Other Interested Parties:
 - (i) Sergo Plc 4 December 2013 (REP165)
 - (ii) Nerita Properties Limited 6 February 2014 ((OD055) partial withdrawal)
 - (iii) Diocese of Southwark, Parochial Church Council of Parish of St Paul with St Mark, Deptford and Fr Paul Butler 28 February 2014 (REP425)
 - (iv) The Free Trade Wharf Management Co Ltd 5 March 2014 ((REP464) partial withdrawal)
 - (v) Christopher Poll 7 March 2014 (REP468)
 - (vi) Diocese of Southwark, Parochial Church Council of the Parish of All Saints, Wandsworth 11 March 2014 (REP471)
 - (vii) Minerva (Wandsworth) Limited 11 March 2014 (REP472)
 - (viii) The Mercers Company and St Paul's School 11 March 2014 (REP473)
 - (ix) Cannon Wharf LLP 11 March 2014 (REP480)
 - (x) Diocese of Southwark, Parochial Church Council of the Parish of St Luke's, Deptford and the Reverend Louise Codrington-Marshall 11 March 2014 (REP483)
 - (xi) Diocese of Southwark, Parochial Church Council of St Mary's Putney and Reverend Ailsa Newby, Priest in charge of St Mary's Putney 11 March 2014 (REP484).

THE APPLICANT'S CASE

- 19.29 The Applicant's case is set out in the Statement of Reasons (Doc 4.1). A final version of the Statement of Reasons was submitted on 13 January 2014 (APP79.1) to take account of changes arising following the CA hearings. The Statement of Reasons was accompanied by a Funding Statement (Doc 4.2), a revised final version of which was submitted on 23 September 2013 (Doc 9.10.06).
- 19.30 Detailed supporting information is set out in the Planning Statement (Doc 7.01, subject to errata Doc 9.04.01) and the Needs Report (Doc 8.3) which sets out the need for the project. Further supporting information is set out in the Environmental Statement (Doc 6.1 and 6.2 series and errata) and The Final Report on Site Selection Process (Doc 7.05 subject to errata Doc 9.04.01 and APP123) which was considered in section 4 of the Planning Statement. The Final Report on Site Selection Process sets out and explains the process of site and tunnel route selection and the development of the identification of the works to be constructed on or under the sites selected.

- 19.31 During the examination the Applicant also provided additional information in response to the ExA's questions, Interested Party submissions, submissions in response to the sections 127 and 138 process, through oral submissions and summaries of those submissions made at the CA hearings.

Requirements for the Compulsory Acquisition of Land

- 19.32 The NPS establishes the need for the 'Thames Tunnel'. It states at paragraph 2.6.34 that:

'the examining authority and the decision maker should undertake any assessment of an application for the development of the Thames Tunnel on the basis that the national need for this infrastructure has been demonstrated. The appropriate strategic alternatives to a tunnel have been considered and it has been concluded that it is the only option to address the problem of discharging unacceptable levels of untreated sewage into the River Thames within a reasonable time at a reasonable cost.'

- 19.33 The need for the proposed development is dealt with in the Applicant's Planning Statement (Doc 7.01) and the Needs Report (Doc 8.3). The Applicant's case is that the CA land is required for or is incidental to the purposes of the project. The land and rights required are shown on the Land plans and are described in the Book of Reference with the details of those who have a right or interest in it. The Engineering Design Statement (Doc 7.18 subject to errata Doc 9.04.01, addendum Doc 9.19 and APP123) addresses and justifies the development of the project at each work site.

- 19.34 Broadly speaking, the purpose of the acquisition powers is to enable the Applicant to construct and operate the proposed development (including both the Nationally Significant Infrastructure Project (NSIP) and the Associated Development), on the Order land. It is intended to acquire land that is necessary to enable construction of the proposed development and this comprises two main elements:

- In respect of the tunnels, powers are sought only for the acquisition of the subsoil and the protection zone around the tunnel. Generally the protection zone is approximately 6m around all the tunnels, although exceptions may apply in specific locations where agreed by the Applicant.
- In respect of surface sites it is intended to acquire the freehold of the land needed for permanent works comprising:
 - (i) at the main tunnel sites the main tunnel shafts and other infrastructure and structures necessary to construct, operate and maintain the tunnel
 - (ii) at CSO sites the structures that are necessary for the interception and the diversion of flows from the existing

- combined sewer overflows (CSOs) into the main tunnel; or relevant connection tunnel
- (iii) at foreshore sites new river walls.

19.35 The Applicant proposes that temporary possession would be taken of land that is required to construct permanent works but which can be returned to the land owners when construction is completed. There is set out at table 9.2.8 of the Statement of Reasons (by reference to London Boroughs and the sites within those Boroughs) a list of all CA plots at work sites indicating the CA powers and temporary possession powers sought in respect of each plot. This reflects the same position with regard to the plots which has been set out on the 'shoulder notes' on the Land plans.

Need to Override Rights and Easements

19.36 As well as seeking to acquire the CA land, powers are sought under Article 28(2) and Article 32 of the DCO which enable the overriding of third party rights on land which is already owned by the Applicant or which may be acquired by agreement or by the exercise of CA powers.

Powers of Temporary Possession

19.37 Closely related to the CA powers and used in conjunction with them are the powers of temporary possession sought under Article 35 of the DCO (Applicant's final draft version, 11 March 2014 APP204.02). The use of these powers forms part of the Applicant's strategy described below of seeking to use CA only as a last resort.

Land Acquisition Strategy

19.38 The Applicant's land acquisition strategy comprises a number of elements:

- To use sites within its ownership wherever possible (albeit that additional land may also be required at these sites).
- To make extensive use of the temporary possession power referred to at the paragraph above to minimise the use of CA powers and, whenever possible, enabling land to be returned to owners once construction has been completed.
- To seek to acquire land, wherever possible, by agreement.

19.39 A summary of progress on land acquisition at the date of the application is set out at paragraphs 10.5 to 10.32 of the Statement of Reasons. The position at the close of the examination is set out in paragraphs 10.6 to 10.38 of the revised Statement of Reasons 13 January 2014 (APP79.1).

Non-Statutory Off-Site Mitigation, Hardship and Compensation Policies and Settlement Deed

- 19.40 The Applicant recognised that the works to be undertaken at the work sites could have an impact on nearby residential properties and these impacts have the potential to occur at any time during the construction of the project. To address concerns of residential owners and occupiers the Applicant has introduced a number of non-statutory policies relating to hardship, mitigation and compensation issues which are over and above the statutory compensation code³⁴⁹.
- 19.41 The non-statutory policies were set out at appendices 2 to 6 of the Statement of Reasons and comprise:
- an Exceptional Hardship Policy designed to assist those who have a pressing need to sell their properties but consider they are unable to do so because of the project
 - mitigation policies providing for noise insulation and temporary rehousing
 - compensation for those suffering disturbance due to the presence of construction sites, the working hours and the duration of the project where such persons are not eligible under the statutory compensation code
 - Trigger Action Plans (TAPs)
 - a Settlement Deed enabling affected owners ie those within the zone of influence of the tunnel works to enter into an agreement with the Applicant providing for remedial works to be undertaken by the Applicant if settlement should occur.
- 19.42 All of these policies have been examined by the Panel and substantially revised during the examination and the current policies are now contained in APP190, APP191, APP210.01 and APP213.01 received by the Panel on the 3 March and 11 March 2014.

Alternatives to Compulsory Acquisition

- 19.43 In order to construct and operate the project, land and rights in the ownership of Parties other than the Applicant would need to be acquired. Having regard to the scale and extent of the project this would be the case whichever alternative locations for the tunnel and surface sites are chosen. Section 6 of the Statement of Reasons sets out the reasons why all the CA land is required for the project.

³⁴⁹ No "code" exists as such, but it is generally taken to mean the law as set out in the Land Compensation Acts 1961 and 1973 and the Compulsory Purchase Act 1965, as amended by subsequent legislation and supplemented by case law
Wherever the statutory compensation code is referred to in this chapter it means the code as set out above

- 19.44 The Applicant's case is that without all the CA land the project could not be constructed and operated. Further, as indicated in the NPS and as evidenced by the infraction proceedings against the United Kingdom (UK) Government and the decision thereon, the improvements which the project would deliver are required urgently. The objective of ensuring the timely delivery of the project could not be achieved without the availability of CA powers. Without the grant of these powers the Applicant considers that the necessary land could not be assembled, uncertainty as to construction would continue and the national need for the project could not be met.
- 19.45 The Applicant considers therefore that there is no alternative to CA. It is against this background, which requires the exercise of CA powers, that the Applicant has considered alternatives both to the project and to the work sites.

Alternatives to the Project

- 19.46 There are a number of possible strategies for dealing with the discharge of sewage into the River Thames from the CSOs. The Thames Tideway Strategic Study³⁵⁰ considered the possible alternative strategies and these are briefly summarised in paragraphs 11.7 and 11.8 of the Statement of Reasons. However, the strategy which proposed addressing the problem at the CSOs has been identified as the only feasible solution to the problem. Thames Water concluded that it was the only strategy which:
- is capable of providing a complete solution
 - does not require an extensive retrofit or replacement of existing systems which would be impractical to implement.
- 19.47 Paragraphs 2.6.24 to 2.6.25 of the NPS provide policy support for this conclusion. Further, the NPS states at paragraph 2.6.31 that:
- 'intercepting the CSOs at their point of discharge to the river and conveying to a suitable site for treatment (the preferred option). This strategy, which has developed into the Thames Tunnel, would allow the CSOs to continue to operate but would collect the discharges and transfer them to a new treatment facility prior to discharge to the river. There are many advantages in adopting this strategy because it causes minimum disruption to the existing system and to Inner London thus making it less expensive to deliver and, because it specifically captures CSO discharges, its effectiveness is assured and more predictable.'*
- 19.48 Having determined the preferred strategic solution of intercepting the CSOs, it is noted that a further benefit claimed by the Applicant is that it is the only solution which combines the capture of unacceptable discharges with primary and secondary treatment,

³⁵⁰ At paragraph 11.6

thus meeting water quality objectives and capacity requirements in an appropriate way.

Alternatives to the Sites

- 19.49 The identification and selection of the preferred surface work sites is documented in the Final Report on Site Selection Process (Doc 7.05). Section 4 of the Planning Statement (Doc 7.01) sets out the approach adopted to both route and site selection. A multidisciplinary approach was used to select both route and sites coupled with detailed engagement with relevant stakeholders and public consultation as documented in the consultation report (Doc 5.1). Some Parties had concerns about the effectiveness of engagement at the pre-application stage. Route and site selection is discussed in greater detail in chapter 17.
- 19.50 The Applicant states that the Abbey Mills route was selected as the main tunnel route alignment because as the shortest route it would minimise disruption and costs, whilst requiring fewer sites. Multiple options were considered for the main tunnel drive strategy before concluding that drive sites at Carnwath Road Riverside, Kirtling Street (a double drive site) and Chambers Wharf should be used. A total of 1,150 surface sites were considered for selection as CSO sites and all shortlisted sites were subjected to detailed site suitability reports (Doc 9.10.01) which led to the selection of the sites included in the application.

Special Category Land

Open Space Land

- 19.51 Open Space land required for the project is identified and shown coloured pink and yellow³⁵¹ on the Crown and Special Category Land plans (Doc 2.04) included within the revised Book of Plans (Doc 9.05, APP26 and APP65) and identified in detail in the revised Book of Reference.
- 19.52 The Open Space land required is described at section 13.10 of the revised Statement of Reasons (APP79.1) and comprises:
- 47,754m² to be permanently acquired
 - 41,676m² required temporarily
 - 2,546m² of the temporary land to be subject to new permanent rights.
- 19.53 Because of the nature of the areas in which the Open Space land is located and the inability to identify new sites to serve the users of the land to be taken, the Applicant is not proposing to provide replacement land. Accordingly, if the Secretary of State for Communities and Local Government and the Secretary of State for

³⁵¹ Yellow but excluding subsoil for this purpose

Environment, Food and Rural Affairs (Secretaries of State) propose to grant the DCO it will be subject to special parliamentary procedure unless the Secretary of State for Communities and Local Government grants certificates pursuant to the provisions of sections 131 and 132 of PA 2008 (as amended by the Growth and Infrastructure Act 2013) allowing the acquisition of Open Space land without replacement.

- 19.54 As indicated earlier in this chapter the Secretary of State for Communities and Local Government has not delegated any part of this function to the ExA³⁵² and accordingly as there is a positive recommendation to the Secretaries of State to grant the DCO such grant will be dependent upon the decision of the Secretaries of State in relation to the Applicant's application for the grant of certificates under sections 131 and 132 PA 2008.
- 19.55 So far as the CA of Open Space land is concerned, paragraph 4.8.13 of the NPS requires an assessment to be undertaken by the local authority or independently which looks at the open space to be taken and whether it is surplus to requirements or not, taking into account any positive proposals made by the Applicant to provide new, improved or compensatory land or facilities.
- 19.56 The NPS states that this will enable the decision maker to make a judgement as to whether the benefits of the project outweigh the potential loss of such facilities. Where playing fields are being lost this would only be allowed where applicants can demonstrate that they will be replaced with facilities of equivalent or better quantity or quality in a suitable location.
- 19.57 The Applicant set out in response to our Q4.33 (APP04) read together with its response to our Q4.105, Q15.3 and Q15.5 (APP04 and APP15), how it has addressed these requirements and further addressed the issues in the CA hearing held on the 17 January 2014 (HEA092 to HEA095).

Crown Land

- 19.58 The Order land also includes Crown land in a number of areas.
- 19.59 Under s135(1) PA 2008 a DCO may include provision authorising the CA of an interest in Crown land only if it is an interest which is held otherwise than by or on behalf of the Crown and the appropriate Crown authority consents. Accordingly, whilst the Crown land is identified on the Land plans and listed in schedule 4 of the Book of Reference, it is excepted from the request for CA powers. The Applicant will negotiate for the purchase of the Crown land by agreement, or for the consent of the Crown to include compulsory powers over these plots.

³⁵² s131 and s132 have been dealt with by the Secretary of State for Communities and Local Government by a separate process outside the examination

19.60 In this regard we sought confirmation from the Applicant regarding such consent. Just prior to the close of the examination the Applicant provided an update on the position of each Crown body. The Applicant confirmed that letters of consent had been received from all the Crown bodies involved, the Crown Estate (APP174), the Duchy of Cornwall (APP175), the Department for Work and Pensions (APP121.02) and the Foreign and Commonwealth Office (APP176).

Statutory Undertakers' Land

19.61 The final submitted DCO (APP204.02) includes land owned by statutory undertakers and a full list of plots which are either owned by statutory undertakers or in which statutory undertakers hold rights and/or apparatus was contained in APP44.1, as updated by APP193 and APP194. In all these cases the Applicant will seek to reach agreement with the relevant statutory undertakers and where appropriate incorporate protective provisions for their interests in the DCO.

19.62 The Applicant's case for the grant of certificates under section 127 and consents under s138 PA 2008 by the relevant Secretaries of State is set out in Appendices E3 to E6 of this report.

Funding

19.63 A Funding Statement was submitted by the Applicant with the application on 27 February 2013 (Doc 4.2). A revised Funding Statement was submitted to the Panel on 23 September 2013 (Doc 9.10.06). The Applicant provided further information and clarification in its response to Q23.6 (APP50). At the CA hearing on 28 November 2013 (HEA049 to HEA051), the Applicant made further submissions regarding funding and detailed evidence on funding and the procedures to be undertaken for a company to become a designated and licensed infrastructure provider (IP) was submitted to the Panel (APP42.1).

19.64 The Applicant states that a Funding Statement is required because the proposed DCO would authorise the CA of land or interests in land. Where such authority is sought s122 PA 2008 requires the Secretaries of State to be satisfied there is a compelling case in the public interest for land to be acquired compulsorily and for this condition to be met the Secretaries of State must be persuaded that there is evidence that the public benefits that would be derived from the CA would outweigh the private loss that would be suffered by those whose land is to be acquired.

19.65 In the Applicant's view, in the absence of being able to demonstrate that the proposed development is likely to be undertaken and not be prevented due to difficulties in obtaining the necessary funding, the compelling public interest test could not be met.

- 19.66 It is the Applicant's case that there is a high degree of certainty that the project will receive funding because there is a legal requirement and justification for the project namely:
- The requirement on the UK Government to comply with the Urban Waste Water Treatment Directive; and
 - The statutory obligations on the Secretary of State for Environment, Food and Rural Affairs and the Water Services Regulation Authority (Ofwat) to ensure that water and sewerage providers can finance their functions.
- 19.67 Further, at paragraphs 2.1 to 2.7 of the Funding Statement the background to and the status of the Applicant as a water and sewerage undertaker for the Thames Water region as defined in the Water Industry Act 1991 is set out. Paragraphs 3.1 to 3.14 of the Funding Statement sets out how sewerage undertakers are regulated by Ofwat, the duties on both the undertaker and Ofwat under the Water Industry Act and how sewerage undertakers are required to prepare five yearly business plans (Asset Management Plans (AMP)) and submit them to Ofwat for approval. These AMPs identify operational costs and capital investment proposed for the following AMP period.
- 19.68 Ofwat reviews and determines the level of revenues undertakers should be entitled to during the AMP period and can set a price cap intended to enable undertakers to finance the operation and earn a return on capital.
- 19.69 The Applicant also sets out in paragraph 3.12 of the Funding Statement the duties upon the Secretary of State for Environment, Food and Rural Affairs to protect consumers through competition, to secure that their functions are properly carried out and that the undertakers are able to secure reasonable returns on their capital to finance the proper carrying out of their functions.
- 19.70 Against this background the Applicant sets out the AMP approach to and approval of funding for the project through AMP 3 (2000-2005), AMP 4 (2005-2010), AMP 5 (2010-2015) and AMP 6 (2015-2020) (due for an Ofwat decision in late 2014/2015). Clearly this last AMP period was not confirmed and settled within the examination period. The Secretaries of State may wish to satisfy themselves on the outcome of this AMP settlement with regard to considerations in relation to both project and compensation funding.

Funding Compulsory Acquisition Costs and Non-compulsory Acquisition Compensation

- 19.71 Specifically in relation to CA funding the Applicant points out that eight of the work sites are existing Thames Water Utilities Ltd owned and operated facilities. In AMP 5 £100 million was approved by Ofwat in relation to initial land acquisition and, although this

figure was exceeded, it was approved by Ofwat as part of the acquisition process.

- 19.72 The Applicant states at paragraph 5.4 of the Funding Statement that budgets have been agreed with Ofwat for the further costs associated with the acquisition of the balance of the property needed for the construction and operation of the project. This includes all acquisition costs including the compensation that would have to be paid, as well as compensation for blight and injurious affection and costs arising from the various non-statutory policies referred to earlier in this chapter.
- 19.73 As far as the non-CA compensation costs are concerned it is anticipated that some of these costs may ultimately be met by the IP as referred to below and it is acknowledged that there will need to be an allocation of such costs between the Applicant and the IP.

Funding the Project

- 19.74 Owing to the size and scale of the project, the associated financing requirements and risks and liabilities involved in construction, the Applicant has been in discussions with Defra, Ofwat and HM Treasury (Infrastructure UK) as to the most appropriate delivery model for the project. The preferred delivery model is that it would not be delivered by the Applicant but by an independent and separately licensed IP procured by the Applicant.
- 19.75 The Water Industry (Specified Infrastructure Projects) (English Undertakers) Regulations 2013 (SI No.1582/2013) (SIP Regulations) allow the Secretary of State for Environment, Food and Rural Affairs or Ofwat to specify defined parts of the project which satisfy specific criteria to be undertaken only by this separate IP. This process of specifying the project and procuring the IP is scheduled to take place in 2014. Subject to due process managed by the Applicant it is expected that the new IP will, in 2015, let the main works contract in three parts to three separate contractors. In exceptional circumstances, which are narrowly defined, there is an ability to award more than one part to the same contractor. Clearly these matters were not concluded or proposed to be concluded within the examination period.
- 19.76 The IP will be required to have an investment grade rating and funding will come from bank debt, bond, and equity capital markets. To enable this to happen the IP will be awarded a licence by Ofwat. The detailed mechanics of this process are as set out in paragraph 6.6 of the Funding Statement.
- 19.77 In addition to the enhancements to the revenue provisions in the IP's licence set out in paragraph 6.6 of the Funding Statement, the Applicant states at paragraph 6.8 of the Funding Statement that the Government has said it is willing, in principle, to provide

contingent financial support for exceptional project risks where this offers the best value for money for customers and taxpayers.

- 19.78 This support would be in the form of a Government Support Package (GSP) for the project during the construction phase. The GSP in combination with the other measures set out in the Funding Statement would be intended to fulfil the duties imposed on the Secretary of State for Environment, Food and Rural Affairs by the Water Industry Act and ensure that the project can raise private sector finance while meeting State Aid and other requirements.
- 19.79 Supporting this approach would be a Special Administration regime. This would reflect the critical nature of the services provided by statutory water and sewerage undertakers. The objective of the regime would be to ensure the continuity of those services in the event of a potential default. It would be designed to rescue the IP as a going concern and hence secure the continuation of the project.
- 19.80 Whilst the majority of the works relating to the project would be undertaken by the IP, further land acquisition and certain specified project works would still be undertaken by the Applicant. This split of works between the IP and the Applicant has been done to ensure the operational integrity of the existing sewerage network during construction of the project and also to de-risk the project programme on the basis of efficiency and engineering principles.
- 19.81 It is the Applicant's case that the funding position as set out in its Funding Statement demonstrates that there is an established regulatory regime for funding the project (including CA costs and non-CA, compensation and project costs).

The Human Rights Act 1998

- 19.82 The Applicant acknowledges that the DCO has the potential to infringe the human rights of persons who own property affected by its provisions, but that such infringement is authorised by law provided that:
- the statutory procedures for seeking the DCO are followed and there is a compelling case in the public interest for the inclusion of CA powers in the DCO
 - any interference with any Convention right is proportionate to the legitimate aim secured.
- 19.83 The articles concerned are Article 1 of the First Protocol, Article 6 and Article 8 and these are set out at paragraph 15.4 of the Statement of Reasons.
- 19.84 The Applicant states that as a general principle the procedures for CA which apply in the United Kingdom are considered compliant with the need for a fair hearing. Under PA 2008 land owners affected by the project must be consulted and notified of all the

approval procedures and may call for an examination in public for their concerns to be heard by the Secretary of State. Where property is acquired or affected the statutory compensation code will provide compensation for qualifying claims.

- 19.85 Against this background the Applicant argues that the Statement of Reasons and the documentation cited in support of the application demonstrates the need for the project, the validity of the solutions proposed, the necessity of acquiring land for construction and operation of the project, as well as the importance and urgency of delivering a solution.
- 19.86 On that basis the Applicant considers that it can demonstrate that there is a compelling case in the public interest and this, coupled with the processes and policies it has adopted to mitigate the inevitable impacts on land, owners and occupiers, demonstrates that any interference with Convention rights will be proportionate to the legitimate aim of constructing and operating the tunnel.

The Applicant's Case - Conclusion

- 19.87 The Applicant believes that the Statement of Reasons together with the documents referred to in it sets out a comprehensive case which complies with the requirements of s122 PA 2008 where it is proposed to include powers to compulsorily acquire land.
- 19.88 The need for the project which is set out in the Statement of Reasons is endorsed by the NPS, as is the principle of a tunnel as a solution. The Statement of Reasons, the site selection process and the application of a site acquisition strategy, all lead to the conclusion that all the CA land is required to facilitate or is incidental to the development.
- 19.89 The case for the need for the project, Government policy in support of the need and for the tunnel solution and the urgent requirement for the implementation of an effective solution to the problem of CSO discharges together provide a compelling case for the Thames Tideway Tunnel project as proposed to be carried out.
- 19.90 The Applicant considers that it has demonstrated that this cannot be achieved without the acquisition of land and rights over land, and the scale of the project and the urgency of the need means that acquisition by private treaty cannot be achieved in the timescale which reflects the urgent need.
- 19.91 The Applicant therefore concludes that the Secretaries of State should on the case put before them find that there is a compelling case in the public interest for the grant of the CA powers sought, thus meeting the requirements of s122 PA 2008. Being thus satisfied, the principles of proportionality in respect of human rights will also be discharged.

OBJECTIONS

- 19.92 In this section dealing with objections, we have firstly set out the objections and then referred to the Applicant's response to them. We have then set out our views on all the objections, and on the basis of these views we set out our recommendation to the Secretaries of State as to whether or not CA powers should be granted.
- 19.93 Objections are numbered consecutively but are in no particular order save that they are grouped as being project-wide or by reference to the London Borough in which the interest is located. The objection numbers below cross reference with the numbers in appendix E2 where details of the interests and plot numbers of the objectors are set out and it is stated whether or not CA powers are sought.
- 19.94 The objection numbers correspond with the objection numbers used by the Applicant in its response to our written questions (Q23.1, Annex 1, table 1.1). Three further objections not in this table are added, British Telecommunications plc (BT), Mr Wicker and Lucie Stephens (Downings Roads Moorings). Withdrawn objections are omitted.

Scheme Wide Objections

- 19.95 We set out below in summary form against identified Parties the objections made. For full details reference should be made to the full submissions of the Parties set out in the examination library to this report, appendix C.

Objection 1 Thomas Martin Blaiklock

- 19.96 Mr Blaiklock's concerns relate to financial aspects in particular cost, financing risk, limited employment benefits and his view that a lower financial risk option would be to forget the tunnel and implement sustainable drainage systems (SuDS).

Objection 3 Consumer Council for Water (CCW)

- 19.97 The CCW objects to the Applicant's proposals on socio-economic and financial grounds. The CCW's concerns are that whilst it is classified as a scheme of national significance the full cost will be borne entirely by Thames Water sewerage customers.
- 19.98 Further, whilst the scheme will be delivered through an infrastructure delivery vehicle paid for through Thames Water's sewerage charges, the actual bill impacts will largely be determined by the financing arrangements put in place, the timing and phasing of the project delivery and the period over which the costs are recovered.

19.99 CCW consider that there is no current or meaningful cost/benefit analysis and the project costs will place a disproportionate and unacceptable financial burden on Thames Water customers for the level of benefit they will see delivered.

Objection 4 Environment Agency (EA)

19.100 The EA submitted a relevant representation (RRP710) and a written representation (WRR038) and made oral representations at the CA hearings. Whilst the EA supports the Thames Tideway Tunnel project, in its role as an environmental regulator it has to ensure that the design, construction and operation of the project reduces environmental impact, mitigates unavoidable impacts and minimises environmental outcomes.

19.101 The EA has worked with the Applicant with a view to agreement being reached and all outstanding issues being resolved, but whilst agreement on such matters as protective provisions has been reached a number of issues were still outstanding at the close of the examination.

19.102 The EA sets out the outstanding matters in the Statement of Common Ground (SoCG) entered into with the Applicant and dated 3 March 2014 (APP159.09) and supplemented by further submissions on 11 March 2014 (APP215.03 and REP475).

Objection 6 Network Rail Infrastructure Limited (Network Rail)

19.103 Network Rail submitted both a relevant representation (RRP707) and a written representation (WRR080) opposing the grant of CA powers and made oral submissions at the CA hearings. Network Rail sets out its position at the close of the examination in the SoCG entered into with the Applicant and dated 3 March 2014 (APP159.04) and supplemented further in a letter dated 7 March 2014 (REP469). This was that whilst it had agreed with the Applicant protective provisions to protect its interest and would not oppose an application for the grant of certificates under section 127 and consents under section 138, it maintained its objection to Article 52 of the DCO (APP204.02) relating to safeguarding provisions.

Objection 8 Ann Rosenberg

19.104 Ann Rosenberg is a member of a coalition of local groups and individuals representing several thousand people in Fulham comprising:

- PRARA (Peterborough Road and Area Residents' Association)
- ABCD Residents' Association
- The Piper Building
- Riverside West Tenants' Association
- Regent on the River Tenants' Association

- The Parsons Green Sports and Social Club
- RATS/SSF (Residents against the Thames Sewer/Stop them Shafting Fulham)
- The Fulham Society
- HDRA (Hurlingham District Residents' Association)
- St Matthews Church
- Friends of South Park
- Individual Interested Parties some of whom are also members of the above groups. Also included are local schools and commercial businesses that will be adversely affected by the disruption to their lives of nearly a decade of major engineering works.

19.105 The written representation (WRR010) sets out a comprehensive critique of the Statement of Reasons comparing and contrasting the choice of Carnwath Road Riverside as a main drive shaft site in a densely populated residential area with the Barn Elms site which was the original preferred site of the Applicant.

19.106 The submission is supported by the following additional evidence:

- a transport analysis relating to Carnwath Road and Barn Elms
- a Carnwath Road Health Survey with an explanation of the methodology used
- air/noise pollution-stress factors
- a response by Residents when Thames Water changed from Barn Elms to Carnwath Road Riverside as a work site
- a site suitability comparison between Carnwath Road Riverside and Barn Elms
- a request for review of the NPS for Waste Water concerning Thames Tunnel (addressed to the relevant Government Ministers)
- Thames Water-Myth Buster Facts
- Hurlingham Club Bat Survey.

Objection 9 SaveKEMP

19.107 SaveKEMP represents the communities of Shadwell, Wapping, Stepney and Limehouse and strongly objects to the Applicant's plans for King Edward Memorial Park Foreshore as the impacts to the community are unreasonable and excessive especially when considering that there is a viable alternative at Heckford Street. This is a brownfield site and SaveKEMP say that there will be a significantly lower impact on the community and park users both during construction and operation.

19.108 SaveKEMP has the support of a 12,000 signature petition and LB Tower Hamlets.

19.109 SaveKEMP says that it is not a NIMBY³⁵³ and understands the need for the CSO beneath the park to be intercepted. As an organisation it has worked with the Council and engineering consultants to identify and develop a pragmatic engineering alternative that significantly reduces the impacts on the local community while still achieving the objectives of the Thames Tideway Tunnel project. However, it felt that at times the Applicant was resistant to this process and did not adequately address strong community and local interest concerns.

19.110 SaveKEMP supported its submission with evidence on:

- the park's history
- the park and the environment
- the impacts of construction on the park and the foreshore with views from the community
- mitigation at King Edward Memorial Park
- the alternative scheme at Heckford Street
- an impact assessment of the greenfield scheme compared with the brownfield scheme.

Objection 10 St James Group Land and Planning

19.111 St James Group has three sites affected by the Thames Tideway Tunnel. These sites are Chambers Wharf, Carnwath Road Riverside and Riverlight (at Kirtling Street). The St James Group is concerned at the impact of the project on the company's Riverlight development on the south bank of the river in the heart of Battersea, Nine Elms. The principal impacts arise from the six year construction phase and relate particularly to noise and vibration impacts and construction traffic access, for which St James suggests noise limits and alternative access arrangements in its representations.

Objection 11 Transport for London (TfL)

19.112 TfL submitted both a relevant representation (RRP706), a written representation (WRR092 - WRR095) and made oral representations at the CA hearings objecting to the Applicant's request for CA powers both to acquire and secure rights in relation to TfL's interests as well as its proposals in relation to highway and transport matters.

19.113 There is an overlap in relation to all these matters but with regard to CA in particular, whilst continuing to negotiate with the Applicant there was a failure to reach agreement with regard to protective provisions for TfL's interests. In a letter to the Panel dated 11 March 2014 (REP498) TfL confirmed its continued objection to the grant of CA powers to the Applicant and to the

³⁵³ 'NIMBY' a term used for not in my back yard

grant of certificates and consents under sections 127 and 138 respectively of PA 2008.

19.114 TfL and the Applicant entered into a SoCG first dated 13 January 2014 (APP85.17) and are in the process of negotiating an overarching Framework Agreement dealing with all the areas of concern to TfL. This was not agreed at the close of the examination. Outwith the matters dealt with in the Framework Agreement the only other outstanding matters are set out in an unsigned update to the SoCG dated 10 March 2014 (APP215.01).

Objections within London Borough Administrative Areas

Ealing

Objection 12 Daniel Fulton

19.115 Mr Fulton is concerned that the tunnel project which is approximately 30 metres from his property will be disruptive during construction and may affect foundations and cause subsidence.

Objection 13 Derek Gassyt

19.116 Mr Gassyt has concerns that the project will have a severe impact on the running of his business (which has access to Canham Road) as a consequence of the proposed parking restrictions. He also expresses concern regarding the likely volumes of noise and dust.

Objection 14 Martin C Grierson

19.117 Mr Grierson expressed concern regarding the interference with access to his workshop building from Canham Road which lies opposite the proposed entrance to the Acton Storm Tanks work site. Another concern was the proposed parking restrictions both in the adjoining road and the adjoining car park where he has a parking space.

Richmond upon Thames

Objections 15 to 37 (excluding 31)

Owners and residents of numbers: 1, 3, 5, 6, 7, 8, 17, 20, 22, 41, 44, 48, 56, 57, 58, 59, 61, 64, 65, 67, 70, 72, 75, 76, 77, Lillian Road.

19.118 Residents of Lillian Road are concerned that the proposed route of the tunnel which lies beneath or adjacent to many of the properties will lead to settlement and affect values. They argue that an alternative route is available either closer to St Paul's School field or starting in Netheravon Gardens Chiswick, passing north of St Paul's school and following the towpath to join the river

east of Hammersmith Bridge. They also express concern at the amount of compensation offered.

Objection 31 Fiona Paterson

19.119 Ms Paterson has concerns regarding noise, privacy and property values.

Objection 38 Wimbledon and Putney Commons Conservators

19.120 Whilst the Conservators of the Common submitted a representation as a party whose land was being acquired (the subsoil) and reserved their position, no further representation was received.

Hounslow

Objection 39 to 48 (excluding 40)

Owners and residents of numbers 88, 92, 94, 96, 98, 100, 106 Abinger Road

19.121 The owners and residents of Abinger Road listed above believe that the line of the tunnel could be moved onto the allotment land lying between Abinger Road and Emlyn Road. This would avoid the need for the CA of their subsoil, reduce the risk of ground settlement and remove the risk of damage to buildings since there are only sheds on the allotment land.

Objection 40 Margaret Cahill

19.122 Mrs Cahill is concerned that the construction of the tunnel at the rear of her property will affect the foundations of her garage and may affect future sale value.

Hammersmith and Fulham

Objection 49 London Borough of (LB) Hammersmith and Fulham

19.123 LB Hammersmith and Fulham has not agreed to its interests being acquired and oppose CA (REP490). The Council objects to the CA of Carnwath Road Industrial Estate on two grounds, firstly that the Applicant has not given sufficient justification to satisfy all the criteria set out in PA 2008 and, secondly, that the site is not necessary to deliver the project because there is an alternative to Carnwath Road and the impacts of using the site far outweigh the benefits.

19.124 LB Hammersmith and Fulham also has a number of criticisms and comments on the Applicant's Non-statutory Hardship and

Compensation policies and these are set out in its written representations (WRR073).

19.125 In addition to its written representations its objections are set out in detail in REP104, REP124, REP136, REP164, REP220, REP273, REP307, REP333, REP337, REP367, REP444, REP490 and in the Council's Local Impact Report (LIR) (REP090). LB Hammersmith and Fulham also appeared and argued its objections at the CA hearings.

Objection 50 Assael Architecture Limited and Assael Interiors Limited

19.126 These companies object to the choice of the Carnwath Road Riverside site because of the adverse impact on their businesses including noise, dust, air pollution, odour, vibration, traffic congestion, deterioration in road safety, loss of car parking spaces and a detrimental effect on working conditions and consequently on the business itself.

Objection 51 Mirelle Behrens

19.127 This objector has concerns regarding the impact on road infrastructure, noise, dust, pollution and property devaluation.

Objection 52 Matthew Blount

19.128 Mr Blount's concerns are that as a disabled man who spends much of his time at home the noise, disturbance and vibration will disturb the peace and tranquillity and cause stress and anxiety.

Objection 53 Charles Brocket

19.129 Mr Brocket lives in the Piper Building some 27m from the Carnwath Road work site. With all fenestration facing the work site and owing to the particular construction of the building he believes there will need to be better double glazing to reduce noise and dust. He is also concerned at the effect on the safety of the community of a large increase in heavy lorries and argues that there is a safer alternative site at Barn Elms.

Objection 54 David Kaspar

19.130 Mr Kaspar objects to the noise, vibration, pollution, effect on property values and the duration of the project.

Objection 55 Richard Lawson

19.131 Mr Lawson's concerns relate to noise, vibration, traffic congestion, sleep deprivation and the effect on property values.

Objection 56 Victor and Felicity Lunn-Rockliffe

19.132 These objectors have concerns over eco-sensitivity and cost.

Objection 57 Flora McLean

19.133 In summary Ms McLean's concerns are:

- there is a viable alternative at Barn Elms
- Carnwath Road is a densely populated residential area
- consultation process unfair
- there are more effective and lower cost solutions.

Objection 58 Olaiz Miyar SL

19.134 Olaiz Miyar has set out a very comprehensive statement of concerns which centre on the health and safety risks being close to residential properties and noise, dust and air pollution arising from the construction works.

Objection 59 Nortrust Nominees Limited

19.135 The company raises objections concerning the:

- impact on existing and proposed planning permissions
- need for the tunnel
- inadequacy of the site selection process
- impact on the residential community at Carnwath Road
- failure to take full regard of existing planning policy
- blight on development proposals.

Objection 60 Louisa Pope

19.136 Ms Pope's objections which relate to the Carnwath Road Riverside site are:

- vibration in a residential area
- the blighting effect
- need - the problem is rainwater not sewage
- a SuDS solution would be preferable.

Objection 61 Royal London Mutual Insurance Society Limited

19.137 The Society holds the freehold interest in 362 Wandsworth Road (the property) a retail warehousing site with proposals for redevelopment to provide a residential mixed use scheme. The property is detrimentally affected by the scheme in three ways, namely:

- works at the junction of Carnwath Road and Wandsworth Bridge Road
- the alignment of the tunnel

- construction traffic.

Wandsworth

Objection 62 David Stuart Adams

19.138 Mr Adams has concerns about noise, pollution, increased traffic and damage to his property.

Objection 63 Susan Ahad

19.139 Ms Ahad has concerns regarding settlement.

Objections 65, 66, 67, 68, 69, 70 Residents of Ashfern House Ltd, Putney

19.140 These Parties have concerns regarding settlement and compensation if the river wall is disturbed.

Objections 71, 79, 82, 83, 84, 87, 88, 91, 93, 94, 100, 105, 110, 114, 116 Nine Elms Pier Houseboats

19.141 These owners, tenants, residents and occupiers of the houseboats at Nine Elms Pier object to the proposed work sites at Kirtling Street and Heathwall Pumping Station and the disturbance caused by the works and disruption to those whose houseboats it is proposed to move. All have set out their particular concerns in their representations. Generally their concerns, in summary, include:

- physical factors including noise, vibration, dust and fumes
- prolonged blight and detrimental impact on visual amenity
- night-time light pollution
- temporary stopping up of Kirtling Street will cause loss of parking and restrict pedestrian and vehicular access
- 24/7 river activity and barge movements will be disruptive to houseboat dwellers because of wash and noise
- no specific provision has been made for relocating five houseboats which are proposed to be moved and the proposals should include specific provision to deal properly with the relocation of the houseboats
- Nine Elms Pier redevelopment proposals have been curtailed because of potential conflicts
- proposals for rehousing houseboat residents twice in accommodation ashore for prolonged periods would be damaging and disruptive
- proposals to divert the Thames Path in the vicinity of Nine Elms Pier will be disruptive and potentially serious
- the current proposals are likely to cause financial hardship and losses to businesses and residents.

Objection 72 The Battersea Barge

19.142 Proposals for temporary relocation of the barge would cause disruption and loss to the business.

Objection 73 Battersea Project Land Company Limited

19.143 The redevelopment of Battersea Power Station is a development of regional importance for London and will be the town centre for the Vauxhall Nine Elms Opportunity Area. It is also the site of the proposed Battersea Power Station Tube Station. Given the extent of the construction activity proposed in and around Battersea Power Station the impacts of the Thames Tideway Tunnel proposals on the delivery of the Battersea Power Station development are significant.

19.144 It is against this background that the company sets out in its representations the reasons for its objection to the proposal (RRP679, WRR062, REP049, REP235, REP283, REP339, and REP353).

Objection 74 Rosemary Therese Buckley

19.145 This objection is prompted by the proximity of the Barn Elms construction site giving rise to concerns in relation to:

- disruption in terms of noise and light pollution
- increased traffic
- potential damage to property.

Objection 75 Capitalstart Limited

19.146 Capitalstart is a restaurant business immediately adjacent to the work site at Putney Bridge Foreshore. It objects to the selection of the work site and argues that an alternative site to the east of Putney Bridge would be more appropriate. In its representations it argues that issues of heritage, environment, engineering, socio-economic and community matters have been inadequately addressed by the Applicant. Other issues it raises include consideration of the impacts of the selection of the proposed work site.

Objection 76 Cemex UK Operations Limited

19.147 Cemex is a global building solutions company and has at its Kirtling Wharf site a concrete batching and aggregates processing plant. Under the Applicant's proposals Thames Tideway Tunnel would occupy 3,041m² of the existing 8,855m² leaving Cemex to relocate its plant in the smaller area.

19.148 Cemex in its representations submit that:

- all subterranean works should be undertaken in a manner which precludes any impact at surface level
- the Applicant should only be permitted to acquire the minimum amount of land necessary to site the permanent main tunnel shaft
- temporary land take should be kept to a minimum
- the DCO should be amended to accommodate Cemex's current planning application
- the Applicant must undertake dredging and construction of the temporary jetty and works to protect the river wall
- the DCO should contemplate future mixed use development at Kirtling Wharf.

Objection 77 Ute Chatterjee

19.149 This objector has a range of concerns including noise, dust, vibration and working hours.

Objection 78 Cory Environmental Holdings Limited (CEH)

19.150 CEH is a commercial lighterage operator on the middle reaches of the River Thames and whilst it has general navigational safety issues for the whole scheme it has particular objections to matters in relation to a number of the proposed work sites.

19.151 In relation to CA in particular CEH has objections relating to the impact of tunnelling work on the loading of the wet dock building at Cringle Dock. Whilst it has been advised by the Applicant that a detailed survey and risk assessment will be prepared prior to commencement of tunnelling no specific information has been provided to address this concern. For this reason its objection is maintained on the grounds of the lack of this information and the potential implications on its business and the operation of the safeguarded wharf.

Objection 80 Michael Davies

19.152 Mr Davies lives on a houseboat upstream of Putney Pier. He objects to the disruption, noise, vibration and parking and street disruption which will be caused by the construction works. He would like his boat moved and moored at a temporary location for the duration of the works.

Objection 81 Timothy Dearden

19.153 Mr Dearden has concerns relating to possible settlement and potential financial loss.

Objection 85 Matthew Giles and Elizabeth Giles

19.154 These Parties consider that there are other alternative sites available.

Objection 86 Glendola Leisure Limited

19.155 The company has a number of objections to the proposed development set out in its representations and is particularly concerned at the disruption to its business operations for at least three and a half years.

Objection 89 Malcolm Hollis LLP

19.156 The company objects to the interference with its leasehold interest in Units 3 to 7 Brooks Court on the grounds that they do not wish to relocate and there are no suitable alternative premises in the locality.

Objection 90 Simon J Humphries

19.157 Mr Humphries is concerned about settlement.

Objections 92 Jens Kleyenstuber and Jenny Koch

19.158 Both object on the grounds of:

- noise and light pollution
- increased traffic and related noise and disruption
- potential property damage from vibration or subsidence.

Objection 95 Livett's Launches Limited

19.159 As well as objections on planning aspects of the scheme the company objects to:

- seeking to move residential barges without consent
- seeking to create an additional berth without owners consent
- failure to identify additional infrastructure to facilitate the move of the barge
- related issues of risk assessment, safety and other matters.

19.160 Mr Livett also submits objections set out in his representation in his position as Vice Chairman of the Passenger Boat Association and as Managing Director of Livett's Launches Limited, Thames Luxury Charters and Bennett's Barges.

Objection 96 Alastair and Edwina Elliott Lockhart

19.161 This objection is made on the grounds of the impact on their lifestyle.

Objection 97 Lookers Motor Group Limited

19.162 This objector seeks an amendment to the limits of deviation so that there will be no possibility of the tunnel encroaching within 6m of their boundary, thus avoiding impact on potential development opportunities on their land.

Objection 98 Peter Lynch

19.163 Mr Lynch objects to the scheme on a number of grounds including road issues, settlement, subsidence and loss of value to his property.

Objection 99 Manifest, MMK Enterprises, Kirtling Properties Limited, John Woodman, Ian Thompson, Pequod BVI Inc

19.164 All are owners/occupants of Brooks Court SW8 5BP and object to the interference with their interests for some 7 years on the grounds that they will not be able to purchase suitable alternative investments and that payment of a purchase price for their interests will not be appropriate recompense. They also argue that no evidence has been given to them that there is no alternative site in the locality.

Objection 101 Metro Nominees (Wandsworth) No 1 Limited and Metro Nominees (Wandsworth) No 2 Limited

19.165 The companies object on the grounds of the potential impacts on the foundations of the existing structures of the Southside Centre, traffic management issues and design aspects of the proposals.

Objection 103 I A Moore

19.166 This objector objects to the noise, disturbance, odours and the effect on the building and structures of Kingfisher House, Juniper Drive, Wandsworth.

Objection 106 One Housing Group

19.167 This Group is a potential purchaser of land from Lookers Motors Group Limited and its objection reflects similar concerns to those raised by that objector.

Objection 107 Sarah Pittam

19.168 Ms Pittam objects on grounds of noise, pollution, extra traffic and travel difficulties generally.

Objection 109 Mark Nelson (on his own behalf and on behalf of Riverside West Residents' Association)

19.169 Both Mr Nelson's and the Association's concern is the possible subsidence and disturbance.

Objection 112 David Nicholas Martin Starkie

19.170 Mr Starkie objects on a number of grounds including the fact that the location of Elm Quay Court, only approximately 200m from the Heathwall Pumping Station work site, appears to have been ignored and that the noise assessment is seriously deficient. He

also objects to the noise from the 24 hour working on the site, the cofferdam, the noise of the loading of barges and related issues.

Objection 115 Stephen West

19.171 Mr West has issues regarding the river wall and objects to the route of the tunnel and the general disruption to Putney and traffic generally.

Kensington and Chelsea

Objection 117 Circadian Limited

19.172 Circadian is the owner of Lots Road Power Station which has consent for residential development which was commenced in December 2012 and objects on a number of grounds:

- site selection
- heritage and conservation
- uncertainty over future use
- design of replacement building and site structure
- impact on residential amenity
- potential settlement effects.

Objection 118 Royal Hospital, Chelsea

19.173 The Royal Hospital objects on the grounds, firstly, of security concerns for residents of the hospital and, secondly, the adverse impact of the construction works on both the Chelsea Flower Show and Masterpiece Fair both during and after the construction period, which could last for many years. These grounds are expanded upon in its representation.

Lambeth

Objection 119 CGIS (No.4) Limited

19.174 At the time of making the objection CGIS (No.4) Limited was the tenant of Camelford House owned by the Crown and the company notes that there is no consent to acquisition from the Duchy of Cornwall, the Crown body concerned. In its representation the company objects on the following grounds:

- the impact of the works and the cofferdam construction on the property
- the creation and use of a heavy duty vehicular access at the southern and/or northern end of the property depending upon the option chosen
- vibration
- the impact of the works on the occupants of the building
- noise, vibration and dust from the work site and traffic
- an access at the northern end would interfere with attendance of emergency services and the fire escape route

- the loss of car parking spaces and interference with car park access
- the discharge of toxic odours.

Objection 120 London Duck Tours Limited (LDT)

19.175 LDT, whilst supporting the principle of a Thames Tideway Tunnel, has a number of concerns and objects on a number of specific issues:

- the lack of a single site solution at Albert Embankment Foreshore
- the permanent navigation issues
- the effect of the proposed works
- the risk to the slipway weight limits
- the failure to settle site access.

19.176 These objections are expanded upon in the wider representations made by LDT. These representations amongst other matters identify the potential for the proposed project works to cause a breach of LDT's existing lease terms. These include matters relating to the protection of interests of the adjoining occupier at No 85 Albert Embankment.

19.177 LDT also attended and added to its representations at the CA hearings.

Westminster

Objection 121 City of Westminster

19.178 The City's objections which are set out in its representation may be summarised as relating to the following issues:

- potential damage to the fabric of the listed Victoria Embankment
- any harmful impacts from the repositioning of the Tattershall Castle
- temporary works to the listed embankment wall which should be fully reversible.

Objection 122 City Cruises Plc and The Yard Arm Club Limited

19.179 The companies which own the RS Hispaniola object on the following grounds:

- the impact of the works on the property and business
- the dust, noise and disruption from the carrying out of the works
- the obstruction to the present river view from the vessel
- the risk of silting

- a possible alternative mooring to avoid the impact of the works has been chosen for the relocation of the Tattershall Castle
- the exclusion of the RS Hispaniola from the land to be acquired prejudices its compensation claim for what is likely to be disproportionate financial damage to the business and the objectors consider that the Applicant should:
 - (i) relocate the vessel temporarily or permanently to minimise the impact of the works
 - (ii) pay fair and proper compensation for financial loss to the business
 - (iii) acquire the mooring right held by the objector so that there will be an entitlement to a claim for compensation.

City of London

Objection 123 City of London Corporation

19.180 The City of London Corporation is affected as landowner in its public and private capacities and in its capacity as trustee of Bridge House Estates. Whilst it supports the construction of the Thames Tideway Tunnel there are issues extending from planning through to the provisions of the DCO and in relation to the proposed CA of land.

19.181 Specifically in relation to the CA of land the City objects to the proposed acquisition of the pipe subway, the public toilets and the basement rifle range. There are extensive proposed amendments to the DCO many of which relate to CA powers such as the extinguishment and grant of rights, rights of support, access, easements, compensation issues etc. These are all considered in chapter 20 which specifically deals with the articles of the draft DCO.

Objection 124 Thames Clippers

19.182 Thames Clippers objects to the proposed pier arrangements which do not meet their requirements regarding frequency of use and mooring systems, in particular the fendered pile on the eastern end of the Blackfriars Pier is not suitable for its operation.

Objection 125 National Small-bore Rifle Association

19.183 The Association oppose the proposed CA which will deprive the Association of its rifle range.

Southwark

Objection 126 LB Southwark

19.184 In relation to CA the Council has no objection in principle to its interests in land being acquired by CA, but this is without

prejudice to its objection to the proposed use of the Chambers Wharf site. The Council objects to the selection of Chambers Wharf as a drive site and says that it could only be supported if the drive direction is reversed with Chambers Wharf becoming only a reception site, with appropriate mitigation, resulting in comparatively reduced residual impacts.

19.185 The Council expresses concern at the site selection process which selected Chambers Wharf instead of Abbey Mills. It points out that the need for CA at Abbey Mills is low compared with Chambers Wharf where a greater number of interests are involved. It argues that given the impacts from the site as a drive site upon the surrounding area, the case for CA in the public interest could not be made.

Objection 127 Wendy Abrams and Nadine Thomas

19.186 This objection is in relation to having to live for seven years with a family next to an industrial site with resultant noise, dust, pollution, disturbance and constant heavy lorries passing by all day.

Objection 128 R N Austin

19.187 Mr Austin objects to the proposed use of Chambers Wharf which is likely to make his home uninhabitable due to excessive noise which, for three years of the proposed seven year construction period, would be continuous 24 hours a day, seven days a week. His representation sets out a number of grounds supporting his objection including:

- failure to comply with the NPS, for example 'avoiding significant adverse impacts on health and quality of life from noise'
- failure to fully investigate alternatives such as an alternative site at Abbey Mills which is a brownfield site on an industrial estate
- non-statutory support schemes which set too high a threshold for potential claimants to meet.

Objection 129 Richard Azoulay

19.188 Mr Azoulay objects to noise and disruption and disturbance from 24 hour working both on the site and with the loading and unloading of barges.

Objection 130 Bermondsey and Rotherhithe Environment Group

19.189 This group of residents live close to Chambers Wharf, in Fountain Green Square, Bermondsey Wall East and in the adjacent streets. As an environmental group they are wholly in favour of cleaning up the Thames - their disagreement is about methods not

objectives. The group sets out a comprehensive set of objections in its written submission based on five propositions:

- That the projected work at Chambers Wharf would be calamitous for the residents of this densely populated urban area.
- The use of Chambers Wharf would contradict planning criteria and the objectives agreed with Government.
- The use of Chambers Wharf is unnecessary since there is no CSO problem in Southwark.
- The use of Chambers Wharf is unnecessary for the completion of the Thames Tunnel since there are viable engineering alternatives.
- That the use of Chambers Wharf being unnecessary there must therefore be an unnecessary cost for Thames Water's bill payers, or the taxpayer.

Objection 131 Larry Broomhead

19.190 On behalf of himself and Wrayburn House and Dickens Estate this is an objection to the noise, dust, traffic and danger to schoolchildren.

Objections 132, 133, 147, 156, 176, 230 Downings Roads Moorings

19.191 The owners and residents of Downings Roads Moorings object to the noise, dust, disruption and pollution when there is an alternative available; there are also concerns about the effect on the river of the construction of the cofferdam at Chambers Wharf. They additionally have a specific concern since these are chain moorings and as such are particularly susceptible to the effects of both scour and siltation/accretion. These issues will be accentuated by the construction of a cofferdam which could have serious adverse effects.

Objection 146 Dr and Mrs Ian Hudson

19.192 Dr and Mrs Hudson whilst understanding the need for a new tunnelling system and the use of the Old Shad Pumping Station, do not understand why the car park is needed and also why no alternatives are proposed.

Objections 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 148, 149, 150, 151, 152, 153, 154, 157, 158, 159, 160, 161, 162, 165, 167, 168, 175, 177, 178, 179, 182- in vicinity of Chambers Wharf

19.193 All these residents many of whom live within a few metres of the Chambers Wharf site object to the proposal on a number of grounds including:

- noise, pollution and disruption at unacceptable levels

- 7/8 years of construction with three years 24 hours per day
- large construction site with two schools within 50 metres
- the site is too small
- there is an alternative at Abbey Mills
- densely populated residential area
- 90 lorry movements per day
- adverse effect on property value
- health issues
- sleep deprivation
- quality of life.

Objection 155 Steve O'Hara

19.194 Mr O'Hara has similar concerns to others regarding noise pollution but has a particular concern in relation to the possible adverse impact on tourism.

Objection 162 Bruce Quarterman

19.195 Mr Quarterman objects regarding the impacts on the three schools within the immediate area of Chambers Wharf and the noise, dust and pollution.

Objection 163 Lee Ranson

19.196 Mr Ranson has objections to issues including noise, vibration and access and specifically relating to the CA powers sought as there is a potential claimant for injurious affection. He is mindful that the Applicant seeks to interfere with his right of light.

19.197 Mr Ranson argues that in these circumstances the Applicant must demonstrate there is a compelling case in the public interest and must have regard to his right to peaceful enjoyment of his property. Whilst there is insufficient information to assess the precise nature of the likely impact on his interests it is clear there will be significant effects on the amenity of residents during the construction period.

19.198 He seeks assurances that the Applicant will implement site-specific mitigation measures and will facilitate temporary rehousing if necessary during the construction period. In the absence of these he does not consider that the proposed interference with his rights is justified and objects to the proposed development.

Objection 164 Riverside Parents and Carers Association

19.199 The Association objects to the proposed development because of the adverse impacts it will have on the needs and health of children and the local community.

Objection 166 Michael Scammell

19.200 Mr Scammell objects on the grounds that:

- Chambers Wharf is a high density residential area with a large number of elderly people and three schools in the immediate area
- the site is liable to subsidence
- there will be disruption to local residents in terms of dust, noise, vibration, lorry movements, unacceptable 24 hour working.

Objection 167 G Shaw

19.201 G Shaw objects on the grounds that:

- there are credible non-residential alternatives to Chambers Wharf
- seven years of construction affecting thousands of residents is unacceptable
- sewage smells, noise, dust and traffic congestion will destroy the quality of life
- 24/7 construction for three years will devastate livelihoods and community.

Objection 169 Gail Slater

19.202 This objector lives on Chambers Street, the principal access road and is concerned that she will be subjected to seven years of disruption from heavy traffic and that the development will have a detrimental effect on her property.

Objection 170 Glen Smith

19.203 Mr Smith objects because of the noise and vibrations which will affect his business activities and also expresses concern regarding traffic and lorry noise and the effect on the local schools.

Objection 171 Anthony Ian Godfrey Charles South

19.204 Living opposite the Chambers Wharf site Mr South objects to the proposed 24 hour working and the failure to consult properly and to take into account arguments for other sites.

Objection 172 Mark Southwood

19.205 On behalf of himself and his wife, and Barnards Retirement Benefit Scheme, Mr Southwood's objections are:

- financial impact on ability to let property because of noise, vibration, disturbance and inconvenience
- lack of consultation
- alternative sites available.

Objection 173 Surrey Quays Limited

19.206 The company owns Surrey Quays Shopping Centre, part of whose leasehold title is affected by the proposal and objects that because of the subsoil acquisition for the construction of the tunnel development of any building on the company's retained land would be prevented.

19.207 The company also seeks amendment to the DCO to provide for compensation if the actions of the Applicant cause any owner/occupier to reasonably incur expenditure not merely in relation to the repositioning of statutory undertakers' apparatus.

Objection 174 Graham Taylor

19.208 Mr Taylor says that there is no sewage overflow problem in Southwark and therefore no need for a site at Chambers Wharf and further there are other engineering options available.

Objection 180 Paul Wells

19.209 Mr Wells objects on the grounds of noise, dust, lorries passing his home and the possibility of subsidence.

Objection 181 Wesley Court Management Limited and Wesley Court (Bermondsey) Management Limited

19.210 The company objects because adequate steps have not been taken to avoid passing under residential properties and alternative routes under commercial properties should have been considered.

Tower Hamlets

Objection 183 LB Tower Hamlets

19.211 In relation to CA the Council objects on the grounds that the Heckford Street site was a more suitable option. It therefore strongly disagrees with the conclusion of the Final Report on Site Selection Process (Doc 7.05) that confirms King Edward Memorial Park Foreshore as the CSO site for the DCO application.

19.212 The Council in its representations also queries the Applicant's Noise Insulation and Temporary Rehousing policy arguing the Crossrail policy as best practice. It considers that the Applicant's approach is simplistic in character and does not follow current available knowledge detailed in BS5228-1:2009 and more conventional Environmental Impact Assessment methodologies for noise.

19.213 So far as Bekesbourne Street is concerned the Council considers the Applicant's proposals are acceptable provided that adequate mitigation policies in relation to noise, vibration and transport are adopted.

19.214 The Council sets out its position in detail in its representations and its submissions at the CA hearings.

Objections 184, 199, 215

19.215 These objectors have concerns regarding noise, light, vibrations, dust, the risks of subsidence, odours and the loss of recreational green space in the King Edward Memorial Park.

Objections 185, 187, 188, 190, 191, 193, 197, 201, 202, 209, 211, 212, 213, 214 - Residents of Free Trade Wharf

19.216 Free Trade Wharf is a block of some 200 residential flats which at its western extension lies immediately adjacent to the proposed work site at the King Edward Memorial Park Foreshore.

19.217 The residents' objections include:

- there is a better alternative at Heckford Street being viable and less intrusive on the local community
- loss of open space and a well-used and popular park
- noise, dust, disturbance
- traffic disturbance and congestion
- effect on property values
- disturbance at night
- impact on quality of life
- will restrict access to the Thames Path
- no proper assessment of impact on park, park users and local residents
- blighting of new frontage with buildings and promontory.

Objection 193 Free Trade Wharf Management Company

19.218 The objection submitted by the company in its representation dated 4 November 2013 is partially withdrawn but only in relation to Newcastle Jetty and settlement (REP464). The remainder of its objections set out in its representation is maintained.

Objections 194, 192, 198, 203, 204 - Old Sun Wharf Flats

19.219 A number of residents of Old Sun Wharf flats and the Old Sun Wharf Management Company have lodged objections including the following reasons:

- failure to consider a better viable alternative at Heckford Street and other reasonable alternatives having less effect on residential properties
- risk of subsidence
- noise, dust and vibration
- effect on health
- loss of access for vehicles and pedestrians
- significant impact on residential environment
- effect on property value and

- seek an undertaking from the Applicant that there will be no restriction on future development and an indemnity against any damage caused.

Objection 186 Gregory Choubana

19.220 A pending objection was lodged in relation to the possible effects on a flat being rented.

Objection 189 Mike Davies

19.221 Mr Davies objects on grounds including:

- use of Glamis Road for lorry access
- noise and air pollution
- access to the King Edward Memorial Park and the foreshore will be restricted for many years
- detrimental effect on operation of Shadwell Boating Club
- detrimental to property values
- tourism may be damaged
- loss of footpath detrimental to many.

Objection 195 David and Zoe Hyde

19.222 These objectors are concerned about potential loss of rental income.

Objection 196 Higgins Homes Limited

19.223 The company objects to the purchase of its subsoil on the following grounds:

- effect on stability of its development at Bow Common Lane
- no limit in DCO to upward limit of deviation
- uncertainty will affect values
- no clarity as to extent of subsoil required.

Objection 199 Patricia Leon Jones

19.224 This objector is concerned about the use of King Edward Memorial Park, noise, vibration, dust and disturbance from the construction works and the length of the construction period.

Objection 204 Old Sun Wharf Freehold Management Company Limited (OSWFML)

19.225 The company sets out a comprehensive objection to the proposed development in its representations (RRP1108 and WRR047). With specific regard to CA it objects to:

- The diminution in the value of properties
- A flawed site selection process because if Heckford Street were to have been used as a CSO site the tunnel alignment

would be different, not passing below OSWFML at all and accordingly the CA of their land is neither justified nor proportionate

- In relation to paragraph eight of DCLG guidance to CA under the PA 2008, these considerations have led to the selection of a less preferable option for the siting of the CSO and as such the acquisition of OSWFML land is not proportionate
- Because of the risk of settlement OSWFML seeks entry into the settlement deed.

Objection 200 and 205 Boris Konoshenko and Timothy Payne

19.226 These objections concern noise, dirt and access problems which will affect property values.

Objection 206 Kai Qu

19.227 This objection is on the grounds that:

- there is a viable alternative at Heckford Street
- the loss of KEMP used for sport, recreational and leisure activities.

Objection 207 Catherine and Kevin Roberts

19.228 These objectors have concerns about physical effects on building, noise disturbance, odour, traffic on Glamis Road and effect on property value.

Objection 210 Spirit Managed Inns Limited and Spirit Pub Company (Managed)

19.229 The company objects since it does not consider that the acquisition of the King Edward Memorial Park and the foreshore is in the public interest, it is unclear that funds will be available to implement the project and the status and financial position of the proposed Infrastructure Provider causes uncertainty.

Lewisham

Objection 216 LB Lewisham

19.230 The Council sets out its objections to the proposed development in its relevant representation (RRP1099). It has serious concerns regarding the impact of the proposed works within the Borough and does not consider that the Applicant has adequately considered alternative sites or adequately assessed and addressed the impact of the proposed works.

19.231 Specifically in relation to CA it points out:

- In relation to the consideration of alternatives, that Deptford Church Street was introduced at phase two consultation as a drive site (Borthwick Wharf being the Applicant's preferred site at phase one) and the assessment process did not involve quantitative assessment or comparison of technical data.
- Plough Way (comprising Cannon Wharf; Marine Wharf East and West and sites on Yeoman Street and Croft Street) is one of five strategic sites that will play a crucial role in delivering the objectives of the Council's Core Strategy and it is essential that the delivery of this crucial site is not delayed- thus the council strongly objects to the use of land and the powers sought at this site.
- The proposed works would result in the disruption of three businesses for which alternative locations have not been identified with likely loss of employment.

Objection 220 Stuart Conney

19.232 Mr Conney objected to the selection of Deptford Church Street as a work site because:

- of its effects on a Grade I listed church, a primary school and local businesses
- it is one of the few 'green' amenity areas in the centre of a deprived inner city area
- it affects the local authority's plans for the area
- of the disruption to Deptford Church Street during construction
- alternative sites are available which could make use of river transport for the removal of spoil and delivery of construction material and plant.

Objection 221 Suk Goh

19.233 Suk Goh objected to the acquisition of the subsoil as it may affect the structure of the property. This objector also expressed concerns regarding dust, noise and pollution.

Objection 222 Nerita Properties Limited

19.234 There has been a partial withdrawal of this objection (OD055) but the objector still has concerns regarding its ability to redevelop its property and sought certain assurances from the Applicant in this regard. The objection has been withdrawn in relation to settlement but not in relation to the acquisition of the subsoil.

Objection 223 Martin Saunders

19.235 Mr Saunders has concerns regarding noise, disruption and odour when the works at Earl Pumping Station are taking place.

Objection 226 Nick Williams

19.236 Mr Williams expressed a number of concerns regarding the choice of the work site at Deptford Church Street. So far as CA is concerned, and the acquisition of subsoil beneath his flat, he objected that he did not know enough about what was involved and the disruption which will occur. He felt there had been little opportunity for residents to talk with the Applicant.

Greenwich

Objection 227 Graham Group Limited and Jewson Limited

19.237 Jewson objects on the grounds that taking its site will result in the loss of a valuable asset to local businesses and the wider community. It considers it unlikely it will be able to find alternative premises in which to relocate leading to total extinguishment of the business and associated loss of employment. It seeks deferral of the scheme to allow it time to implement alternative plans.

Objection 228 Willmott Dixon Regen Ltd

19.238 The company objects on the grounds that:

- there would be a detrimental effect on residential amenity at the neighbouring site, the former Greenwich Industrial Estate
- there would be an impact on air quality and generation of dust
- the construction schedule which proposes extended working hours and continual working hours for a period of time would be disruptive for local residents, causing noise and disturbance.

Objection 229 BT

19.239 BT submitted a representation on 13 May 2013 expressing concerns in relation to its telephone exchange at Baynard House, Upper Thames Street (RRP132). The concerns related to BT cooling pipework which would be adversely affected by the Applicant's proposed works.

Objection 231 Mr Wicker, Berhams Plumbing Supplies, Crossfields Street, Deptford

19.240 Mr Wicker did not make a written representation but appeared at the Open Floor hearing held on 21 November 2013 at the AHOY Centre Deptford and raised an objection to the effect that the proposed development would have on access to his premises at Crossfield Street, Deptford (HEA36).

THE APPLICANT'S RESPONSE TO OBJECTIONS

- 19.241 In our second written questions (PD017) we asked for the Applicant's response on the above objections. These were set out in APP04 (save for BT, Mr Wicker and Lucie Stephens). As indicated in that document, there are in many cases ongoing discussions between the Applicant and the objectors.
- 19.242 During the course of the examination further discussions have taken place and in some cases further representations have been made by objectors both in writing and orally at the CA hearings. The Panel has examined all the submissions made by objectors, the responses of the Applicant and the evidence which has been produced and the exchanges which have taken place at the CA hearings.
- 19.243 By the close of the examination a number but by no means all of the objections had been withdrawn. Those withdrawn are set out above. So far as those objections where discussions were ongoing are concerned the position at the close of the examination is set out in the letter submitted to the Panel by the Applicant on the 11 March 2014 (APP197).

THE PANEL'S CONSIDERATION OF THE CA ISSUES

- 19.244 The Panel's approach to the question whether and what CA powers it should recommend to the Secretaries of State to grant has been to seek to apply the relevant sections of the PA 2008, notably s122 and s123, the Guidance³⁵⁴, and the Human Rights Act 1998; and, in the light of the representations received and the evidence submitted, to consider whether a compelling case has been made in the public interest, balancing the public interest against private loss.
- 19.245 The Panel understands, however, that the DCO submitted 11 March 2014 (APP204.02) deals with both the development itself and CA powers. The case for CA powers cannot properly be considered unless and until the Panel has formed a view on the case for the development overall, and the consideration of the CA issues must be consistent with that view.
- 19.246 The Panel has shown in the conclusion to the preceding section that it has reached the view that development consent should be granted. The question therefore that the Panel addresses here is the extent to which, in the light of the factors set out above, the case is made for CA powers necessary to enable the development to proceed.

³⁵⁴ Planning Act 2008, Guidance related to procedures for compulsory acquisition (DCLG, 2013)

The public benefit

19.247 The effect of s122(1) and s122(2) of PA 2008 is to provide that the land to be subject to CA must be required for the development to which the development consent relates; effectively that the land needs to be acquired, or rights over, or under it acquired or impediments upon it removed, in order that the development can be carried out.

19.248 To reach our judgement on this requirement the approach we have taken was to examine:

- the case which has been made for the grant of CA powers in respect of each and every plot included in the Book of Reference
- the justification for the inclusion of the plots in the Statement of Reasons
- the type and extent of interests sought
- the stated use of the Order land and whether there are clear and necessary proposals in relation to each plot sought
- the potential effects and consequences of taking the land proposed.

19.249 We are satisfied that in the event of the grant of development consent for the Thames Tideway Tunnel as applied for there would be a need to acquire the rights and interests in the CA land and the powers sought in the DCO would be required to implement the development.

19.250 With regard to section 122(3), in considering whether there is a compelling case in the public interest there are a number of issues to be considered in balancing the public interest against the private loss which would occur.

19.251 In relation to the overall planning case this is considered in detail elsewhere in this report. We have recorded in our conclusions in chapter 18 that the case for making the DCO in the form we propose is, overall, made out.

19.252 The NPS establishes and confirms the need for a 'Thames Tunnel' which is considered crucial in order to meet the United Kingdom's obligations under the Urban Waste Water Treatment Regulations. It states at paragraph 2.6.34:

'The ExA and the decision maker should undertake any assessment of an application for the development of the Thames Tunnel on the basis that the national need for this infrastructure has been demonstrated. The appropriate strategic alternatives to a tunnel have been considered and it has been concluded that it is the only option to address the problem of discharging unacceptable levels of untreated sewage into the River Thames within a reasonable time at reasonable cost.'

- 19.253 In our opinion in accordance with the NPS the public benefits associated with the construction and use of the Thames Tideway Tunnel would be clear, substantial and compelling.
- 19.254 Paragraph 2.7.6 of the Statement of Reasons, in particular, sets out the wider social and environmental benefits to society which the Applicant sets out that the tunnel is proposed to bring, for which it is not possible to give monetary values. We agree with this assessment.
- 19.255 Overall, the public benefits associated with the project as provided for and set out in the NPS would in our view outweigh the private loss which would be suffered by those whose land is to be acquired to enable the project to occur.

Alternatives

- 19.256 The Department for Communities and Local Government (DCLG) Guidance³⁵⁵ requires (paragraph 8) that –

'The promoter should be able to demonstrate to the satisfaction of the decision maker that all reasonable alternatives to compulsory acquisition (including modifications to the scheme) have been explored ...'

- 19.257 The Panel has considered this in terms of the selection of the sites, the scale of the development proposed, the specific characteristics of the development and then in relation to the proposed acquisition of each parcel of land (in the sections on those parcels).
- 19.258 The Panel held hearings relating to the rationale for the selection of work sites and tunnel drive strategy matters on 11-15 November 2013 and 22-23 January 2014. This matter is reported upon at chapter 17. At the CA hearings the Panel, taking into account the submissions and discussions, also examined the route of the tunnel and the work sites to form a view as to whether there were any alternatives to the CA proposed.
- 19.259 So far as the route of the tunnel was concerned the Panel at the CA hearings examined Borough by Borough the line of the tunnel and was satisfied with the reasons and explanations given by the Applicant at the CA hearings for the route chosen. As set out in chapter 17 there were matters arising in relation to a possible direct drive from Kirtling Street to Acton Storm Tanks on a different tunnel alignment, thereby avoiding use of Carnwath Road Riverside. The Panel having then borne in mind the deliberations at the Rationale hearings concluded that there was no alternative to the route chosen for the line of the tunnel and once chosen the

³⁵⁵ Planning Act 2008, Guidance related to procedures for the compulsory acquisition of land DCLG September 2013

necessary subsoil would have to be acquired by CA in the absence of agreement with owners.

- 19.260 So far as the selection of the work sites was concerned the Applicant had approached the selection of these by preparing Site Suitability Reports for each site under consideration (Doc 7.05, Doc 9.10.01 and APP14, appendices 14.01.17 to 36). An assessment was made of each site in workshops comprising engineering, planning, environmental, socio-economic and community and property experts who jointly, on a value judgement basis, formed a view as to which site was most suitable in each work site location (as set out more fully in chapter 17 of this report).
- 19.261 The process was not without its drawbacks or criticisms from Interested Parties, being based on professional value judgements rather than solely objective criteria. During our examination and in particular during questioning at the CA hearings it became clear that this had led to inconsistencies in comparisons between sites.
- 19.262 Notwithstanding these deficiencies the process did show overall a rational and reasoned approach to work site selection and a need at the selected sites for CA powers where acquisition of the necessary land and rights could not be acquired by agreement.
- 19.263 Nevertheless, at the CA hearings the extent of the land for which CA powers were sought was tested and examined in detail. As a consequence of this examination at 11 work sites the area of land in respect of which CA powers were sought was reduced or amended and revised Books of Reference for seven London Boroughs and Land plans were submitted by the Applicant to reflect this reduction (APP50 response to Q23.4).
- 19.264 At the end of this process the Panel concluded that the land for which CA powers was being sought was required to enable the construction, use and maintenance of the tunnel and that there was no alternative to the use of CA powers, if required.

The Panel's Response to Objections

- 19.265 We have read through all the objections received. Many of the issues raised by objectors have also been considered by the Panel when considering the planning issues arising in relation to consideration of the grant of the draft DCO. The objections are considered here in the context of the application for the grant of CA powers and for the grant of powers of temporary possession under Article 35 of the draft DCO (APP204.02).
- 19.266 Appendix E2 sets out all the objections and the plots they relate to and indicates whether or not it is a CA objection. In relation to CA objections the Panel has examined them against the tests set out

in the PA 2008 (s122 and s123), having regard to the guidance³⁵⁶ and with regard to the provisions of the Human Rights Act 1998.

19.267 They are distinguished from those other objections referred to in appendix E2 as non-CA objections which may be objections to the application for powers of temporary possession under Article 35 of the DCO or objections to the grant of CA powers by those who may be able to make a claim under section 10 of the Compulsory Purchase Act 1965 or Part I of the Land Compensation Act 1973.

19.268 However, there are many plots of land where both CA powers as well as powers of temporary possession under Article 35 are sought. This overlap occurs where land is required for construction works but may, when these works are completed, be capable of being returned to the owner. The Applicant has in these circumstances sought the lesser power of temporary possession under Article 35 so that the use of CA powers is kept to a minimum.

19.269 As a Panel we expressed concern on a number of occasions in the CA hearings and DCO Issue Specific (IS) hearings at the nature and extent of the power of temporary possession under Article 35 (discussed earlier in the examination as Article 34), since it has the characteristics of a CA power without the same requirement of scrutiny as applies where a CA power is sought.

19.270 By way of example, in plots 16 and 33 in LB Lewisham the Applicant seeks a power of temporary possession. The effect of this would be to remove the tenant Graham Group and Jewson Limited from the land which they presently occupy under a lease from the freeholder, allow demolition of the building they occupy, without any duty to replace such a building, allow exclusive possession for the Applicant for some six to eight years, whereupon the lessee will be allowed to go back into occupation (although without the provision of a replacement building to occupy and use), with the payment of compensation for the interference which has taken place.

19.271 The Applicant submits that whilst there is an interference with the tenant's interest it is proportionate and importantly there is an obligation to pay compensation. We are advised that the case of '*Sporrong and Lönnroth v Sweden (1983) 5 EHRR 35*' gives authority for this approach and this we accept to be the current legal position notwithstanding our misgivings and significant concerns.

19.272 Turning now to the objections themselves we have considered them in two categories:

³⁵⁶ Planning Act 2008, Guidance related to procedures for the compulsory acquisition of land DCLG September 2013

- Non CA objections
- CA objections.

19.273 So far as the first of these categories is concerned we have considered as a whole those objections which raise similar issues and concerns and separately those dealing with a specific matter. In relation to the second category we have responded to each individual objection, save where they related to the same specified location or groups. Only plot numbers are shown and with regard to the details in terms of the plots and the objectors, these are shown in Appendix E2.

Non CA Objections

Objection 1 Thomas Martin Blaiklock

19.274 Mr Blaiklock's concerns relate to financing, cost, limited employment opportunities and using an alternative approach to the problem namely SuDS.

19.275 As a Panel we have addressed the issue of funding earlier in this chapter and given our view and so far as employment opportunities are concerned Mr Blaiklock gives no evidence to support his view which we consider is unlikely on the evidence before us in any event.

19.276 So far as SuDS is concerned we as a Panel have to consider the application before us against the clear policy statement in the NPS in the conclusion on need (NPS, para 2.6.33 and 2.6.34) and in relation to the starting point for consideration of such a project (NPS, para 3.1.2), so it is outside our remit to consider other options.

Objection 3 Consumer Council for Water

19.277 With regard to this objection we have considered cost benefit analysis when considering funding. So far as the means of undertaking the project is concerned through an IP and source of payment for the project, these matters are in our opinion outwith our remit as the Examining authority³⁵⁷. The NPS says that a tunnel is the only solution at a reasonable cost and, the need having been established by the NPS, the extent to which such costs are recovered from bill payers or by other means is a matter for Ofwat and/or Government policy.

³⁵⁷ Except in the context set out under the heading Funding in this chapter

Objections 12, 13, 31, 40, 51, 52, 54, 57, 60, 62, 63, 65, 74, 77, 81, 85, 86, 92, 96, 98, 103, 106, 107, 127, 128, 129, 131, 155, 162, 163, 166, 169, 170, 171, 172, 180, 182, 184, 189, 195, 200, 205, 206, 207, 210, 215

19.278 Issues include noise, dust, pollution, vibration, odour, traffic issues of various sorts, effect on privacy, stress, inappropriateness in urban areas, effect on communities and local schools.

19.279 In chapter 18 we acknowledge that the noise during construction is an important factor weighing against making the DCO. Nevertheless, we also find that the Applicant has offered a wide-ranging package of measures which would do much to mitigate adverse effects on amenity, health and well-being. Although there are uncertainties in the proposed mitigation for the impacts of construction noise, in chapter 20 we recommend some changes and additions to the requirements. These would not resolve all of the uncertainties in relation to the noise assessments but, in our view, they would make an important contribution to mitigation.

19.280 We understand and have been fully mindful of all the concerns when considering the Code of Construction Practice (CoCP) and requirements for the control and management of the construction works. Whilst we accept that they will not be eliminated altogether we have sought within the CoCP and requirements so far as it is possible to do so to secure mitigation of these impacts with requirements that will be enforceable by the relevant planning authority. In connection with all the issues raised we would refer to the conclusions of chapters 5, 6, 12, 13 and 14 of this report.

Objections 12, 62, 63, 65, 74, 92, 166, 180, 184, 189, 207, 215

Settlement

19.281 These objectors are concerned at the risk of subsidence and settlement as a consequence of the tunnel construction. We note that the Applicant has engaged with many of these objectors and that the Settlement Deed is available for them to enter into. On this basis we are satisfied that this objection can be adequately dealt with.

Objections 31, 40, 51, 54, 98, 200, 205, 207

Value

19.282 These objectors are concerned at the potential effect on the value of their properties (and in one case on the effect on rental value). Whilst we note these concerns there is no evidence before us to support them. If there is such an effect it would be a matter of seeking to substantiate a claim under the statutory compensation code.

Objections 13, 40, 86

Business

19.283 The likely effect on their businesses is the concern of these objectors. In chapter 13, under the heading 'Adverse effects on employment', we identify that some businesses would be subject to adverse amenity impacts to the extent that they may suffer financial loss. We therefore acknowledge these concerns and if loss is suffered as a consequence of the proposed development then claims can be made under the statutory compensation code.

Objections 74, 77, 85, 128, 171, 172, 206

Alternative locations

19.284 These objectors believe there are alternative locations for the route of the tunnel and work sites. The Panel examined alternatives to both the route of the tunnel and work sites in the CA hearings and in the Rationale Issue Specific hearings. Our conclusions on this are set out earlier in this chapter and in chapter 17. We are satisfied that the tunnel and work sites can be said to be justified in terms of the NPS except at Chambers Wharf, subject to the reservations set out in chapter 17. In relation to Chambers Wharf we would refer to our overall conclusion in chapter 18.

Objections 65, 66, 67, 68, 69, 70, 115

River wall

19.285 These objectors were concerned at the possible settlement which may take place if the river wall is disturbed and whether compensation would be payable.

19.286 We note that in these cases the Applicant is prepared to enter into the Settlement Deed and we consider this to be an appropriate way to deal with this issue.

Objections 131, 162, 166

Schools

19.287 The presence of schools in close proximity to work sites and the impact through noise and disturbance on both school activities and the health and safety of the children were of concern at a number of work sites particularly Chambers Wharf and Deptford Church Street.

19.288 The Panel was mindful of these concerns and visited, during our site inspections, the location of all the schools referred to in LIRs and representations. The Panel also made accompanied visits to two schools near Chambers Wharf.

19.289 Through the use of TAPs, CoCP, s106 obligations and requirements, we are satisfied that these arrangements will mitigate the impacts of the construction works. However, we acknowledge that in such a dense urban area they cannot be eliminated in their entirety.

Objection 8 Ann Rosenberg (representing PRARA (Peterborough Road and Area Residents' Association, ABCD Residents' Association, The Piper Building, Riverside West Tenants' Association, Regent on the River Tenants' Association, The Parsons Green Sports and Social Club, RATS/SSF (Residents against the Thames Sewer/Stop them Shafting Fulham), The Fulham Society, HDRA (Hurlingham Residents' Association), St Matthews Church, Friends of South Park, Individual Interested Parties some of whom are also members of the above groups. Also included are local schools and commercial businesses that will be adversely affected; Objection 109 Riverside West Residents' Association; Objection 130 Bermondsey and Rotherhithe Environmental Group; Objection 164 Riverside Parents and Carers Association and Save Your Riverside.

19.290 The concerns expressed by all these representative organisations and the many members they represent have formed an important part of our examination. We have explored and addressed all the issues raised by these groups. In chapter 18 we acknowledge that the noise during construction is an important factor weighing against making the DCO. Nevertheless, we also find that the Applicant has offered a wide-ranging package of measures which would do much to mitigate adverse effects on amenity, health and well-being. Although there are uncertainties in the proposed mitigation for the impacts of construction noise, in chapter 20 we recommend some changes and additions to the requirements. These would not resolve all of the uncertainties in relation to the noise assessment but, in our view, they would make an important contribution to mitigation.

19.291 We have considered and set out our conclusions on alternatives in chapter 17 where we examined the rationale for site selection. With regard to the other concerns, we have been fully mindful of them when considering the CoCP and requirements for the control and management of the construction works. We set out our conclusions on these matters in chapters 5, 6, 11, 12 and 13, and we have sought within the CoCP, so far as it is possible to do so, to secure measures that mitigate impacts with requirements that will be enforceable by the relevant local planning authority.

Objection 9 SaveKEMP

19.292 SaveKEMP is concerned at the loss of the King Edward Memorial Park and the detrimental impact both on the community and individuals and argues that there is an acceptable alternative

brownfield site at Heckford Street. Amongst the concerns raised is the issue of noise.

19.293 In chapter 18 we acknowledge that the noise during construction is an important factor weighing against making the DCO. Nevertheless, we also find that the Applicant has offered a wide-ranging package of measures which would do much to mitigate adverse effects on amenity, health and well-being. Although there are uncertainties in the proposed mitigation for the impacts of construction noise, in chapter 20 we recommend some changes and additions to the requirements. These would not resolve all of the uncertainties in relation to the noise assessment but, in our view, they would make an important contribution to mitigation.

19.294 As we have said to other objectors we have considered alternatives in our report above and with regard to other concerns we have been fully mindful of these concerns when considering the CoCP and requirements for the control and management of the construction works. Whilst we accept that they will not be eliminated altogether we have sought within the CoCP, so far as it is possible to do so, to ensure mitigation of these impacts with requirements that will be enforceable by the relevant local planning authority.

19.295 In chapter 11 we conclude that the ES understates the effect on the community of the construction impacts on the park. We take account of the s106 obligations which would provide some useful mitigation by way of enhancements to nearby spaces. Even so, we consider that the use of part of King Edward Memorial Park would be a serious loss to the local community which is fully acknowledged in the balance of impacts and benefits arising from the scheme as a whole.

Objection 14 Martin C Grierson

19.296 We believe that the practical issues regarding access to premises etc can be dealt with during the construction phase by meetings with the contractor as suggested by the Applicant.

Objection 75 Capitalstart Limited

19.297 Capitalstart Limited in particular objected to the siting of the work site at Putney Embankment Foreshore. We examined the reason for this choice and the objector's alternative and whilst we understand the concerns of the objector, since the work site will effectively be located in front of its restaurant premises, we are satisfied with the Applicant's justification for its location and why the alternative would not be preferred having regard to the full range of impacts. The alternative suggested by Capitalstart Limited is discussed further in chapter 17 where we conclude that the alternative promoted by the objector would not be justified

having regard to the full range of potential impacts that would result.

Objection 89 Malcolm Hollis LLP

19.298 Malcolm Hollis LLP objects to the interference with its leasehold interest and the disruption to its business at a site from which they do not wish to relocate. The Panel whilst acknowledging the objectors position recognises the need for the interest to be interfered with for the proposed development to proceed, but notes that compensation will be payable pursuant to Article 35 of the DCO.

Objection 99 Manifest, MMK Enterprises, Kirtling Properties Limited, John Woodman, Ian Thompson, Pequod BVI Inc

19.299 These objectors are concerned that they will not be able to purchase suitable alternative investments and believe that compensation would be inadequate.

19.300 No evidence was put forward to indicate why alternative investments would not be available. The Panel notes that compensation is payable in this situation but cannot comment on the calculation and quantum of compensation.

Objection 112 David Nicholas Martin Starkie

19.301 Mr Starkie was concerned at the impact of noise from the work site at Heathwall Pumping Station, the cofferdam and the loading and unloading of barges, particularly in relation to the accuracy and representative nature of the Applicant's baseline survey, as reported in chapter 12 of this report.

19.302 We visited Mr Starkie's property on an accompanied site inspection and were able to gain a clear understanding of his concerns. We have addressed noise and other impacts when considering the CoCP and requirements. In particular, we have recommended a new requirement relating to measurement of baseline ambient noise levels, an important matter raised by this objector. It may be the case that they cannot be eliminated altogether. In those circumstances a claim may lie under the statutory compensation code.

Objection 122 City Cruises Plc and the Yard Arm Club

19.303 We note from the Applicant's response to this objection (APP31.11) that a number of meetings have taken place between the Applicant and the objector. The response sets out a reasoned reply to the objection. The objector did not make any oral representations and we consider the Applicant's response an acceptable explanation of the position.

19.304 We note as did the Applicant that a claim for compensation may lie under the statutory compensation code particularly in relation to any business losses which may be incurred.

Objections 132, 133, 147, 156, 176, 230 Downings Roads Moorings

19.305 The issue of noise is considered in detail in chapter 12 of this report and concludes that the assessment of the impact on houseboats has not been fully considered and the Applicant's answers to our queries with regard to waterborne noise impacts on houseboats are unconvincing. Although a further survey had been proposed by the Applicant the results were not available to us at the end of the examination. In chapter 20 we recommend an alteration to Requirement PW17 which deals with houseboats as a special case in relation to the identification of trigger levels and noise insulation and temporary rehousing.

19.306 The particular effects of scouring, siltation etc on chain moorings caused by the presence of the cofferdam are discussed in chapter 7 where we describe the Applicant's response to these concerns and the mitigation proposed.

19.307 Our conclusion is that notwithstanding what we have said above, if the issues remain outstanding, there are compensation remedies under the statutory compensation code and possibly also under the non-statutory mitigation policies of the Applicant. In these circumstances we are satisfied that CA powers could be granted.

Objections 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 148, 149, 150, 151, 152, 153, 154, 157, 158, 159, 160, 161, 162, 165, 167, 168, 175, 177, 178, 179, 182

19.308 All these residents many of whom live within a few metres of the Chambers Wharf site object to the proposal on a number of grounds which we have set out earlier in this chapter.

19.309 With regard to noise in particular, in chapter 18 we acknowledge that the noise during construction is an important factor weighing against making the DCO. Nevertheless, we also find that the Applicant has offered a wide-ranging package of measures which would do much to mitigate adverse effects on amenity, health and well-being. Although there are uncertainties in the proposed mitigation for the impacts of construction noise, in chapter 20 we recommend some changes and additions to the requirements. These would not resolve all of the uncertainties in relation to the noise assessment but, in our view, they would make an important contribution to mitigation.

19.310 We have addressed alternatives earlier in this chapter and with regard to the many other concerns we understand and have been fully mindful of them when considering the CoCP and requirements for the control and management of the construction works. Whilst

we accept that these concerns would not be eliminated altogether we are satisfied that there is secured within the CoCP and through the off-site mitigation measures, so far as it is possible to do so, mitigation of the impacts with requirements and obligations that will be enforceable by the relevant local planning authority.

Objection 146 Dr and Mrs Hudson

19.311 At the CA hearing held on 12 December 2013 (HEA075 and HEA076) the Applicant reported that it had offered to fund an alternative parking space in the Q-Parks car park (APP42.9). Should it not do so then Dr Hudson would be entitled to submit a claim for compensation.

Objection 167 G Shaw

19.312 We have considered and set out our conclusions on alternatives in chapter 17 where we examined the rationale for site selection. With regard to the other concerns we have been fully mindful of them when considering the CoCP and requirements for the control and management of the construction works. We set out our conclusions on these matters in chapters 5, 6, 11, 12, 13 and 14, and we have sought within the CoCP, so far as it is possible to do so, to ensure mitigation of these impacts with requirements that will be enforceable by the relevant local planning authority.

Objection 174 Mr Graham Taylor

19.313 Mr Taylor provides no evidence to support his assertions and we are unable therefore to make any comment on this objection.

Objections 184, 199, 215

19.314 We have set out our views on many of these objectors concerns in our response to SaveKEMP and we have sought to address through the CoCP and requirements the control and management of the works. The loss of the green open space at King Edward Memorial Park is part of a separate application by the Applicant under sections 131 and 132 of the PA 2008 to the Secretary of State for Environment, Food and Rural Affairs.

Objection 186 Gregory Choubana

19.315 A pending objection was lodged in relation to the possible effects on a flat being rented, but nothing further has been received from the objector.

Objections 185, 187, 188, 190, 191, 193, 197, 201, 202, 209, 211, 212, 213, 214 - Residents of Free Trade Wharf

19.316 The residents' objections include:

- there is a better alternative at Heckford Street being viable and less intrusive on the local community
- loss of open space and a well used and popular park
- noise, dust, disturbance
- traffic disturbance and congestion
- effect on property values
- disturbance at night
- impact on quality of life
- will restrict access to the Thames Path
- no proper assessment of impact on park, park users and local residents
- blighting of new frontage with buildings and promontory.

19.317 We have addressed alternatives earlier in this chapter and with regard to the other concerns we have considered many of these in our response to SaveKEMP. We understand and have been fully mindful of these concerns when considering the CoCP and requirements for the control and management of the construction works. Whilst we accept that they will not be eliminated altogether we have sought to ensure within the CoCP so far as it is possible to do so to mitigate these impacts with requirements that will be enforceable by the relevant local planning authority.

Objections 192, 194, 198, 203, - Old Sun Wharf Flats

19.318 Their objections include failure to consider a better viable alternative at Heckford Street, risk of subsidence, noise, dust, vibration, effect on health, loss of access for vehicles and pedestrians, significant impact on residential environment and effect on property values.

19.319 We have addressed alternatives earlier in this chapter and with regard to the other concerns, we have considered many of these in our response to SaveKEMP. We understand and have been fully mindful of these concerns when considering the Code of Construction Practice (CoCP) and requirements for the control and management of the construction works. Whilst we accept that they will not be eliminated altogether we have sought to ensure within the CoCP so far as it is possible to do so to mitigate these impacts with requirements that will be enforceable by the relevant planning authority.

Objection 227 Graham Group Limited and Jewson Limited

19.320 This objector, a tenant and occupier would be removed from occupation for a period of years due to the exercise of temporary possession powers pursuant to Article 35 of the DCO. They would be entitled to claim compensation for any depreciation in the value of their interest and consequential loss subject to the three conditions of fair and adequate compensation referred to in the case of '*Director of Buildings and Lands v Shun Fung Ironworks Limited*' [1995] 2 AC 111.

Objection 228 Willmott Dixon Regen Ltd

19.321 Whilst we acknowledge in general terms that there will inevitably be some effect on residential amenity at the neighbouring former Greenwich Industrial Estate there was no evidence before us to substantiate this claim and how it may occur. So far as matters such as air quality, dust and disruption caused by the works and the proposed working hours we have sought through the CoCP and requirements to ensure these are regulated to an acceptable level so far as is reasonably practicable.

Objection 231 Mr Wicker, Berhams Plumbing Supplies, Crossfield Street, Deptford.

19.322 The Applicant advised the Panel (APP86) that it had held discussions with Mr Wicker and explained that access to his premises would be maintained whilst the construction works were being carried out. The impact on businesses at Crossfield Street is discussed in chapter 17. Whilst we acknowledge there may be some interference with the operations of these businesses we note that the Applicant proposed to introduce on-street parking bays along Crossfield Street. In the event that access was interfered with then we are satisfied that Mr Wicker could pursue a claim under section 10 of the Compulsory Purchase Act 1965.

CA Objections

Objection 4 Environment Agency (EA)

19.323 The EA makes it clear in its representations that it supports the Thames Tideway Tunnel Project and over a five year period has worked with the Applicant to reach agreement on the many regulatory matters on which it has to be satisfied. The SoCG dated 11 March 2014 set out what has been agreed and what remains to be agreed and of the 64 issues identified by the EA in its relevant representation (RRP710) only five are not agreed.

19.324 The outstanding matters between the Applicant and the EA relate to the extent of the permanent works in the river, particularly where design considerations have resulted in a greater extent of works than would be required to meet the minimum functional requirements. This is discussed in chapter 6 under the heading 'Whether there would be unnecessary loss of aquatic habitat'. Our conclusion is that in each case the additional areas of foreshore taken up would be relatively modest and that any resulting loss of aquatic habitat would be outweighed by the need to achieve appropriate design solutions in sensitive locations.

19.325 We have reached the conclusion that the outstanding matters are matters where there may not be any further accord between the Parties, but notwithstanding this we are satisfied that we can recommend that the CA powers could be granted.

Objection 6 Network Rail (NR)

19.326 NR states in its letter to the Panel of 7 March 2014 (REP469) that it withdraws its objection to the Applicant's application for the grant of a certificate under section 127 and withdraws its representation save with regard to Article 52 of the DCO. There is no provision under PA 2008 for the partial withdrawal of a representation and it is our view therefore that the representation is not withdrawn.

19.327 That being said, we would merely note the position so that the Secretaries of State are aware of it and we would add nothing further as clearly NR's representation so far as CA is concerned is withdrawn with protective provisions included in Part 5 of Schedule 16 of the DCO and an Interface and Asset Protection agreement agreed between the Applicant and NR. In these circumstances, nothing precludes the grant of CA powers.

Objection 10 St James Group Land and Planning

19.328 St James has argued its objection through representations (RRP700, WRR031, WRR087, REP183, REP207, REP317, REP322, REP346, REP393 and REP457) and the Applicant has responded (APP31.43 and APP198.36). St James has also made submissions at a number of hearings including the IS Noise and Vibration hearing and IS DCO hearings and the Panel visited its development at Kirtling Street on an accompanied site inspection.

19.329 Aside from St James's objection relating to highways, their principal objection relates to noise and may be summarised in the following terms:

- the Non-statutory off-site mitigation and compensation policy and TAPs will not adequately mitigate noise impacts
- the Applicant acknowledges additional noise insulation is not feasible but rehousing is not acceptable and in any event is voluntary and cannot be relied on by the Applicant
- the Applicant is relying on the acoustic performance of St James properties but has not checked this
- the only way to mitigate is for the DCO to set noise levels
- It is not appropriate to defer noise details to section 61 of the Control of Pollution Act applications.

19.330 Noise is discussed further in chapter 12 and our conclusions in respect of this objector's case are set out in more detail in that chapter.

19.331 We have noted St James's objection which has been clear and maintained throughout the examination. We have sought through amendments and additions to the CoCP and the requirements to ensure alleviation of adverse effects so far as is practicable, though we accept that this will not eliminate them entirely. In these circumstances, in relation to CA, we are satisfied that there

is a compensation remedy available through the statutory compensation code and the non-statutory mitigation policies which the Applicant has adopted. Accordingly, we recommend that CA powers should be granted.

Objection 11 Transport for London (TfL)

- 19.332 We have considered the objections made by TfL both in written submissions and orally at the IS DCO and CA hearings. We are satisfied that the powers sought by the Applicant in relation to TfL land and interests generally are necessary in order to construct and maintain the tunnel and would to that extent recommend the grant of the powers sought by the Applicant.
- 19.333 However, we note that TfL's objection remains outstanding so far as the grant of CA powers are concerned. The reasons for this are set out in the 3 March 2014 Joint Position Statement on Schedule 16, Part 4 Protective Provisions in the Applicant's final version DCO (APP204.02) and identified in the final update to the SoCG (APP215.01) and final written submission from TfL (REP498). In essence whilst protective provisions have been agreed between the Parties they rely on both an Overarching Framework Agreement (OFA) and Property Heads of Terms (PHT) being agreed between the Parties and at the close of the examination they were not.
- 19.334 The joint statement referred to above indicates there was a target date of 30 April 2014 for the completion of the OFA and if this target has been met and the PHT are agreed there would be no reason for the protective provisions not to be included in the draft DCO and the CA powers in relation to TfL's land and interests being granted.
- 19.335 In which event we would anticipate that TfL's objection would be withdrawn, though we were unable to obtain this confirmation before the close of the examination.
- 19.336 It is our view that with protective provisions having been agreed albeit subject to entry into the agreements referred to above we are satisfied that CA powers could be granted in this case but the Secretaries of State may wish to satisfy themselves on these matters before a decision is taken.

Objections 15 to 37 inclusive Owners and residents of Lillian Road, Richmond on Thames

- 19.337 Entry into the Settlement Deed has been offered to all these objectors (APP50) (CA and non-CA) and we consider this to be an acceptable response to these objections. We recommend the grant of CA powers.

Objection 38 Wimbledon and Putney Commons Conservators

19.338 Whilst the Conservators submitted a representation and reserved their position, no further representation was received and we therefore do not consider there is any objection to consider. See however, our comments on the matters relating to common land below. We recommend the grant of CA powers.

Objections 39 to 48 inclusive Owners and residents of Abinger Road

19.339 These objectors believe that an alternative line could have been chosen for the tunnel and this would have avoided their properties. At the CA hearing we examined the line of the tunnel in this location and were satisfied with the reasons given by the Applicant for the choice of the route taken.

19.340 These objectors have been offered the opportunity to enter into the Settlement Deed and we consider this an appropriate response to the objections made. We recommend the grant of CA powers.

Objection 49 LB Hammersmith and Fulham

19.341 The Council maintains its objection to the use of CA powers, though it does acknowledge that any matters relating to compensation would be assessed in accordance with the statutory compensation code (SoCG (APP116.03)).

19.342 The objection of the Council to the proposed work site at Carnwath Road Riverside is dealt with elsewhere in the report at chapters 12 and 17. We address here only the proposed use of CA powers and in particular the Council's freehold interest in the Carnwath Road Industrial Estate.

19.343 The matter caused some considerable concern to the Council and we feel it important to set out clearly the position as we understand it to be. The Applicant advised (APP50) that exchange of contracts for its acquisition by the Applicant was expected in February 2014. At the CA hearing held on 27 January 2014 (HEA116 to HEA120), the Applicant reported that heads of terms had been agreed for the sale of the freehold to the Applicant. However, the Council made clear that discussions had only taken place with the agent for the long leaseholder, the Council had held no direct talks with the Applicant on the issue, any terms would be subject to Council Cabinet approval and any agreement to sell, if agreed, would only take place if the DCO were granted together with powers of CA; this position did not alter or affect in any way its objection to the proposed work site at Carnwath Road Riverside which was maintained.

19.344 We conclude that the Council will maintain its opposition to the grant of CA powers to the Applicant but we note as indicated

above that if such powers were to be granted and exercised the Council acknowledges that any compensation would be assessed in accordance with the statutory compensation code. We recommend the grant of CA powers.

Objection 50 Assael Architecture Limited and Assael Interiors Limited

19.345 These companies object to the choice of the Carnwath Road Riverside site because of the adverse impact on their businesses including noise, dust, air pollution, odour, vibration, traffic congestion, deterioration in road safety, loss of car parking spaces and a detrimental effect on working conditions and consequently on the business itself.

19.346 We would note that the issues of noise, air pollution, odour, vibration, dust and the other issues raised by the objector have been considered by the Applicant and the Panel when examining the DCO, considering the CoCP, requirements and non-statutory compensation policies to ensure as far as practicable that mitigation is provided for in the DCO. Over and above this the objector may also be able to make a claim under the statutory compensation code. On this basis we are able to recommend the grant of CA powers.

Objections 53, 55 and 58 Piper Building, Peterborough Road

19.347 These residents' objections range from noise, vibration and traffic issues to blight and health and safety matters. We have sought through amendments and additions to the CoCP and the requirements to ensure alleviation of adverse effects so far as practicable, though we accept that this will not eliminate them entirely. In these circumstances, in relation to CA, we are satisfied that there is a compensation remedy available through the statutory compensation code and the non-statutory mitigation policies which the Applicant has adopted. Accordingly, we recommend that CA powers should be granted.

Objection 56 Victor and Felicity Lunn-Rockliffe

19.348 The Lunn-Rockliffe's expressed concerns regarding eco-sensitivity but did not attend and expand on the meaning of this at any CA hearing and accordingly we feel unable to offer any comment. We recommend the grant of CA powers.

19.349 They also raised the cost benefit of the project and so far as this is concerned we have addressed this earlier in this chapter.

Objection 59 Nortrust Nominees Limited

19.350 Dealing in turn with the points raised by this objector we would respond to the points raised by the objector in the following terms:

- The need for the tunnel is set out in para 2.6.34 of the NPS.
- If there is an impact of the scheme on any planning permissions or blight arises there are statutory compensation remedies where loss or blight is proven.
- We have examined and make reference in chapter 17 to our consideration of the site selection process.
- The impact on the community will, so far as practicable, be mitigated by the CoCP and relevant requirements and non-statutory mitigation measures.
- Local planning policy has to be considered against the overriding NPS.

19.351 Accordingly, the grant of CA powers is recommended.

Objection 61 Royal London Mutual Insurance Limited

19.352 Construction traffic and road works at junctions will be regulated by the CoCP and requirements. The alignment of the tunnel has been considered at the CA hearings which the objector did not attend and has been found on balance to be justified and acceptable. Accordingly, we are satisfied that CA powers could be granted.

Objections 71, 79, 82, 83, 84, 87, 88, 91, 93, 94, 100, 105, 110, 114, 116 Nine Elms Pier Houseboats

19.353 We have summarised the concerns of the houseboat community at Nine Elms Pier earlier in this chapter, but they are set out in full in the following representations: RRP1128, WRR046, WRR082, RRP1113, RRP1120, RRP1123, RRP1125, WRR077, REP180, REP452, REP495, RRP500, RRP1244, RRP011, RRP1138, RRP012, RRP1076, RRP1109, RRP1114, RRP879, RRP1137, RRP008 and RRP485.

19.354 The community is not unique in being located very close to work sites as many other communities are also. At Nine Elms Pier houseboats are involved and there are particular difficulties in, and uncertainties about, using double glazing and certain types of insulation as a mitigation measure.

19.355 The Applicant has responded to the community's representation presented by Mark and May Hale at APP31.26 and specifically at APP198.31. The Applicant acknowledges:

- the lack of protection in general law for ownership and occupation peculiar to houseboats
- that there is a special case for triggering a TAP for significant adverse impacts from the project
- if the houseboat community remains concerned about the relevant criteria in terms of significant adverse impacts it suggests this can be addressed in the TAP that is being agreed with Nine Elms Pier Limited

- 19.356 At chapter 12 we have addressed noise and vibration and with regard to the houseboats concluded that the assessment of adverse impacts on health and quality of life from noise has not been considered fully and the Applicant's answers to our queries with regard to waterborne noise impacts on houseboats are unconvincing. We noted that a survey had been agreed, but the results were not available by the end of the examination.
- 19.357 Houseboats are now included in the Non-statutory off-site mitigation and compensation policy (APP186) as special cases and three tiers of compensation are identified³⁵⁸ (APP210.01, appendix C). Additionally, in chapter 20 we recommend an amendment to Requirement PW17 to make it clear that houseboats are to be treated as special cases and that trigger levels specific to houseboats should be defined and secured.
- 19.358 We are mindful of the fact that in relation to the plots included within the LLAU at Nine Elms Pier only one is subject to CA powers. The remainder will only be subject to powers of temporary possession albeit in some cases this would involve removal and future relocation of houseboats (if the latter is possible). Because they are all so inter-related we have considered them as one, but the tests for CA have been applied only where CA powers are sought.
- 19.359 In considering the case for CA whilst we are satisfied that the case is met for CA and the tests under the PA 2008 are met, we are concerned as to whether CA would be proportionate. With the Non-statutory off-site mitigation and compensation policy in place and it being clear that houseboats fall within the trigger mechanism for noise and vibration under Requirement PW17, we are satisfied that CA would be proportionate and the grant of CA powers can be recommended to the Secretaries of State.

Objection 72 The Battersea Barge

- 19.360 Whilst we acknowledge the disturbance and disruption caused by the relocation of the barge any business loss arising from the relocation of the barge would be a matter for compensation under the statutory compensation code, and we are satisfied this would be an adequate remedy. Accordingly, the grant of CA powers is recommended.

Objection 73 Battersea Project Land Company Limited

- 19.361 The redevelopment of Battersea Power Station is acknowledged as an important and significant regional development and it is understandable that Battersea Land objected to the proposed development because of its potential impact on the Battersea

³⁵⁸ Three tiers of mitigation and compensation: Houseboats requiring relocation, houseboat owners and houseboat tenants

redevelopment. We note that this concern was recognised by the Applicant who has sought through discussions with Battersea Land to seek a way of accommodating both developments. It has been apparent through the submissions made by both Parties in writing and orally at the CA hearings that there is mutual desire to reach agreement.

19.362 We see from the Applicant's submission on the 3 March 2014 (APP156) that land agreement Heads of Terms had been agreed and contracts were being negotiated. There was a target completion date of late March/early April and this date is of course later than the date the examination closed on 12 March 2014. Clearly there is willingness to reach agreement on both sides and we would hope that the agreement has now been concluded as the parties intended. However, in the event that agreement has not been reached, we consider that the overall impact on housing delivery would be minor for the reasons set out in chapter 11 and accordingly are satisfied that CA powers could be granted.

Objection 76 Cemex UK Operations Limited

19.363 The Cemex, Kirtling Wharf plant would be significantly affected both now and in the future by the Applicant's proposed CA of a significant part of the site of the plant. It is a case where the blunt instrument of CA does not work to the benefit of either Party and we are encouraged to see that negotiations have taken place regarding an Asset Protection Agreement and Land Agreement between the Parties.

19.364 Neither were in place at the close of the examination and we are mindful that there are complex issues involved, but we can see that if agreement can be reached this will be the best solution for both parties.

19.365 Having regard to the drafting of the DCO, in oral questioning at the DCO hearings we sought confirmation on the relationship of the planning permission at Kirtling Street to the relocation of Cemex and the provisions in the DCO. The drafting on this point has been confirmed to be acceptable to the relevant planning authority (LB Wandsworth).

19.366 In the circumstances we are satisfied that CA powers could be granted since if agreement were not to be reached compensation under the statutory compensation code would be available.

Objection 78 Cory Environmental Holdings Limited (CEH)

19.367 CEH's vessels navigate the stretch of the River Thames between the Western Riverside Waste Authority facility at Smugglers Way, Wandsworth and Mucking in the lower reaches of the Thames. There would therefore be considerable interaction between the proposed development and CEH. This is clearly set out in the SoCG dated 3 March 2014 (signed by the Applicant but not CEH

APP159.08 and signed and submitted in updated form by CEH on 11 March 2014 REP474). CEH supports the principle of the project and identifies the areas of agreement and the issues outstanding.

19.368 We understand that an Asset Protection Agreement and a Land Agreement Heads of Terms are under discussion which should deal with all the issues outlined in CEH's objection. Whilst these were not in place at the close of the examination the Applicant states in the SoCG that following a telephone conversation on 10 March 2014 it understood that it was CEH's intention to countersign it and submit it to the ExA for the 11 March deadline (as confirmed above).

19.369 Whilst the SoCG was submitted, Cory maintain the objections made and set out in summary that there are matters still in discussion and requiring resolution with the Applicant (REP474). It is clear that if land agreement terms and asset protection measures are agreed it will form the basis for a settlement of the issues in this objection. In the circumstances we are satisfied that CA powers could be granted since if agreement were not to be reached compensation would be available under the statutory compensation code.

Objection 80 Michael Davies

19.370 Mr Davies lives on a houseboat upstream of Putney Pier. He objects to the construction works. He would like his boat moved and moored at a temporary location for the duration of the works.

19.371 We would note that the issues of disruption, noise vibration and parking and street disruption have been considered by the Applicant and the Panel when examining the DCO, considering the CoCP, requirements and non-statutory compensation policies; provisions to alleviate them have so far as practicable been sought to be included in the DCO. We also refer to our comments in relation to houseboats at Nine Elms Pier. Over and above this the objector will be able to make a claim under the statutory compensation code. Accordingly, we are satisfied that CA powers could be granted.

Objection 95 Livett's Launches

19.372 This is a substantive and comprehensive objection by Mr Livett in relation to a number of businesses in which he has commercial interests. He is also Vice Chairman of the Passenger Boat Association. He owns Putney Pier from which he operates his launches and this is immediately adjacent to the proposed cofferdam for the Putney Embankment Foreshore work site.

19.373 His concerns regarding safety, scour, the proposed temporary relocation of a houseboat and a number of other matters are real and have considerable weight coming from someone with his experience of operating businesses on the river. Mr Livett has

engaged in dialogue with the Applicant although in his submission of 12 February 2014 he states that the DCO does not adequately address, answer or alleviate any of his concerns.

- 19.374 The Applicant has engaged with Mr Livett and responded to our questioning on the extent and need for certain interests at the CA hearings and Mr Livett's interests in a number of plots which were included in the original Book of Reference were removed from the final Book of Reference, which was submitted on 3 March 2014 (APP138). A further meeting was due to take place on the 17 March 2014.
- 19.375 The Applicant has stated that it would prefer to reach agreement that would avoid the need to use CA powers and we would hope that further discussions will lead to compromise arrangements which would accommodate both Parties. We are particularly concerned that this should be achieved in this case because of the very close proximity of the proposed works to Mr Livett's pier and the safety concerns which arise.
- 19.376 Nevertheless, if agreement were not to be arrived at we are mindful that there are comprehensive controls in relation to scour and navigational safety contained in the protective provisions in favour of the PLA, EA and MMO. We have also recommended an addition to Requirement PW17 which relates to houseboats being a special case for trigger values to be established in relation to off-site mitigation. Finally, there would be remedies available in compensation to Mr Livett and accordingly we are satisfied that CA powers could be granted.

Objection 97 Lookers Motor Group Limited

- 19.377 The Applicant has removed plot 190 (Wandsworth) from the DCO and whilst plot 189 remains, this is completely within the highway (though not believed to be a public highway) so may be precluded from development in any event. So it is not anticipated it would have any detrimental effect on the car dealership site.
- 19.378 This would appear to be a reasonable way to deal with this issue but we have seen no response from the objector to these actions by the Applicant. In the circumstances we are satisfied that CA powers could be granted since if agreement were not to be reached compensation under the statutory compensation code would be available.

Objection 101 Metro Nominees (Wandsworth) No 1 Limited and Metro Nominees (Wandsworth) No 2 Limited

- 19.379 The Applicant in December 2013 (APP31.29) responded in detail to all the concerns of Metro Nominees. We have seen no response from Metro Nominees to suggest that the Applicant's proposals are unacceptable though the objection has not been withdrawn.

19.380 We note that the Applicant is also prepared to offer to Metro Nominees entry into a Settlement Deed. This is an acceptable way to deal with the objection and accordingly we can recommend to the Secretaries of State that CA powers could be granted.

Objection 117 Circadian Limited

19.381 The objector is developing the Lots Road Power Station site for residential use and its objection is mainly concerned with issues (in particular the location of the ventilation column) which are not CA issues. So far as the CA of its subsoil is concerned it is our understanding that no representation has been made objecting to this. Accordingly, we are satisfied that CA powers can be granted.

Objection 118 The Royal Hospital Chelsea

19.382 This objection illustrates how planning issues, practical matters (such as the holding of The Chelsea Flower Show) and the proposed exercise of CA powers are inter-related. We were pleased to hear from the hospital's representative at the CA hearing on 27 January 2014 that agreement is close and solicitors are instructed. We have received no notice of a withdrawal of the objection but would hope that the agreement is concluded so that the objector's concerns are accommodated. We are satisfied that CA powers can be granted.

Objection 119 CGIS (No.4) Ltd

19.383 The Applicant advised in its submission of January 2014 (APP50) that it had acquired the leasehold interest in Camelford House previously owned by CGIS and that CGIS were no longer an Interested Party and had withdrawn its objection, though we have received no confirmation of this stated position from CGIS. We are satisfied that CA powers can be granted.

Objection 120 London Duck Tours Limited (LDT)

19.384 We have considerable sympathy for this objector which is faced with:

- disruption and loss to its business
- frustration and breach of its lease over which it has no control
- what appears to be a confusing mix of CA and temporary possession powers
- disruption and uncertainty during the construction period
- a sharing of access with heavy construction vehicles during the construction period giving rise to business disruption and safety concerns.

19.385 We understand the reasons for the powers sought by the Applicant but our judgement is that this is a case where there could be an agreement between the Parties which would give some comfort

and certainty for carrying on the business for the objector and would lead to a lower compensation cost and more efficient and safer management of the access to the Albert Embankment Foreshore site for the Applicant.

19.386 We see from the submission that Heads of Terms are in circulation but by no means yet agreed. It is our hope that the Applicant will seek as far as possible to accommodate the concerns of the objector and that both Parties will approach negotiations on the basis that an agreement would be preferable to the possible grant of the CA powers without an agreement in place.

19.387 When forming a judgement in this case we attach weight to the fact that issues of navigational safety would be within the control of the PLA, by virtue of its protective provisions in the DCO. Moreover, it is an important consideration having weighed all the other factors that there is a compensation remedy available to LDT should agreement not be reached with the Applicant, and in these circumstances are satisfied that CA powers could be granted.

Objection 121 City of Westminster

19.388 In its representations (REP084, REP089 and REP436) the Council set out in particular its concerns in relation to the proposed works at Victoria Embankment Foreshore and the relocation of the Tattershall Castle. The Panel in chapter 10 conclude that having regard to the combined effect of the foreshore structure and the relocation of the Tattershall Castle, we agree with the assessment in the ES that the proposals for Victoria Embankment Foreshore would result in a minor adverse impact on the Whitehall Conservation Area and the settings of the listed buildings near the site. In the terms of the NPS this would amount to less than substantial harm.

19.389 In these circumstances we are satisfied that the CA powers sought could be granted.

Objection 123 City of London Corporation

19.390 The City of London Corporation in its comprehensive representation submitted on 4 November 2013, states that whilst it supports the construction of the Thames Tideway Tunnel it objects to many specific aspects of the proposed development and these are set out in its representation.

19.391 These objections include, by way of example in relation to CA:

- The need to clarify the extent of land to be compulsorily acquired
- Objection to any part of the services pipe subway being compulsorily acquired and a requirement that upon reinstatement of the disturbed part it is vested in the City of London Corporation

- Clarification as to what is intended with regard to the basement rifle range and public toilets land in terms of acquisition at what levels etc
- Acquisition of land at subsoil level and above in relation to the proposed works to Blackfriars Bridge
- Issues relating to removal of rights and necessary re-grant in relation to Paul's Walk, the City Walkway and river wall.

19.392 In addition to its objection the City of London Corporation requires a clear understanding of what is proposed at all levels so that the long term implications and requirements for rights and obligations can be understood and documented in appropriate conveyancing documents to secure and protect the interests of both Parties.

19.393 There is clearly constructive dialogue between the City of London Corporation and the Applicant evidenced by the progress made on protective provisions relating to asset protection for bridges in particular (APP216). At the close of the examination protective provisions had been agreed, save for one outstanding issue (REP435 and REP481). These are set out in Schedule 16 Part 7 of the DCO and protective provisions are addressed in chapter 20.

19.394 So far as CA is concerned, apart from the service pipe subway, the issues are mainly about the practical matters which would need to be dealt with if CA powers were used. The City of London Corporation suggestion that following reinstatement the subway be vested in the Corporation seems sensible but we do not know whether this would be a solution that is possible. What we do know is that ultimately if there is no agreed solution this matter is capable of being compensated under the statutory compensation code.

19.395 Accordingly, we are satisfied that CA powers could be granted since a compensation claim could be made if the issue is not resolved.

Objection 124 Thames Clippers

19.396 Thames Clippers has through its operation a direct interest in the Blackfriars Pier proposals.

19.397 The Applicant has advised (APP50) that Thames Clippers has been involved in the discussions on continuity and the suitability of the proposed replacement Blackfriars Pier.

19.398 No further representations have been received from Thames Clippers so we assume its concerns have been addressed. We are satisfied that CA powers could be granted.

Objection 125 National Small-bore Rifle Association

19.399 The objector is a tenant of the City of London Corporation. It has recently been granted a new lease which will expire on 29

September 2015. The City of London Corporation has undertaken to secure vacant possession for the Applicant when the premises are needed for construction works and will be returned to the City of London Corporation when works are completed. The Applicant has indicated it will support attempts by the Association to link up with other rifle associations but so far as the current premises are concerned the City of London Corporation has indicated that it will deal with any new arrangements with the Association (if any) at that time.

19.400 This objection will effectively be removed since possession arrangements have been agreed between the City of London as landlord and the tenant's leasehold interest will have expired when this occurs.

Objection 126 LB Southwark

19.401 Whilst the Council has engaged with the Applicant it remains firm in its objection to the selection of Chambers Wharf as a drive site and argues for the selection of Abbey Mills in its place. The Applicant sets out in its submission of 11 March 2014 (APP198.24) its response to the submission by the Council of 3 March 2014 (REP449). Agreement has not been reached on a considerable number of areas and the Council's objection remains outstanding. This matter is discussed in chapter 17.

19.402 In the light of our conclusions on site selection rationale set out in chapter 17 and the fact that compensation under the statutory compensation code would be available in relation to the acquisition of land interests and rights relating to land, we are satisfied that CA powers could be granted.

Objection 173 Surrey Quays

19.403 Negotiations are taking place to settle this objection but had not been concluded at the close of the examination. However, we are satisfied that a compensation remedy is available if agreement is not reached and on that basis can recommend that CA powers could be granted.

Objection 181 Wesley Court Management Limited and Wesley Court (Bermondsey) Limited

19.404 The company objects because adequate steps have not been taken to avoid passing under residential properties and alternative routes under commercial properties should have been considered. We have addressed alternatives earlier in this chapter and set out our views on site selection in chapter 17. We are satisfied, in the circumstances, that CA powers could be granted.

Objection 183 LB Tower Hamlets

19.405 The Council maintains its objection both to the selection of King Edward Memorial Park Foreshore instead of Heckford Street as a work site and on a range of other issues ranging from DCO drafting and wording issues through to the Non-statutory off-site mitigation and compensation policy set out in its written submissions and at the IS DCO and CA hearings (REP492).

19.406 We have set out our views on the rationale for site selection in chapter 17. Clearly the Council's objection is maintained but we are satisfied that if the Secretaries of State were to grant the DCO and the CA powers sought that as the Council has no objection in principle to its interests in land being acquired by CA (REP253), the Council's land interests could be acquired and compensation would be payable under the statutory compensation code. In the circumstances we are satisfied that the grant of CA powers could be recommended.

Objection 196 Higgins Homes

19.407 The Applicant responded to the technical issues raised by the objector (APP50). The objector has not pursued the objection further so we conclude that the concerns have been addressed. The objection has not actually been withdrawn. In the circumstances we are satisfied that the grant of CA powers could be recommended.

Objection 204 Old Sun Wharf Freehold Management Limited

19.408 This objector is concerned with a range of impacts set out earlier, the risk of subsidence and the failure to choose an alternative site at Heckford Street.

19.409 We have addressed alternative sites in chapter 17. The settlement deed is available to individual flat owners and we are satisfied that a claim for compensation can be made under the statutory compensation code and accordingly CA powers could be granted.

Objection 216 LB Lewisham

19.410 The Council sets out its objections to the proposed development in its relevant representation (RRP1099). It has serious concerns regarding the impact of the proposed works within the Borough and does not consider the Applicant has adequately considered alternative sites or adequately assessed and addressed the impact of the proposed works. We have considered alternatives earlier and dealing with the specific points it has made with regard to CA we would respond as follows:

- In relation to the consideration of alternatives, we have indicated that we have considered alternatives earlier in the chapter.

- In relation to Plough Way (comprising Cannon Wharf; Marine Wharf East and West and sites on Yeoman Street and Croft Street) which is one of five strategic sites that will play a crucial role in delivering the objectives of the Council's Core Strategy we are satisfied that the NPS is the principal policy consideration.
- So far as the disruption of three businesses (for which alternative locations have not been identified, with likely loss of employment) there was no evidence submitted to support these contentions, but in any event we are satisfied that if the businesses are displaced there are compensation remedies available under the statutory compensation code.

19.411 In the circumstances we are satisfied that the grant of CA powers could be recommended.

Objection 220 Stuart Conney

19.412 Mr Conney objects to the choice of the work site at Deptford Church Street (which we have dealt with earlier in this chapter) but not to the CA of his subsoil. Nevertheless, we are satisfied that a compensation remedy is available and, accordingly, we can recommend the grant of CA powers.

Objection 221 Suk Goh

19.413 Suk Goh was written to by the Applicant concerning the objection made but no response was received and there were no further representations (APP50). In the circumstances we would note that the issues of noise and dust have been considered by the Applicant and the Panel when examining the draft DCO, considering the CoCP, requirements and non-statutory compensation policies. In relation to the concerns regarding the property's structure, the Applicant in similar cases where such concerns have been expressed, offered entry into the Settlement Deed and we would anticipate that such an offer would also be made to Suk Goh if the Applicant was approached.

19.414 Whether or not this occurs we are satisfied that there is a compensation remedy available under the statutory compensation code and accordingly would recommend the grant of CA powers.

Objection 222 Nerita Properties Limited

19.415 This objection has been withdrawn in relation to settlement (OD055) but not in relation to the acquisition of the subsoil. If this is the case then we consider Nerita's concerns regarding the right to develop at the surface are, if proven, compensatable issues and in that case are able to recommend the grant of compulsory acquisition powers since compensation would be available under the statutory compensation code. Accordingly, we would recommend the grant of CA powers.

Objection 223 Martin Saunders

19.416 Mr Saunders does not appear to be objecting to the acquisition of his subsoil but has concerns regarding noise and odour. These are matters which the Applicant has addressed and which we as a Panel have considered in examining the draft DCO, considering the CoCP, requirements and non-statutory compensation policies. We are satisfied that a compensation remedy is available and accordingly recommend that CA powers could be granted.

Objection 226 Nick Williams

19.417 Mr William's concerns (save for the subsoil issue) are matters which are considered elsewhere in this report. So far as the acquisition of subsoil is concerned we have received no further representations on this but would say that this may be another case where entry into the Settlement Deed would be appropriate if the objector wished to do so. We are satisfied that a compensation remedy is available and accordingly recommend that CA powers could be granted.

Objection 229 BT

19.418 BT submitted a representation on 9 May 2013 expressing concerns in relation to its telephone exchange at Baynard House, Upper Thames Street (RRP132). The concerns related to BT cooling pipework which would be adversely affected by the Applicant's proposed works.

19.419 Whilst protective provisions have been agreed for communications network operators an Asset Protection Agreement has not yet been concluded with BT (we also address this in relation to drafting in the DCO in chapter 20). BT had indicated that it should be in place by the close of the examination, but it was not. We are satisfied that if agreement is not reached compensation is available under the statutory compensation code and accordingly recommend the grant of CA powers.

Non-Statutory Policies and Settlement Deed

19.420 The Applicant has formulated a number of non-statutory policies referred to earlier in this chapter, which are designed to provide additional mitigation to all who may be eligible under them. They have been examined by the Panel during the course of the examination and we have sought amendments and additions so that they are now in a form which we consider acceptable in a proposed development of this scale and duration.

19.421 In considering objections and in reaching our decision on our recommendations to the Secretaries of State in relation to the request for CA powers, we have taken into account the existence and availability of these policies over and above the statutory compensation.

19.422 In a similar manner we have had regard to the Settlement Deed and its availability to those whose subsoil land would be acquired if the CA powers were granted by the Secretaries of State.

THE PANEL'S OVERALL CA CONCLUSIONS

Human Rights Act 1998 considerations

19.423 A key consideration in formulating a compelling case is consideration of the potential interference with human rights which may occur if CA powers are granted and exercised.

19.424 The Applicant acknowledges that the DCO engages a number of the articles of the Human Rights Act as set out above.

19.425 It would affect Article 1 of the First Protocol (rights of those whose property is to be compulsorily acquired and whose peaceful enjoyment of their property is to be interfered with).

19.426 Article 6 entitles those affected by CA powers sought for the project to a fair and public hearing of their objections.

19.427 Article 8 protects private and family life, home and correspondence. No public authority can interfere with these interests except if it is in accordance with the law and is necessary in the interests of national security, public safety or the economic well-being of the country.

19.428 The Applicant states that all owners and occupiers of land affected by the proposals have been contacted and that representations could be made in response to notice under s56 PA 2008 or at any CA hearing advertised or held in public by the Panel.

19.429 In the Statement of Reasons and at the CA hearings the Applicant set out the considerations that arise and stated that it had carefully considered the balance to be struck between individual rights and the wider public interest.

19.430 Having regard to the relevant provision of the Human Rights Act we have considered the individual rights interfered with and the submissions made by affected parties in this regard and are satisfied that:

- in relation to Article 1 of the First Protocol that the proposed interference with the individual's rights would be lawful, necessary, proportionate and justified in the public interest
- in relation to Article 6 we are satisfied that all objections which have been made have either been resolved with the objector, or the objectors have had the opportunity to present their cases to us in writing and at the CA hearings
- that in relation to Article 8 the interference is in accordance with the law and is necessary in the interests of the economic well-being of the country.

Adequacy of funding

- 19.431 Paragraphs 17 and 18 of the CA Guidance³⁵⁹ sets out the need for a Funding Statement to accompany the application and the information which that document should contain regarding the resource implications of the proposed scheme.
- 19.432 We have examined the Funding Statement submitted with the application (Doc 4.2) and the revised document submitted on 23 September 2013 (Doc 9.10.06). With regard to funding for CA compensation we are mindful that in terms of land acquisition costs, eight of the work sites are existing Thames Water Utilities Ltd operational facilities. Over and above this not only has the Applicant acquired many of the land interests required with funds approved in the AMP process, it has also, through the AMP process, and subject to it, agreed budgets for the further costs associated with the acquisition of all outstanding property interests needed for the construction and operation of the project.
- 19.433 This includes not only land acquisition costs but also compensation for blight and injurious affection as well as under the various non-statutory compensation policies referred to earlier in this chapter.
- 19.434 We are accordingly satisfied that in respect of all the above elements of CA compensation, funds have either been made available to the Applicant through its regulatory process or it has approval through that process to incur the necessary expenditure.
- 19.435 As far as non-CA costs are concerned ie the funding of the construction and operation of the project, whilst certain specified works will be carried out by the Applicant and funds will have to be secured by it through its AMP process, it is intended that the majority of the works would be carried out by the infrastructure provider (IP), yet to be appointed, who would provide or procure the necessary funding. In these circumstances the Panel is clearly not in a position to make a judgement on the securing of the funds for the project and the Secretaries of State will need to be certain that they have confidence in the process with regard to certainty on funding and the IP before making their final decision.
- 19.436 However, the IP once appointed would require the transfer to it of the benefit of the provisions of the DCO to enable it both to carry out the works of construction and to maintain the project and this is provided for in Article 9(1) and 9(2) of the DCO.
- 19.437 In both cases 'infrastructure provider' is defined in the DCO as:

'any body designated by the Secretary of State for the Environment, Food and Rural Affairs or by the Water Services Regulation Authority (as the case may be) in respect of the

³⁵⁹ Planning Act 2008 Guidance related to the compulsory acquisition of land September 2013

authorised project or parts(s) of the authorised project or by section 36D of the Water Industry Act (as inserted by section 35 of the Food and Water Management Act 2010) or any successor under a special administration order or otherwise.'

19.438 Thus, any IP appointed will have to be designated by the Secretaries of State (or Ofwat) so there will be an opportunity to check that the Party appointed has the necessary financial capacity to fund that part of the project to which it is appointed as IP.

19.439 In these circumstances we are satisfied that whilst a judgement on project funding cannot be made at this time in this report, it can be made as indicated above before a decision is made in relation to any transfer and when any IP is appointed.

Other Outstanding Matters

Common Land

19.440 Plots 70, 72, 75, 76, 77, 78, and 79 in the Book of Reference relating to the LB Richmond upon Thames are stated in Part 1 to be common land but they are not identified as such in Part 5 where special category land (which includes common land) has to be specified.

19.441 The Applicant argued that the reason for this was that in this particular case the subsoil was not common land and thus had not been included in Part 5, though we were not entirely persuaded by this argument. There was not before us any expression of the Conservators of the Commons view.

19.442 We have not been delegated to deal with sections 131 and 132 and, in these circumstances, we have taken the view that as no Party appears to have been prejudiced we would merely record the position and draw the Secretaries of State attention so that they can determine in full knowledge of the position.

THE PANEL'S RECOMMENDATIONS ON THE GRANTING OF COMPULSORY ACQUISITION POWERS

19.443 With regard to s122(2) of the PA 2008 we are satisfied that the legal interests in all plots described and set out in the Book of Reference and on the Land plans (as amended including the reductions to the limits of deviations referred to earlier in chapter 2) would be required in order to implement the development.

19.444 With regard to s122(3) we are satisfied in relation to the application :

- that the NPS identifies a national need for the Thames Tideway Tunnel

- that the need to secure the land and rights required and to construct the development within a reasonable timescale and therefore ensure that the delivery of the Thames Tideway Tunnel as part of Government policy to fulfil UK obligations under the Urban Waste Water Treatment Directive (1991/271/EEC), the Freshwater Fish Directive (2006/44/EC) and the Water Framework Directive (2000/60/EC), represents a significant public benefit to weigh in the balance
- that the private loss to those affected has been mitigated to a large degree through the selection of the application land, the use of temporary possession to minimise permanent land take and the extent of the rights and interests proposed to be acquired
- that the Applicant has shown that all reasonable alternatives to CA have been explored
- that there is an established regulatory regime for funding the project (including CA costs and non-CA compensation and project costs) and therefore it is reasonable to conclude that funding would be made available
- that the resource implications of possible acquisition resulting from a blight notice, and other non-statutory measures such as discretionary re-housing and off-site mitigation measures have been taken into account in relation to funding
- that the proposed interference with the human rights of individuals would be for a legitimate purpose that would justify such interference in the public interest and to a proportionate extent.

19.445 In these circumstances we consider that there is a compelling case in the public interest for the grant of the CA powers sought by the Applicant in respect of the CA land as shown on the Land plans.

19.446 Lastly, with regard to the incorporation of other statutory powers pursuant to s120(5)(a), we are satisfied that as required by s117(4), the DCO has been drafted in the form of a statutory instrument and further that no provision of the DCO contravenes the provisions of s126 which precludes the modification of compensation provisions.

20 DRAFT DEVELOPMENT CONSENT ORDER AND RELATED MATTERS

INTRODUCTION

- 20.1 A draft Development Consent Order (DCO) incorporating a deemed marine licence (DML) (Doc 3.1) and Explanatory Memorandum (Doc 3.2) were submitted as part of the application for development consent by the Applicant. The Explanatory Memorandum describes the purpose and effect of the provisions in the application DCO.
- 20.2 The application DCO is based (with some differences) on the Infrastructure Planning (Model Provisions) (England and Wales) Order 2009 (Model Provisions) but departs from those model provisions in some instances³⁶⁰.
- 20.3 The differences are explained by the Applicant as reflecting the wording from the Transport and Works (Model Clauses for Railways and Tramways) Order 2006 (TWA Model Provisions) and Orders made under the Transport and Works Act 1992 (TWA) as well as Development Consent Orders under the Planning Act 2008 Act (as amended) (PA 2008) made to date.
- 20.4 In our consideration and questioning during the examination we have received and considered precedent orders and drafting models referred to in support of drafting by a range of Interested Parties including the Applicant. We have also had regard to guidance on the drafting of conditions and requirements and planning obligations in accordance with guidance in the National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) (para 3.1.6 and 3.1.7) and as now set out in National Planning Practice Guidance (Paragraph: 003 Reference ID: 21a-003-20140306 and Paragraph: 001 Reference ID: 23b-001-20140306).
- 20.5 The DCO is in four parts and contains 19 schedules:
- **Part 1** - This part contains the preliminary provisions providing for commencement, citation and interpretation.
 - **Part 2** - This part sets out the Works provisions, with Articles 3 to 7 containing the principal powers needed for the authorised development; Articles 8 and 9 dealing with transfer of the benefit of the Order; Articles 10 to 18 relating to streets and traffic regulation; and Articles 19 to 27 containing provisions relating to supplemental powers.
 - **Part 3** - This part contains the powers in relation to acquisition and possession of land, with Articles 28 to 34

³⁶⁰ the model provisions are no longer mandatory, but the Applicant, Interested Parties and the Panel did refer to them and to this extent found it useful

relating to powers of acquisition; Articles 35 and 36 relating to temporary possession and use of land; Articles 37 to 39 relating to matters of compensation; Article 40 relating to incorporation of the mineral code; and supplementary provisions being set out at Articles 41 to 48.

- **Part 4** - This part contains a number of miscellaneous and general provisions in Articles 49 to 63.
- **Schedules** - Schedules 1 to 19 of the DCO contain information referred to in the Articles to the Order such as Requirements; the Deemed Marine Licence (DML) and Provisions for Protection of Specified Undertakers.

20.6 In relation to the DCO and related matters we asked two sets of written questions (PD008, and PD017), made one further request for information (PD031) and held three separate Issue Specific (IS) hearings, with the final hearing being adjourned and resumed over an additional day (HEA043-48, HEA96-100, HEA135-142 and HEA153-158, audio recordings). These hearings were interspersed throughout the examination period.

20.7 During the course of the examination, a number of alterations to the application DCO were suggested by the Applicant and by other Interested Parties in response to questions raised, both in writing and orally at hearings and in response to representations made by Interested Parties, and others taking part in the examination, as well as submitted Local Impact Reports (LIRs). This resulted in six successive versions being produced throughout the course of the examination³⁶¹. The Applicant provided drafting notes that seek to explain the main changes made to the DCO and the reasons for those changes as well as comparison versions of the DCO so full text changes can be followed. The detail of these submissions is not repeated in this chapter but may be referenced to follow the evolution of the drafting and responses to questions and representations made.

20.8 It became clear from submissions made by the Applicant at the IS hearing relating to the DCO held on 26 and 27 November 2013 that, due to the ongoing discussions (particularly with the local authorities and statutory bodies) and consideration of representations, the consequential review and update of the drafting of the DCO had fallen behind the timetable set. The Applicant made an oral request that the next draft be issued to stakeholders for consideration and input (issued on 9 December 2013 (APP88)) with responses to be taken into account as part of the submission of 13 January 2014, rather than seeking to provide an update for the 2 December written submission deadline. We referred to the commitment made by the Applicant in our letter of 19 December 2013 (PD017).

³⁶¹ Unless otherwise identified when we refer to the DCO reference should be made to the Applicant's sixth draft DCO APP204.02

- 20.9 Although this approach was accepted by the ExA, to allow practical progress to be made with relevant stakeholders, as set out in section 25 of our letter of 19 December 2013 (PDO17) this meant that we were not in a position to ask comprehensive written questions on the DCO and related matters at the timetabled second written questions stage. This resulted in the need for detailed matters to be investigated orally in the IS hearings.
- 20.10 As set out in the Applicant's submissions of 23 September 2013 (Doc 9.01), 13 January 2014 (APP56) and 24 January 2014 (APP96 and 97) and letters dated 12 and 17 February 2014 (APP114 and APP148) a number of documents were submitted late on a notified basis³⁶². A number of Interested Parties also made late submissions and these are also recorded in the examination library (appendix C).
- 20.11 The submission of 3 February 2014 involved substantial changes to the DCO and related documents such as the Code of Construction Practice (CoCP), Design Principles, Noise Insulation Proposals and the Non-statutory off-site mitigation and compensation policy, which provided a considerable amount of material for Parties to try to take into account prior to the final scheduled IS hearing relating to the DCO on 6 and 7 February 2014. This resulted in adjournment and conclusion of the IS hearing on 21 February, having received additional substantial updated drafting on 12 February 2014. New documentation was received throughout the examination and continued in the submissions of 3 March 2014. As set out in chapter 1 above we introduced an additional date for submitting final comments of 11 March 2014. The version of the DCO submitted on 3 March 2014 was substantially in its final form. We received 29 representations from Interested Parties and final submissions from the Applicant for this additional date for submission before the close of the examination on 12 March 2014
- 20.12 These extensive changes and the volume of documentation provided late in the examination, particularly in relation to the DCO and related matters such as the CoCP and mitigation policies, made it difficult for the Panel and the Interested Parties to engage with the detail and resolve all outstanding matters in the examination time available. This has been referred to by a number of Interested Parties, as exemplified in the final submission of Mr and Mrs Hale (REP495). It is, however, our view that on balance within the time available all Parties were given an opportunity to respond to the documentation provided and matters raised up to the 11 March 2014 submission deadline, although this was a relatively short period at the end of the examination.

³⁶² The Applicant advised by covering letter in the referenced submissions that it would make part of their submissions at dates later than the timetable deadlines set by the ExA

- 20.13 At the end of the examination, the Applicant submitted a final (sixth) DCO on 11 March 2014 (APP204.02). However, the Applicant continued dialogue with some of the Interested Parties, which resulted in further agreed drafting which was also submitted for the 11 March 2014 deadline by the other Parties as part of their agreed submissions. Therefore we have brought those agreed final submissions into the Applicant's DCO of 11 March submissions (APP204.02) which contains in full the provisions now being sought for approval by the Applicant (and marked these in green in the Final recommended DCO at appendix F). A comparison of the submitted application DCO and the final (sixth) DCO was provided by the Applicant in its submission of 11 March 2014 (APP204.04), which was supported by explanatory drafting notes (APP204.01). There was no change or update to the Explanatory Memorandum (Doc 3.2).
- 20.14 At the close of the examination a number of Interested Parties maintained substantial objections to elements of the application and drafting in the Applicant's final (sixth) DCO (APP204.02). This resulted in the submission of alternative drafting on a without prejudice basis by a number of Parties, including in some instances the Applicant.
- 20.15 Some of the Applicant's proposed alterations have been made for the purposes of clarification, correction of minor errors, or to reflect changes proposed elsewhere in the DCO. We do not report in full on typographic errors and minor corrections that we recommend (see appendix F), but consider that if development consent is to be granted, they should be incorporated in any DCO as made.
- 20.16 Throughout our consideration of the main issues, LIRs and representations set out in this report we refer to changes that have come about as a result of our questions and matters raised by Interested Parties and others, and provide mitigation and clarification. We do not deal again with these matters in detail in this chapter of the report.
- 20.17 It should also be noted when reviewing representations and the travelling drafts of the DCO throughout the examination that certain numbering changed within the documentation. For example, the submissions and oral examination at hearings in relation to temporary possession of land (now Article 35) (APP204.02) were discussed as Article 34 for most of the examination. There was also an issue with numbering in the early versions of the comparison documents which meant that sub-numbering was corrupted, although this was resolved by the final version. To assist in understanding numbering changes the Applicant provided a note setting out the changes to allow tracking across the documents (APP177.01, appendix 1, Cross referencing of numbering - a guide to Article and Requirement numbering changes).

- 20.18 Much of the DCO (APP204.02) is not the subject of objection, relevant and important representation, LIR or proposed amendment. We deal below with those articles and schedules which remain contentious, are the subject of proposals for substantial alteration or are matters not resolved during examination that we have now reached a view on.
- 20.19 For the final agreed positions and identification of outstanding matters with the local authorities and Statutory Parties, reference should be made to Statements of Common Ground (SoCG)³⁶³ and the four way legal agreement (4WLA) (APP183). The Applicant also sets out and explains the main reasons for additional changes and responds in some instances as to why drafting requested by others has not been accepted and incorporated into the final draft DCO (APP177.01). Overall, the guide to the application identifies the progression of documentation throughout the examination (APP199).
- 20.20 It should be noted that we do not seek to reference in detail every representation made. Rather, we identify the representative issues that go to our consideration of the outstanding matters in relation to the drafting of the DCO. In coming to our recommendations we have had full regard to all representations. The detail is set out in the written submissions and correspondence listed as part of the application documents relating to each revision of the draft Order. The discussion is available in the recordings of the hearings and supported by written summaries of oral submissions made at the hearings, as listed in the examination library (appendix C).
- 20.21 The final version of the DCO as recommended by the Panel is provided at appendix F. This version also includes some minor typographical changes which are also marked as changes and have been provided to assist the Secretary of State for Communities and Local Government and the Secretary of State for Environment, Food and Rural Affairs (Secretaries of State). These do not go to the substance of any matter. An example of this is in Article 22(8) where 'reasonable' should be 'reasonably' in the penultimate line. We have indicated this recommended change, along with a number of others, by marking in red.

PART 1 PRELIMINARY

Article 2 Interpretation

Completion of construction

- 20.22 The question of sign-off for the authorised project was a matter raised early in the examination. An initial response to this from the Applicant was to include a definition of 'acceptance date' as a means of limiting in time the exercise of certain powers (APP75.4,

³⁶³ Set out in the examination library appendix C

13 January 2014). This introduction and consequential effects were strongly questioned by ourselves and Interested Parties at the IS hearing relating to the DCO held on 20 and 21 January 2014 (HEA096 to HEA100).

- 20.23 Following discussion at the IS hearing relating to the DCO on this matter on 20 January 2014 (HEA096) the Applicant gave further consideration to the process of sign-off and changed the definition to introduce the term 'completion of construction' in the 3 February version of the DCO (APP105.02). This is explained in the Applicant's drafting notes of 3 February 2014 (APP105.01) and further explained in relation to the inclusion of requirements in relation to all relevant sites in respect of commissioning works (APP124.01).
- 20.24 At the close of examination these changes were broadly accepted by a range of Interested Parties. However there were still concerns expressed at the final IS hearing relating to the DCO held on 6, 7 and 21 February 2014 (HEA135 to HEA142 and HEA153 to HEA158) and expressly set out in submissions of 3 March 2014. These included submissions by the City of London Corporation (City of London) (REP435) and LB Hammersmith and Fulham (REP444).
- 20.25 The DCO and supporting documentation relied on in the DCO have evolved throughout the examination and there have been improvements in relation to control mechanisms particularly in relation to site-specific requirements. However, it does not provide certainty that the development would be completed within the time periods indicated and assessed with regard to impact duration. This matter is discussed further in chapter 11 under the heading 'Duration of works in public spaces'.
- 20.26 We do not see any practical resolution that can be brought to the drafting without risking over-prescription and potential interruption to the delivery of the proposed project. However, the outcome of this is that we cannot be certain that the impacts of the project would be limited, in terms of the duration of works or temporary land take and restoration, particularly in public spaces such as King Edward Memorial Park and St George's Park, and we therefore have had to weigh this in our assessment of impacts as set out above and in our final conclusions.
- 20.27 Our recommendation is that the drafting in relation to completion of construction and the related site-specific requirements is necessary for identifying the period when construction impacts will arise and when certain powers cease, and should be applied as drafted by the Applicant (APP204.02).

Environmental Statement

- 20.28 We raised the question of the need for a definition of Environmental Statement (ES), and environmental information relied on by the Applicant at the first IS hearing relating to the DCO held on 26 and 27 November 2014. The Applicant acknowledged this and agreed to include a definition in its next iteration of the DCO (APP34.00).
- 20.29 The definition was first introduced in the 13 January version of the DCO (APP75 2). The final definition (APP204.02) incorporates both the ES as submitted, errata to that statement and the Environmental Statement Update Report (APP208.01) which documented and incorporated much but not all of the additional environmental information.
- 20.30 Overall, the introduction of the definition of 'Environmental Statement' was broadly supported. There were however, still environmental impact and mitigation issues outstanding at the close of the examination as particularly set out in chapter 12 (Noise and Disturbance) and it appears on the face of the documentation provided that there are some omissions relating to additional baseline measurements from the Environmental Statement Update Report³⁶⁴.
- 20.31 The definition is particularly important given the Applicant's introduction of a 'not environmentally worse than' (NEWT) policy within the Code of Construction Practice (CoCP) Part A, which is secured through project-wide Requirement PW6.
- 20.32 Our recommendation is that the drafting in relation to the Environmental Statement is necessary and should be applied as drafted by the Applicant (APP204.02). If during determination the Secretaries of State request or rely on any additional information submitted then it should be expressly identified in this definition, to ensure the definition is adequate and comprehensive.

Maintain

- 20.33 The definition of maintain was raised in a wide range of submissions and strongly debated by Interested Parties throughout the examination. Objections remained at the close of the examination.
- 20.34 During the examination we asked an initial written question (PD008, Q6.9) on the extent of and necessity for such a wide definition. We continued by asking oral questions regarding maintain and sought responses on this from Interested Parties at each of the IS hearings relating to the DCO.

³⁶⁴ In the terms of incorporation of any other information in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263)

20.35 The definition of maintain finally requested by the Applicant (APP204.02) is:

'maintain' includes maintain, inspect, repair, adjust, alter, remove, clear, refurbish, reconstruct, decommission, demolish, replace or improve the authorised project, so that it is fit for the purpose for which it was originally constructed and 'maintaining' and 'maintenance' shall be construed accordingly'

The Applicant's case for the definition of maintain

20.36 The Applicant's response to our Q6.9 (APP06) provided details of the position in support of the definition of maintain as follows:

'9.1.1 a) The wide definition is justified due to the scale and nature of the project and the wide range of works, sites and circumstances which are dealt with by the single Draft DCO Compare (Doc ref: 9.20). It should be noted that as with other DCOs, the definition is not exclusive in any event.

9.1.2 The definition is necessary to give full effect to the articles within the order, and is justified by the need to ensure that the undertaker has all the powers it requires to ensure that the authorised project is maintained and that the asset is protected.

9.1.3 There is precedent for such wording, as seen for example in the Rookery South (Resource Recovery Facility) Order 2011 which defines maintain as: 'includes maintain, inspect, repair, adjust, alter, remove, clear, refurbish, reconstruct, decommission, demolish, replace and improve and "maintenance" is to be construed accordingly'.

20.37 The Applicant continued in this submission to set out examples against each of the words within the definition (APP06 para 9.1.4, a to k).

20.38 The Applicant also explained the extent of the definition as now applied and the controlling mechanisms within the drafting (APP06 para 9.1.5 to 9.1.11).

20.39 The Applicant responded to Interested Party representations in relation to maintain by reference to its answer to Q6.9 and further explanation particularly in response to the City of London's written representation (APP31.12).

20.40 The Applicant maintained this position throughout the examination, although it did concede limiting words within Article 5 as follows:

'5. The undertaker may at any time maintain the authorised project, except to the extent that this Order provides otherwise, and for the avoidance of doubt the power of maintenance provided by this article does not constitute the grant of development

consent for any development not authorised by article 3 (development consent etc. granted by this order)' (APP204.02).

- 20.41 The Applicant also explained in general terms, at each IS hearing held about the DCO when this matter was raised (HEA043, HEA096, HEA135, and HEA153), that PA 2008 is intended to be a single consenting regime. Therefore there is a need for a wide range within the definition for the operation and continuity of the project once implemented, especially for infrastructure with such a long projected operational time period. The Applicant's final position is explained in drafting notes on the updated DCO as issued on 3 March 2014 (APP177.01).
- 20.42 In its final written response to the City of London, the Applicant set out a further response (APP198.07, section 1.2, table 1.1, row 1.2.2) stating that it did not consider that the City of London's concerns are well-founded, or that its suggested drafting was appropriate, for the reasons summarised. The Applicant also noted the quotation from 'Craies on Legislation' on which the City of London relies and provided a further explanation of their consideration of this matter.

Objections to and representations about the definition of maintain

- 20.43 Substantive objections to the Applicant's definition of maintain were made and sustained throughout the examination including at the close of examination by the London Borough (LB) of Tower Hamlets; City of London; LB Wandsworth; LB Southwark; LB Hammersmith and Fulham; and Historic Buildings and Monuments Commission for England (with regard to the continued inclusion of the term 'demolish').
- 20.44 City of Westminster's LIR (REP089) identifies potential difficulty with the breadth of the definition and relationship with the implementation of street works and requests that the words 'decommission, demolish, remove, clear, alter, remove, and replace' should be removed.
- 20.45 In response to our Q6.9 a number of the local authorities refer to responses in their written representations as referenced below. LB Southwark (REP105) identifies in its table of responses at section 6.9 that the definition of maintain is too wide and is neither justified nor necessary as it goes far beyond the concept of maintenance. It continues by referring to Article 5 and the need to remove the words 'remove, clear, reconstruct, decommission, demolish, replace and improve' from the definition as all these works should be subject to further consenting if they occur.
- 20.46 Written representations from a number of local authorities raised objections to the definition of maintain in Article 2 and related provision in Article 5. Two representative examples which cover

the matters raised can be seen in LB Tower Hamlets' written representation (WRR097, para 5.1.1) and City of London's written representation (WRR066, para 20 and 35 to 46).

- 20.47 The City of London acknowledges (REP330, para 17) that: *'Having taken these factors into account, the COL acknowledges that the revised 13 January DCO has cut down the scope of the work which could be carried out within the wide definition of 'maintenance'. In addition, we would accept there is scope for arguing that certain of the requirements will apply to any maintenance works in the nature of demolition and reconstruction. However, we feel that the means by which we get to this conclusion within the drafting is tortuous. Furthermore the issue is open to doubt. We still take the view that it would be preferable if the various phases of the project construction were separately defined and the planning and environmental controls that apply to each were clearly spelt out.'*
- 20.48 The City of London in its final written submission on 11 March 2014 set out an alternative definition of maintain (REP481, COL24, Annex A) as supported in (REP435, COL22, para 32) as follows: *"Maintenance' includes works of maintenance (properly so called) in the form of inspection, repair, adjustment, alteration, removal, clearance, refurbishment, decommissioning, replacement, or improvement; and 'maintain' and 'maintaining' shall be construed accordingly.'*
- 20.49 The LB Southwark in its written submission for 3 March 2014 set out its position on the definition of maintain and related Article 5 (APP449, Section 10, Draft Development Consent Order) stating: *'The definition of maintain is slightly improved by the 'fit for purpose' wording but the basic objection remains that it is far removed from the ordinary meaning of maintain and indeed the model provision on which it is based. Detailed reasoning on this point was contained in the council's written representations and its submissions of 2 December (see in particular 3.6.2(c) and (d)). Suggested drafting is included in the enclosed mark up of extracts of the DCO. The amendment to Article 5 is necessary to avoid circularity in the reference to Article 3 and the definition of authorised project, which includes maintenance, as discussed at the issue specific hearings.'*
- 20.50 The wording LB Southwark sought was as follows: *"maintain' includes inspect, repair, adjust, alter, remove or refurbish, the authorised project, so that it is maintained as fit for the purpose for which it was originally constructed, and 'maintaining' and 'maintenance' shall be construed accordingly.'*
- 20.51 Other representations (for example LB Tower Hamlets and LB Wandsworth) were received on 3 March and 11 March 2014 continuing to state that the definition is too wide, should exclude works outside the authorised project and should be amended or

deleted and the normal meaning of maintain be relied upon (REP492, REP493, REP447).

Conclusions and recommendations about the definition of maintain

- 20.52 The Applicant supports its submission and starting point from the model provisions and other Parties state that the definition of maintain is not in the Model Provisions³⁶⁵.
- 20.53 The Model Provisions, schedule 1 General model provisions provides no definition, but does provide a model article for the maintenance of the authorised project as follows: '*3 The undertaker may at any time maintain the authorised project, except to the extent that this Order or an agreement made under this Order, provides otherwise.*'
- 20.54 The Model Provisions, schedule 2 Model provisions for railways, provides a definition as follows: '*'maintain' and any of its derivatives include to inspect, repair, adjust, alter, remove, reconstruct or replace the authorised project and any derivative of 'maintain' shall be construed accordingly.*' The related article is set out at model article 5 and reads the same as 3 above in the General model provisions.
- 20.55 We do not automatically accept that the use of drafting from the Model provisions for railways is an appropriate starting point for drafting relating to the construction of infrastructure for the transfer or storage of waste water.
- 20.56 The precedent Development Consent Order of Rookery South (Resource Recovery Facility) Order 2011 is referenced and relied upon by the Applicant. However, that was an energy project, in a different environment and setting and was not linear in nature. The definition of 'maintain' has been questioned and debated widely in subsequent Nationally Significant Infrastructure Project (NSIP) cases relating to a wide range of infrastructure under PA 2008. To date there have been no other applications applied for and considered through examination in relation to a project for the construction of infrastructure for the transfer or storage of waste water.
- 20.57 Although we had regard to the starting position set out in relation to both the Model Provisions and the precedent Order relied upon by the Applicant, we consider it appropriate to look at the nature and circumstances of this particular proposed project and the representations that have been made on this application. Neither the Applicant nor Interested Parties provided any precedent cases from existing infrastructure for the transfer or storage of waste water projects.

³⁶⁵ The Infrastructure Planning (Model Provisions) (England and Wales) Order 2009

- 20.58 We understand the need to have regard to the scale and nature of the project, the wide range of works, sites and circumstances which are dealt with by the single DCO and the need for it to be operationally maintained over a long time period.
- 20.59 We note that the qualifications now drafted into both the definition and related maintenance Article 5 are broadly supported, although do not satisfy all Parties with regard to breadth and extent of works that could be undertaken.
- 20.60 We have considered each of the examples that the Applicant provides (APP06), referred to above, and acknowledge that in the context of this particular DCO it is possible to consider those examples as constituting maintenance within its normal meaning. However, it is equally possible to consider matters that may well be taken within the widest interpretation of the definition sought by the Applicant which may not be.
- 20.61 Therefore we need to look at how the Applicant has responded and the checks and balances now proposed and consider if this provides adequate certainty and control in the context of this DCO.
- 20.62 The matter could easily be resolved in our view by removing the definition and relying on the normal meaning of maintenance as requested by a number of Parties and set out by the City of London (REP435). The Secretaries of State might very reasonably choose this option.
- 20.63 However, our final recommendation on this matter is that in order to provide operational certainty and continuity, it be accepted, on balance, that the project would benefit from a specific definition of maintain. This should be consistent with other NSIP projects and the application of PA 2008 to date. In coming to this conclusion we have had regard to the scale, likely duration and nature of this particular project and the wide range of works, sites and circumstances which are dealt with by the single DCO in a complex, predominantly urban, environment.
- 20.64 We do have concerns about the potential for significant further work to be carried out as 'maintenance' and the fact that any such work would not be subject to the detailed specifications and requirements laid down by the DCO and the associated documentation in respect of the initial construction phase.
- 20.65 In relation to this we asked the Applicant (at IS hearing, 21 February 2014, HEA154 to HEA158) about any potential control mechanism particularly in relation to the programmed ten yearly maintenance. We received the response that there was no such control proposed as the Environmental Assessment undertaken

indicated there would be no significant effects³⁶⁶ therefore following the outcome of this assessment, no control or mitigation was required and other statutory controls³⁶⁷ should be relied upon. No significant effects are also the Applicant's assessed outcome for regular maintenance. We note that disapplication of statutory nuisance does not now extend beyond completion of construction and therefore statutory nuisance would apply to maintenance works.

- 20.66 We acknowledge and have regard to the limitations now offered by the Applicant in seeking to tie the definition and Article 5 to the terms of the project and Order applied for and environmentally assessed as set out above.
- 20.67 The concern arises because maintenance would be carried out after completion of construction. Many of the requirements within the DCO, such as that relating to CoCP Part A, secured by project-wide Requirement PW6, only have effect until completion of construction. The 'not environmentally worse than' (NEWT) commitment by the Applicant is only secured by this mechanism and therefore would not apply to any maintenance carried out after completion of construction.
- 20.68 We also note the submissions by the City of London with regard to the need for further control in relation to Associated Development and this is dealt with under consideration of project-wide requirements below.
- 20.69 On balance, having regard to all submissions, we propose an approach that seeks to have regard to the concerns of the Interested Parties and provides the Applicant with a definition that allows the normal operation and maintenance of the proposed project, whilst also ensuring that any activity or work carried out as maintenance is within the extent of significant impacts assessed.
- 20.70 Our proposed alterations therefore remove the term 'decommission', which as the Applicant submits is one of the wider parts of the definition and *'only intended to apply in relation to associated development, such as, for example, the decommissioning of a pump, but is not intended to allow, for example, the decommissioning of the main tunnel (Work No 1, which is part of the NSIP as listed at Schedule 1 to the DCO)'*. As all matters that could be considered as maintenance can be undertaken within the other terms set out in maintenance we believe on balance that it is better to remove any uncertainty that decommission could be applied more widely.

³⁶⁶ The ES states that given the infrequency of the operation, it is considered that a significant noise effect would not occur (eg Doc 6.2.01 paragraph 2.2.83 and Doc 6.2.21, para 9.6.11 for KEMP)

³⁶⁷ Statutory nuisance as s61 would not apply

20.71 We also propose that Article 3 be amended to remove the words *'the requirements in'* simply leaving the text as *'Subject to the provisions of this Order and to Schedule 3 (requirements) and Schedule 16 (protective provisions) to this Order the undertaker is granted ...'* This means that in relation to the approved environmental envelope and associated ES issues as addressed by Schedule 3, paragraph 1(3) (APP204.02) these matters are expressly included within Article 3 by the drafted reference to Schedule 3 as a whole not just the requirements therein. Although this approach has limitations (as we identify when we consider the use of 'not environmentally worse than' in chapter 12) it goes some way to provide assurance and address the main practical concerns on the matters raised by the local authorities who still oppose the breadth of the definition and relationship with Article 3 and 5.

General

20.72 Throughout the examination there were continued submissions from local planning authorities and questions from the Panel on why there was the need for a differentiation between major and minor requirements. In the final submission (APP204.02) the Applicant confirmed the removal of the definitions 'major detailed' and 'minor detailed' requirements resulting in a single requirement process with one standard agreed eight week discharge timescale. In having regard to this change we are satisfied that the final drafting is adequate.

20.73 New definitions were added at different stages of the examination and through the iterations of the DCO. In the final form submitted by the Applicant (APP204.02) the Applicant included new definitions for 'mean high water level', 'the river', 'special administration', and 'Thames Water Utilities Limited', in addition to the matters set out above. We consider that all of these new definitions are necessary and we are satisfied that this drafting is adequate.

20.74 Article 2(4) refers to approximate measurements. Although the principle of using approximate could in some circumstances give rise to uncertainty, in terms of this application and DCO we are satisfied that the works would be adequately controlled through the limitations contained within the plans, articles, requirements and schedules, and through the addition of an express reference to the authorised project. This approach would maintain necessary flexibility to allow for the detailed design and implementation of the project.

20.75 Overall, we have considered other submissions regarding changes to definitions, the inclusion of additional definitions and qualifying additional words, but do not find that these are necessary on the basis of the representations received and the responses provided by the Applicant to those submissions.

PART 2 WORKS PROVISIONS

Principal powers

Article 3 Development consent etc granted by the Order and Article 5 Maintenance of authorised project

- 20.76 A number of local authorities raised matters in relation to Article 5 for the maintenance of the authorised project and the interaction with Article 3 for the development consent etc granted by the Order.
- 20.77 The exploration of these matters and conclusions are set out in relation to Article 2 the definition of maintenance above.
- 20.78 The only outstanding matter that we address now relates to the City of London's representations (REP481 and REP435, para 43) which state that: *'Article 3 gives development consent to [q maintenance]. So one now has to consider what is [q maintenance] and what controls (if any) apply within the DCO to the carrying out of [q maintenance].'*
- 20.79 The City of London further consider that: *'[q maintenance] is constrained by two things (in addition to any applicable requirements). Firstly, the definition of maintenance, which we have already addressed above; and secondly the environmental statement (which itself is a newly defined term). Maintenance that gives rise to any materially new or materially different environmental effects from those assessed in the environmental statement is not [q maintenance]. Otherwise, it is.'*
- 20.80 We agree with the City of London that this has the potential to bring an element of Associated Development maintenance expressly within the 'authorised development' rather than as with all other maintenance which is dealt with through Article 5. We therefore recommend the deletion of [q maintenance] in full from *'And in connection with Works Nos 1 to 27'*.
- 20.81 This recommended deletion also removes the need for the proposed additional qualifying drafting submitted by the City of London (REP481 and REP435).
- 20.82 We are satisfied that the proposed amendments we recommend as set out above and the qualifying amendments already set out by the Applicant in combination provide adequate limitations, without over prescription, and address the main practical concerns raised.

Article 7 Defence to proceedings in respect of statutory nuisance

- 20.83 At the outset of the examination there were a number of submissions in relation to Article 7 particularly in relation to its initial application to maintenance, as referenced in our Q6.13.

- 20.84 The representations made by LB Southwark (4 November 2013 (WRR075), 2 December 2013 (REP197), 13 January 2014 (REP237) and 3 March 2014 (REP449)) set out representations in relation to the changing terms of Article 7 and broadly represent a number of submissions made, particularly by local authorities.
- 20.85 A number of amendments have been made to Article 7. In particular, the defence would now only apply during the construction phase. The drafting now proposed by the Applicant is broadly agreed.
- 20.86 In coming to our recommendation we have had regard to the principles under PA 2008 in relation to common law nuisance and statutory nuisance as set out at NPS section 3.11 and considered in chapter 16 above.
- 20.87 Our recommendation is that the drafting in relation to Article 7 is now proportionate and addresses the main practical concerns raised and should be applied as drafted by the Applicant (APP204.02).

Benefit of Order

Article 8 Benefit of the Order and Article 9 transfer of the benefit of the Order

- 20.88 Substantive objections to the Applicant's transfer provisions were made at the outset of the examination particularly with regard to financial certainty, nature of the transferee and liabilities and performance of the DCO and related documents. An example of this is set out in the Port of London Authority (PLA) written representation (WRR083, section 5) and in Transport for London's (TfL's) written representation (WRR092, section 20).
- 20.89 We sought clarity on the transfer of the benefit of the Order and the related financial and delivery matters and received oral submissions from the Applicant (28 November CA hearing HEA049 to HEA051) and a written summary following the hearing (APP42.1).
- 20.90 At the CA hearing (28 November 2013), TfL pressed for assurances and certainty with regard to any third party Infrastructure Provider (IP) or transferee's financial means to meet any liabilities and the need for guarantees from the Secretaries of State and Applicant to safeguard their position. This is more fully explored and reported on in chapter 19 above.
- 20.91 By the close of the examination there was broad agreement that the Benefit and Transfer provisions, as amended to exclude the compulsory acquisition (CA) articles and to provide express further safeguards by the Secretaries of State when considering any transfer, provided satisfactory drafting. An example of this is TfL's confirmation of withdrawal of its representation against Article 9

(REP498). However, the City of London maintained an objection in part (REP435 and REP481) to Article 9 in relation to the circumstances of the transfer between an IP and some replacement IP/transferee in the case of insolvency and the matter of any accrued liabilities.

- 20.92 The Applicant's response to the outstanding submissions of City of London (APP198.07, table 1.1, 1.2.8) explains its intention to *'put in place a comprehensive insurance policy covering the main contracts and the interfaces between them. That policy will be non-cancellable and will remain in place even in the unlikely event of the Infrastructure Provider's (IP's) default or insolvency. So, whether or not a replacement IP is willing to pick up accrued liabilities (and that will be a matter for negotiation at the time), there will be insurance proceeds available to cover claims by third parties for damage arising from the works. We have proposed that an obligation to maintain this insurance be included in the asset protection agreement when it is entered into.'*
- 20.93 We note this explanation and offer and we would like to see it secured. At the close of the examination we had no confirmation or documentation that identified that such an asset protection agreement had been entered into, or that such an insurance had been included and secured. Therefore, we have been unable to give this any weight. If this can be secured or guaranteed and put before the Secretaries of State before determination this would provide additional certainty that would meet the City of London's outstanding concerns and address the original security of funding issues raised by other Interested Parties.
- 20.94 Notwithstanding the above we do not propose any amended drafting as we conclude (as set out in chapter 19 above) that there is adequate information with regard to the NPS and PA 2008 test concerning the funding of the project and potential liabilities and related transfer provisions, including provisions under Regulation³⁶⁸. In coming to this conclusion we have relied on the funding statement as updated (Doc 9.10.06), response to our written questions Q4.106, Q4.107, Q4.108 and Q4.109 (APP04) and the submissions of the Applicant with regard to the explanation of the IP and the related Regulations and safeguards within the wider transfer.
- 20.95 Our recommendation is that the drafting in relation to Article 8 and 9 when read alongside other DCO drafting amendments is now proportionate and addresses the main practical concerns raised and should be applied as drafted by the Applicant (APP204.02).

³⁶⁸ The Water Industry (Specified Infrastructure Projects)(English Undertakers) Regulations 2013 (SI No.1582/2013) (SIP Regulations)

Streets and traffic regulations

- 20.96 Matters relating to street and traffic regulations were the subject of significant and sustained representations and objections by a wide range of Interested Parties and in particular the relevant highways authorities. This is reflected and set out in both written representations and LIRs. A key issue is whether the London Permit Scheme (LoPS), relating to the authorisation of works in the highway, should apply to the proposed development.
- 20.97 The Applicant has strongly and consistently promoted a bespoke process with all powers being incorporated into the provisions of the DCO in accordance with the principle of the single consenting regime of PA 2008. This is set out in response to Q34.2 (APP61) and was explored at each of the IS hearings in relation to the DCO and Transport and Traffic. The Applicant provided a written summary of its case put orally at the Transport and Traffic IS hearing, which sets out matters in relation to the management and coordination of works affecting the highway in Section 8 (APP102.05). This submission also references the precedent cases of Crossrail, Victoria Station upgrade and the Northern Line Extension.
- 20.98 TfL also provided a summary of submissions made at hearings setting out its continued wish to retain LoPS and its concerns about the disapplication of highway powers (REP351) which is representative of the issues raised.
- 20.99 As set out in chapter 14, the absence of agreement with Transport for London (TfL) and the other relevant highways authorities is unfortunate and leaves many unresolved highways issues that go to the drafting of the whole of Part 2, Works Provisions, Streets and traffic regulations which includes Article 10 to 18 inclusive.
- 20.100 As set out in summary in the final written response of 11 March 2014 from TfL (REP498), TfL is concerned that: *'the submitted draft DCO seeks to disapply existing highway and traffic legislation and, unless satisfactory alternative process is put in place, the effect this could have on our assets and ability to deliver our services and duties as a highway authority, traffic, and public transport authority.'* These concerns were echoed by a number of local highway authorities for example as set out in LB Wandsworth's submissions (REP238 and REP448) and by LB Southwark (REP449).
- 20.101 We made it clear to all Parties at both the IS hearing in relation to Transport and Traffic and in the final IS hearing in relation to the DCO that there would be a need for confirmation of agreement to and acceptability of a bespoke scheme in relation to streets and traffic regulations and in particular the application or not of LoPS.

20.102 As set out in chapter 14, if the Secretaries of State can be satisfied that such confirmation and agreement has been reached (after the close of examination) with TfL and the relevant highways and street authorities, and if suitable amended drafting for the DCO is provided, then we would support a bespoke approach incorporated within the DCO in the construction phase.

20.103 The Panel notes that in LB Southwark's final submission of 11 March (REP491, section 9, page 21 and 22), it *'has not been possible to reach agreement on the points on street works and highways raised in the Council's previous submissions. As detailed at Section 10 of its submission of 3 March 2014, the Council does not consider the disapplication of highways and street works legislation under Schedule 19 of the DCO to be either necessary or useful. However, in the interests of reaching agreement with the Applicant, the Council has broadly accepted the Applicant's proposals, subject to the amendments to the DCO set out in the document attached to this submission (made to the previous draft since the relevant sections have not changed in the 3 March draft). These amendments are designed to ensure the Council has the ability to comply with its statutory duties properly to co-ordinate works affecting the road network.'*

20.104 We therefore considered this position carefully, but the suggestions in the LB Southwark's submission for the 3 March 2014 (REP449) are themselves unclear. As such the Panel is not able to recommend amendments to the DCO that bring about LB Southwark's desired changes that would be necessary to ensure the Council has the ability to comply with its statutory duties properly to co-ordinate works affecting the road network.

20.105 In the absence of such agreement and certainty, therefore, we would recommend that certain disapplication powers are not confirmed, and that amended drafting within the streets and traffic regulations articles is applied. Whilst we understand the concerns raised, no Party provided alternative drafting. Therefore, we have sought to modify the DCO to have regard to all representations made and to make these changes have effect. This is as now provided in our final recommended DCO (appendix F).

Amendments giving effect to the London Permit Scheme

20.106 We set out in this section the basis for the detail of our recommendation to give effect to the LoPS within the drafting of the DCO.

20.107 LoPS was brought into effect by individual Order in each London traffic or street authority area by way of relevant provisions under the Traffic Management Act 2004 (TMA) and the Traffic Management Permit Schemes (England) Regulations 2007 (TMP Regulations). Every London highway authority (including TfL) has its own LoPS, therefore, but the provisions of the LoPS in each

case are the same (it is what is known as a 'Common Permit Scheme'). The LoPS itself disapplies and modifies a number of provisions (see LoPS Appendix B) including in particular a number of provisions under the New Roads and Street Works Act 1991 (NRSWA). This is because it replaces the 'notice system' under the NRSWA whereby utility companies inform the relevant authorities of their intentions to carry out works in their areas.

- 20.108 The LoPS itself disapplies Sections 53-57 of the NRWSA which relate to the 'duties of activity promoters' (such as the Applicant which is entitled, by virtue of it being a sewerage undertaker under the Water Industry Act 1991, to carry out street works or road works) and those of relevant authorities. These duties are 'replaced by equivalent duties imposed under Part 3 of the TMA and the Regulations'.
- 20.109 Section 59 of NRSWA places a duty on highway authorities to co-ordinate works of all kinds on the highway and there is a parallel duty on undertakers to co-operate in this process under s60 of NRSWA.
- 20.110 The LoPS is designed to control the carrying out of specified works in specified streets in a specified area which are 'registerable works'.
- 20.111 The DCO refers to a number of works that involve matters involving works to the fabric or which affect the use of highways by the public.
- 20.112 Schedule 4 lists the streets and the sites which are proposed for 'Street Works' which are related solely to Article 10. Article 10 gives power to the undertaker to carry out certain types of work within the order limits (Article 10 (1)) and it also gives the undertaker power to enter onto streets not within the order limits to carry out the same works although this is made 'subject to the consent of the street authority' (Article 10 (2)).
- 20.113 Thereafter Schedule 5 lists works involving alterations to the layout of the street by reference to a description of the alteration proposed and the relevant site. This schedule refers solely to Article 11. Schedule 6 lists streets that are proposed to be stopped up and relates solely to Article 12. Schedule 7 lists public rights of way and permissive paths proposed to be extinguished and relates to Article 14. Schedule 8 lists those highways required to be temporarily stopped up under the powers proposed in Article 15 with reference to the construction works sites and Schedule 9 lists access works required in respect of listed construction works sites and relates to Article 16. Lastly, Schedule 10 sets out those highways where changes to traffic regulation is required both temporarily and permanently in accordance with powers sought under Article 18.

- 20.114 In addition, Schedule 19 headed Miscellaneous Controls relates to Articles 56 and 57 and seeks to apply, modify and exclude certain public general legislation (Part 1) and local legislation (Part 2).
- 20.115 In relation to the Highways Act 1980 Schedule 19 refers to s141 (restriction of planting trees in or near the carriageway); s167 (related to retaining walls near streets) and s169(1), s172 and s173 which relate to the control of scaffolding and hoardings on highways during building.
- 20.116 In relation to NRSWA Schedule 19 disapplies s56(1) and (1A); 56A; the restriction under s58(1); s61(1) and s62 (2) in respect of placing and keeping apparatus in a protected street; s62(4); s63(1); s74 and s74A; and certain aspects of Schedule 3A of NRSWA.
- 20.117 In relation to the TMA paragraph 5 of Schedule 19 to the DCO disapplies section 32 to 39 (in other words Part 3 of the TMA).
- 20.118 In the Explanatory Memorandum (Doc 3.2) to the draft DCO which accompanied the Applicant's original DCO (Doc 3.1) the Applicant explains that it has followed the DCO Model Provisions in drafting the DCO but, 'where appropriate for the circumstances of the Project, there are divergences from these' (Doc 3.2, para 1.9).
- 20.119 With regard to Article 10, which remains largely unchanged from the original draft DCO, the Explanatory Memorandum in Part 2 states that Article 10 *'follows Article 8 of Schedule 1 to the DCO Model Provisions and would confer authority on the undertaker to interfere with and execute works in or under certain streets, which are specified in Schedule 4 (streets subject to street works) and on other streets within or outside of the Order limits for the purposes of the authorised project'*. In addition, the document explains that *'The authority given by this article is a statutory right for the purposes of sections 48(3) (streets, street works and undertakers) and 51(1) (prohibition of unauthorised street works) of the New Roads and Street Works Act 1991. The list of the types of works has been expanded from the Model Provision article 8(1). Article 10(1)(e) includes the right to demolish, remove, replace and relocate a bus shelter and other bus stop infrastructure. Article 10(1)(f) includes the right to provide or improve sight lines required by the highway authority. Article 10(1)(g) includes the right to provide and maintain hard or soft landscaping measures in the street. Article 10(1)(h) includes the right to carry out re-lining and the placement of temporary markings.'*
- 20.120 Leaving aside the other highways related articles and provisions within the DCO, the inclusion of matters within Article 10 which are not strictly street works as reflected in the LoPS means that in order for its provisions to be retained for relevant streets works in relation to the 'authorised project' subsequent to the DCO being made, not only would the references within Schedule 19 to the

disapplication of s32 to s39 of the TMA need to be deleted but also it would be necessary to differentiate in the DCO between those highways related works which are covered by LoPS and those which are not.

20.121 The Panel has considered this carefully and, in the circumstances rather than try to disaggregate all possible references within the DCO of works that would need to be subject to the LoPS, the more effective way would be to amend the relevant articles by inserting the following exception to the powers set out in Articles 10, 11, and 16: *'other than in respect of specified works subject to the LoPS as applied by the highway authority in whose area the undertaker seeks to carry out such works.'* When this is combined with our proposed deletion of the disapplication of s32 to s39 of the TMA it has the effect of reintroducing LoPS.

20.122 In addition, we consider that specific reference ought to be made, in the event that the Secretaries of State consider these proposed amendments should apply, to the LoPS within Article 2 as follows: *'the 'LoPS' means the London Permit Scheme for Roads and Street Works made pursuant to Part 3 of the Traffic Management Act 2004 ('TMA') and the Traffic Management Permit Schemes (England) Regulations 2007 and which applies to a highway authority.'*

Article 14

20.123 The City of London made representations with regard to the drafting of Article 14 (REP435 and REP481). We agree that it is an important issue. We agree with the City of London's submission that the usual approach where stopping up occurs is to provide an alternative (and that there must be good reason to not do so) and the Applicant in our view has given no good reasons why this should not apply here.

20.124 The Applicant's response to the City of London was that Article 14 should be read with site-specific requirements. However, this does not provide any guarantee of timing of provision, as identified by City of London in their response (REP481).

20.125 Although we consider on balance that the point made by the City of London in relation to prescriptive rights is sound we do not wish the removal of 'permissive rights' from the drafting to have any unintended consequences with regard to the areas to be stopped up. We therefore confirm our agreement with the recommended changes to the drafting in Article 14 as set out by the City of London (REP481) except for the deletion of the reference to permissive paths.

20.126 We also consider that this recommended drafting overcomes the concerns set out by the Applicant (APP198.07) in relation to

dealing with this matter through an agreement that cannot be enforced.

Supplemental powers

Article 21 Remedial works to buildings, or apparatus or equipment

- 20.127 Consideration of the extent of the power in relation to remedial works to buildings, apparatus and equipment within and outside the Order limits was explored in general terms through oral questioning at the IS DCO hearings by the ExA (HEA043 to HEA048, HEA96 to HEA100, HEA135 to HEA142, and HEA153 to HEA158).
- 20.128 The City of London maintained specific representations in relation to the power and extent of the drafting in its submissions of 3 and 11 March 2014 (REP435 and REP481) that go to the timing and extent of works and in particular the interrelationship with the extent of the drafting in Articles 3 and 5.
- 20.129 As set out in relation to the definition of 'maintain' and consideration of Articles 3 and 5 above, we have sought to address these concerns by limitation and qualification of the defined extent of maintenance and through the removal of maintenance as allowed for in (q) as Associated Development which the Applicant sought to bring within the definition of authorised development. This results in the unintended potential widening of certain provisions, for example, potentially overriding the five year period intended and leading to the concerns and risks identified by the City of London.
- 20.130 Our recommended approach of the limitations and amendments set out above taken in combination recognises the concerns raised by Interested Parties and take account of the Applicant's response (APP198.07) providing a proportionate response that addresses the main practical concerns raised.

Article 24 Cemex

- 20.131 This Article and the associated described Work No 13b(ii) have been added by the Applicant in agreed form with Cemex and LB Wandsworth to address the relationship between the DCO and the potential implementation of an extant planning permission in relation to the provision of a permanent concrete batching plant and to ensure that there is no uncertainty arising from the existence of two parallel consents for these works.
- 20.132 Our recommendation is that the drafting in relation to Article 24 addresses the main practical issues raised with regard to the relationship of an extant planning permission and implementation of the proposed DCO in relation to Work 13b(ii) and should be applied as drafted by the Applicant (APP204.02).

Articles 25, 26 and 27 Felling or lopping of trees

- 20.133 The three articles all relate to powers to do work to trees, both protected and otherwise.
- 20.134 Article 25 provides an open power to fell or lop trees or shrubs and to cut back roots save in respect of trees and shrubs which come within Article 26.
- 20.135 After the Applicant confirmed that an article for the protection of trees in conservation areas would be added we requested that Article 25 should also have regard to this additional exclusion. This has not been given effect in the Applicant's final DCO (APP204.02) and it appears to us that as drafted Article 25 could result in conflict with Article 27 unless a further exclusion is applied. Therefore we recommend a minor change to Article 25 to add a further saving provision in relation to Article 27 to ensure works to trees and shrubs in conservation areas are considered as set out in Article 27 and not Article 25. This is proposed to be given effect by inserting in Article 25 the words '*or article 27 (trees in conservation areas)*' after '*article 26 (trees subject to tree preservation orders)*'.
- 20.136 We agree with the position set out in submissions by the City of London (REP435 and REP481), it appears to us that the Applicant's drafting gives insufficient protection to trees subject to a tree preservation order in circumstances where tree roots may be cut back.
- 20.137 We therefore recommend a minor amendment to make the prior approval for trees subject to tree preservation orders relate to all works including the cutting back of roots. This fully addresses outstanding representations in relation to Article 26.
- 20.138 Article 27 was inserted following our questions relating to the apparent gap in relation to trees in conservation areas. We consider that this addition by the Applicant is necessary and addresses the omission we identified.
- 20.139 Our recommended minor amendments, set out above, taken in combination recognise the concerns raised by Interested Parties and provide a proportionate response that addresses the main concerns raised. They would give the articles practical effect. We therefore recommend that these should be applied as set out in our proposed drafting.

PART 3 ACQUISITION AND POSSESSION OF LAND

- 20.140 We explore the matters in relation to CA in chapter 19 above.
- 20.141 In coming to a conclusion on the powers of acquisition we have relied on the full submissions of the Applicant with regard to both

written and oral submissions put at the full range of CA hearings and confirmed in written summaries.

Temporary possession of land

Article 35

- 20.142 The single article which probably generated the most questioning, particularly at IS, DCO and CA hearings, is what is now referenced as Article 35 (originally Article 34). As set out in chapter 19 above we understand the precedent cases put by the Applicant, from the starting point of the Model Provisions, to a number of NSIP DCOs that have been through the full approval process and we note case law with regard to effect and interpretation. However, it is the practical effect and extent of the use of those powers in a dense urban environment with complex land and property interests that gives rise to concerns regarding the practical effect of such a power and its application, particularly in the context of human rights (dealt with in full in chapter 19).
- 20.143 We understand the approach of seeking to minimise the actual area of permanent land take for CA and the use of temporary rights to ensure that the minimum area is identified and required to be taken permanently. In principle, this approach is not at issue as it clearly addresses one of the main tests of PA 2008 in relation to land acquisition.
- 20.144 We note that the drafting now proposed by the Applicant (APP204.02) overcomes in practical terms many of the detailed submissions made by Interested Parties (for example the City of London written representation (WRR066)).
- 20.145 In recommending the drafting as proposed by the Applicant (APP204.02) in relation to the CA powers, our conclusions are set out in full in chapter 19 above.

Article 36

- 20.146 As set out in the City of London's final representations (REP435 and REP481) initially the City of London objected to the inclusion of Article 36 (originally Article 35). However, as a result of the City of London reviewing the extent of its interests potentially affected and the revisions made by the Applicant to the Article, the City of London no longer seeks its deletion. Some reservations are still maintained.
- 20.147 We have considered the alternative drafting set out by the City of London (REP481, Article 36 and REP435, para 97, 98 and 101) and on balance having regard to all submissions we do not consider it necessary for Article 36 to be qualified further. We therefore recommend that Article 36 should be applied as drafted by the Applicant (APP204.02).

Supplementary

Article 43

- 20.148 Article 43 relates to apparatus and rights of statutory undertakers in stopped-up streets. As set out in the comments in relation to the DCO by British Telecommunications Plc (BT) in its submission of 3 March 2014 (REP434) there are outstanding matters with regard to drafting in relation to Articles and protective provisions.
- 20.149 The cost-share differential referred to by BT³⁶⁹ is also referred to by the Applicant and we set both positions out below.
- 20.150 As BT sets out (REP434): *'TW wish to be treated as a statutory highway, bridge and transport authority when they carry out major works in certain circumstances. BT have pointed out to TW already that it does not see any reason as to why, purely for financial benefit, TW should be treated as if it were such an authority under the New Roads and Street Works Act 1991. Under the NRSWA 1991 and the associated Regulations, cost share applies to authorities, being 'highway, bridge or transport authorities' concerned with 'major highway works, major bridge ways or major transport works.'* Therefore, BT see no reason why the costs sharing and financial benefit provisions of Section 85 (or similar provisions) should be applied.'
- 20.151 The Applicant responded to the BT representations of 3 March 2014 in its submission of 11 March 2014 (APP198.06). In relation to cost share and deferment of renewal the response was: *'TW's approach to cost sharing reflects that adopted on other recent major infrastructure projects in London, including Crossrail and the Northern Line Extension. Although (as BT notes) TW does not technically fall within the NRSWA definition of an 'authority', the impact on BT is no different and TW does not see any reason why a similar regime should not apply to this project. TW has discussed the deferment of renewal provisions with all statutory undertakers and there are similar provisions in the other utility protective provisions. The provisions will only apply to the extent that a financial benefit is conferred on BT, so as to avoid BT receiving a windfall (at the expense of TW's customers) if it is provided with 'new for old' equipment. This is a standard provision in protective provisions relating to utility apparatus.'*
- 20.152 While we understand the matter being raised and the precedent cases being relied on by the Applicant, in our judgement the circumstances are not the same. Thames Water Utilities Limited, as it confirms and accepts, is not an 'authority' within the terms of the NRSWA.

³⁶⁹ within Articles 10, 11, 13 (which are subject to Article 43), 15 (which is subject to paragraph 5 of the protective provisions contained in schedule 16 of the DCO) and 48, where works take place within streets, section 85 of the New Roads and Street Works Act 1991

- 20.153 In the absence of agreement between the Applicant and BT with regard to the drafting of the DCO and in particular final protective provisions and asset protection agreement, we recommend the deletion of Article 43(7). This recommendation is due to the inappropriate application of such a power to a body not falling within the definition of 'authority' in the NRSWA.
- 20.154 We do accept and agree that the addition of reference to Schedule 16 applies to the Article as now drafted by the Applicant in Article 43(9). As a consequence of the deletion of Article 43(7) this would become Article 43(8).
- 20.155 Our recommended approach of the limitation and amendment set out above recognises the concerns raised by BT and takes account of the Applicant's response (APP198.06). In the absence of any evidence of further resolution and agreement between BT and the Applicant that may be put before the Secretaries of State we recommend that our amendment should be applied as set out in our proposed drafting. This proposed amendment addresses the concerns of a statutory undertaker as reported on in chapter 19 in relation to CA and related matters and should be read in conjunction with our reporting in relation to Schedule 16 of the DCO below.

Article 47

- 20.156 At the outset of the examination there were considerable concerns regarding public rights of navigation, powers and process to be followed under the DCO as particularly expressed by the Port of London Authority (PLA) (RRP1079 and WRR083). These matters are now the subject of agreement with the PLA through the drafting now set out in the articles and protective provisions in the DCO (204.02) and as provided for in the 4WLA (APP183).
- 20.157 Throughout the examination we received a wide range of representations from houseboat interests and communities (including: Nine Elms Pier, Livett's Launches Ltd at Putney Pier, Downings Roads Moorings, and Hermitage Community Moorings, all referenced in appendix C³⁷⁰).
- 20.158 As set out in submissions by Mr and Mrs Hale, consistently made at IS DCO and CA hearings and still maintained in final submissions (REP452 and REP495), there is a need to ensure that the effect of Article 47 on public rights of navigation does not have an unintended consequence of restricting the ability of houseboat communities to be serviced³⁷¹ and to maintain the ability to move

³⁷⁰ Including: Nine Elms Pier (Mark and May Hale WRR077 and RRP1113, Jamie Darke WRR046 and RRP012, Robert Tipping WRR082 and RRP1244), Downing Road Moorings (Tower Bridge Yacht and Boat Company WRR110 RRP and 1096, Laura Ivill WRR072 and RRP339, Steve Brown WRR103 and RRP1060), Hermitage Road Moorings (Lise Frandsen RRP326, Hermitage Community Moorings RRP626), Putney Pier (Livett's launches RRP137 and WRR104)

³⁷¹ Servicing a houseboat includes eg delivery of fuel

vessels. The proximity and relationship of the limits of land to be acquired or used (LLAU), particularly at Nine Elms Pier, makes this important.

20.159 The Applicant's response is set out in its written summary of the case put orally at the IS DCO hearing held on 21 February 2014 (APP158, section 13) and in its final written response (APP198.31). The Applicant refers to and relies on the updated CoCP Part B and the inclusion of additional information regarding access to houseboats, scour monitoring and re-establishment of the riverbed profile (APP178.24).

20.160 The addition within the CoCP Part B in relation to Kirtling Street incorporated the following commitment:

'The contractor shall liaise with Nine Elms Pier Ltd to identify and agree times when houseboats moored at Nine Elms Pier can be safely serviced by other river based service boats, and can safely leave and return to their moorings as is reasonably required for maintenance or other purposes. Where necessary tugs may be used to move the Nine Elms Pier houseboats. Unrestricted access shall also be provided for the emergency services to attend the houseboats by river. Where houseboats have been moved from the Nine Elms Pier moorings to facilitate the works, the contractor shall survey the river bed to identify the existing bed profile and shall reinstate the same bed profile, unless otherwise agreed, upon completion of his river based work at this site so that houseboats can return in due course. The contractor shall monitor for scour and accretion in the vicinity of the existing Nine Elms Pier houseboats and shall rectify any adverse scour or accretion that has resulted from construction of the works.'

20.161 We note this commitment from the Applicant and recognition of the practical needs of the houseboat community at Nine Elms Pier. However, even with this commitment within CoCP Part B for Nine Elms Pier we consider it necessary for provision to be made within Article 47 to provide certainty in relation to necessary access arrangements for unrestricted emergency services and servicing of houseboat communities and water-borne businesses - this would be consistent with CoCP Part B Kirtling Street, but provide a permanent commitment and allow for other businesses and communities on the water.

20.162 We therefore recommend the addition of the following provision to follow as a second part to Article 47(7):

'The undertaker shall also ensure that houseboats and business boats moored within or affected by the public rights of navigation that are temporarily suspended under this article can be safely serviced by river and can safely leave and return to their moorings as is reasonably required for maintenance or other purposes. Where necessary tugs may be used to move houseboats and

business boats. Unrestricted access shall also be provided for the emergency services to attend those houseboats and business boats by river.'

20.163 The DCO and supporting documentation relied on in the DCO have evolved throughout the examination. In relation to Article 47 this is broadly supported and we recommend that it should be applied as drafted by the Applicant (APP204.02) subject to the amendment set out above.

Article 48

20.164 As set out in relation to Article 43 above, BT has made representations in relation to cost share differential. In Article 48 this relates specifically to the application of section 85 of the NRSWA. This section of Article 48 which in general relates to the use by the undertaker of the subsoil to a street (as well as airspace above a street) seeks simply to apply the standard measures that a statutory undertaker would expect to apply in relation to any works which affect another statutory undertaker's apparatus.

20.165 The DCO and supporting documentation relied on in the DCO have evolved throughout the examination. In relation to Article 48 this is broadly supported and has been subject to wide commentary and amendment and should on balance be applied as drafted by the Applicant (APP204.02).

Part 2 and 3 Overall

20.166 Subject to the amendments set out above being given full effect, and when read alongside the other DCO drafting amendments, we believe the drafting now proposed in Part 2 and 3 is proportionate and addresses the main practical concerns raised and the remainder should be applied as drafted by the Applicant (APP204.02).

PART 4 MISCELLANEOUS AND GENERAL

Article 52

20.167 We note the outstanding issues identified by Transport for London (TfL) (REP 462, REP498 and APP215.01) in relation to the inclusion of Article 52 for the benefit of the 'undertaker' within the DCO.

20.168 TfL set out in response to our Q6.51 (WRR092) its concerns that *'operational land may be subject to Safeguarding Directions that have been made by and on behalf of the private company and which have not gone through the normal processes in terms of consultation and settlement of the requisite Directions made by the Secretary of State under the aforementioned Order. TfL does*

*not understand why the Applicant does not seek a direction under the 2010 Order.'*³⁷²

- 20.169 The Applicant in response to Q6.51 (APP06) (to what was then Article 51) made reference to an earlier letter setting out at paragraphs 1.4.1 to 1.4.9 its full position.
- 20.170 This Article was explored further in oral questioning and discussion at the IS DCO hearing held on 26 and 27 November 2013 (HEA043 to HEA048) The Applicant followed up its oral submissions at this hearing with a written oral summary, setting out in relation to safeguarding a number of comparative projects and commenting that:

'Bespoke general legislation would appear to be a disproportionate mechanism to protect the authorised development, and compulsorily acquiring excess land is clearly not a justifiable approach where the same objective can be met by alternative means not involving any impact on private rights; however a standard safeguarding direction under the DMPO would suffer the disbenefit of not sitting within the DCO and further would not benefit from the scope which S.120 of the Planning Act 2008 provides, which allows for article 51 to be drafted in the two step manner as at present – ie dealing with different stages and also with the provision of as-built drawings and guidelines to authorities to allow them to discharge their function with certainty. It is not clear that the DMPO would provide sufficient scope for this more evolved approach to safeguarding, and hence it would appear that article 51 is the only (and certainly most) proportionate approach to protecting the project.

Furthermore, as explained in the ISH, a particular advantage of having this provision in the DCO is that the Secretary of State would be able to make an appropriate safeguarding order at the same time as making a decision that it is appropriate that the project be constructed, operated and maintained. There would be no need for a further separate process, with the uncertainty and delay associated with that.'

- 20.171 In considering whether to recommend this power we are conscious that this is a substantial power for a private company to hold and would normally be reserved for the Secretary of State or other public body. However, it still leaves the consenting with the local planning authority but imposes an obligation to consult with the undertaker.
- 20.172 As set out by the Applicant we consider that Article 52 powers could certainly meet the test of being expedient with regard to timely delivery and therefore could be considered as appropriate

³⁷² Town and Country Planning (Development Management Procedure) (England) Order 2010

to be brought within the single consenting regime of the DCO. However, the question is should they?

20.173 We consider that the critical consideration is the need for the undertaker to have to manage a project of such complexity, scale and within a dense predominantly urban environment with a wide variety of property interests and rights above, on, in and under the ground. Therefore we consider that it is prudent, and on balance appropriate, to confirm this power as drafted by the Applicant (APP204.02).

Article 57 and 63

20.174 Both the City of London (REP435 and REP481) and BT (REP434) have outstanding concerns in relation to Articles 57 and 63. In particular these concerns relate to the use of arbitration as a default position to disputes relating to land rights and disapplication of legislation.

20.175 Although we understand the concerns raised, on balance we consider that the wording remaining in relation to arbitration, although not necessarily the best mechanism, is of assistance in the circumstances. In the absence of an alternative mechanism being proposed we confirm that the drafting in relation to Articles 57 and 63 should be as proposed by the Applicant (APP204.02).

Article 60

20.176 The relationship and consideration of unilateral obligations is set out in chapter 1. Mr Hale in his written submission on 3 March 2014 (REP452) makes a request that the Houseboat Compensation and Mitigation policy be secured in Article 60. The Applicant confirmed that it would be 'caught' in the overall non-statutory policy included in Article 60. We have sought to deal with the substance of Mr Hale's objections by our recommendations in relation to project-wide Requirement PW17 set out below. This matter is also considered and explored in chapter 12 above.

Part 4 Articles Overall

20.177 We have considered all the other submissions regarding changes to articles and the inclusion of additional drafting and qualifying additional words, but do not find that these are necessary on the basis of the representations received and the responses provided by the Applicant to those submissions.

SCHEDULES

Schedule 1 Authorised Project

20.178 In our first written question (PD008 Q6.1) we asked all Parties about the overall parameters of the DCO to see if there was broad

consensus that the definition and description drafted within the DCO encompassed all necessary matters and works.

- 20.179 A number of Parties responded with concerns about the content of the DCO but there was broad consensus that the form of the Order did allow Parties to understand the approach and limitations of the Order (eg response by LB Hammersmith and Fulham REP104).
- 20.180 Generally, we did not receive representations questioning the description of the works in the DCO. In relation to Associated Development we asked a series of questions in the context of the Infrastructure associated development guidance, April 2014 (Associated Development Guidance) (eg Bekesbourne Street Q4.54 to Q4.57) seeking to establish and confirm if the works identified as Associated Development within the DCO met the legislative tests.
- 20.181 The Applicant responded to each of the questions raised in relation to Associated Development setting out how there was a direct relationship between the Associated Development works and the NSIP works in accordance with the Associated Development Guidance (eg response to Q4.54 APP04).
- 20.182 We are satisfied that the NSIP works and Associated Development included within the DCO properly falls to be considered under s115 PA 2008 and is in accordance with the Associated Development Guidance.

Schedule 3 Requirements

- 20.183 In the interpretation section of the DCO additional qualification has been drafted in by the Applicant to assist with interpretation and provide greater certainty. This is broadly supported by Interested Parties.
- 20.184 In consideration of all requirements and their drafting we are mindful and have regard to the Government's policy on the use of conditions³⁷³ and the approach that should be taken to placing conditions on a permission³⁷⁴, both of which apply equally in principle to requirements within a DCO³⁷⁵.
- 20.185 Many of the requirements contemplate the approval of details and then allow for some form of departure from those details by use of the phrase 'unless otherwise agreed with' the relevant regulator(s).
- 20.186 In this regard we note that any potential concerns as to matters amounting to a material or substantial change in relation to the

³⁷³ NPPG Paragraph: 003 Reference ID: 21a-003-20140306

³⁷⁴ NPPG Paragraph: 005 Reference ID: 21a-005-20140306

³⁷⁵ NPS para 3.1.6

approved environmental envelope and associated ES issues are addressed by Schedule 3, paragraph 1(3).

20.187 In this regard and in consideration of the planning principle established by *Mid-Counties Co-op v Wyre Forest DC* and the opportunity for private as opposed to public processes we recommend that additional clarifying wording be added to the end of Schedule 3, paragraph 1(3) as follows: *'This is not to be used to avoid or circumvent submission, discharge or consideration of matters properly to be dealt with through and in accordance with schedule 17.'*

Project-wide requirements

PW3 and PW4

20.188 Requirement PW3 relates to the phasing of the authorised development (project-wide) and Requirement PW4 the phasing of the authorised development (site-specific) and both include notice periods. Although the principle of the requirements was broadly agreed at the close of the examination there were still outstanding representations in relation to two main matters, namely prior approval by relevant planning authorities rather than receipt of information, and the period in advance that that the material should be provided.

20.189 Representations that set these matters out are demonstrated by submissions from the LB Wandsworth (REP448), LB Hammersmith and Fulham (REP444), the City of London (REP481) and LB Southwark (REP449).

20.190 Although we understand the need for as much notice as possible in relation to both these requirements the period of two months proposed by the Applicant is the minimum guaranteed period and earlier notice can be provided through good practice. On balance we are satisfied that two months is adequate as a minimum period.

20.191 In relation to the revision process in Requirement PW4 appearing to be retrospective we do not find this acceptable as it could defeat the object of prior notice. Any changed provision must have at least the same notice provision as the original phasing. Therefore we recommend a minor modification of Requirement PW4 so that (3) provides for any revisions to be submitted to the relevant planning authority for information at least two months in advance of the change taking place.

20.192 This change is necessary to ensure that the relevant local authorities are provided with appropriate information in advance of any change and so that the purpose of submitting the details in the first instance cannot be circumvented by subsequent changes.

20.193 Although we understand the desire of the local authorities to exercise control in relation to phasing, these are essentially operational matters. Construction impacts would be controlled by other requirements and, on balance, we consider that Requirement PW4 should remain as a notification process.

20.194 In coming to these recommendations we have had full regard to the submissions made and the Applicant's responses.

PW7

20.195 Requirement PW7³⁷⁶ relates to the operation and maintenance of the proposed authorised development in accordance with the Air Management Plan.

20.196 A number of representations have been sustained by relevant planning authorities in relation to their exclusion from the approval process for any alterations to the Air Management Plan, for example submissions from LB Southwark (REP449), LB Wandsworth (REP448), LB Hammersmith and Fulham (REP444) and City of London (REP481).

20.197 Although we understand the Applicant's approach in seeking an overall single approval point it is important that individual local authorities who may be monitoring and enforcing the Air Management Plan, have an input to the process. On balance we believe it is necessary to specify within the requirement the need for the approval by the Mayor of London to be in consultation with any relevant affected local authority. This would safeguard against the complexity of multiple consenting bodies on the same matter but would allow effective input by the authority that knows the detailed locality and that may need to deal with the consequences of any change approved. We also consider that as the plan applies to the whole tunnel length there needs to be a project-wide view.

20.198 In coming to these recommendations we have had full regard to the submissions made and the Applicant's responses.

PW11

20.199 Requirement PW11 relates to the heritage interpretation strategy and is currently drafted to be implemented at a site level through the landscaping details.

20.200 As LB Southwark identifies (REP449) there is no landscaping requirement at Chambers Wharf and therefore there is no opportunity to secure the heritage interpretation strategy.

³⁷⁶ It should be noted in many representations this is referred to as PW8 relating to earlier drafts of the DCO

20.201 Looking expressly at the point regarding implementation on sites that do not have landscaping details the Applicant has now amended the wording of Requirement PW11 to include: *'or pursuant to a specific heritage interpretation requirement'*. We also note that in relation to Chambers Wharf site-specific requirement CHAWF12 deals with the approval of heritage strategy matters at this site.

20.202 We therefore recommend the insertion of *'site'* specific in Requirement PW11(2) as advocated by the City of London (REP481) within our proposed drafting to ensure that there cannot be any ambiguity or implied choice between landscape and heritage.

PW15

20.203 As identified in chapter 14 there appears to be an oversight in the River Transport Strategy (RTS). This means that Chambers Wharf does not currently fall within the definition of 'Foreshore Site' in the RTS and hence there is no requirement to move cofferdam fill to the site by river, or indeed to remove the surplus. Elsewhere the intention to move these materials by river at this site is clear (see eg Doc 7.10.17, para 20.2.12).

20.204 To give the intention effect we therefore recommend that PW15 is amended by inserting the following exception at the end of the existing drafting to follow the words 'terms of the RTS.' with: *'Notwithstanding this, for the purposes of paragraphs 4.1.1(c), 4.1.1(d) and 4.1.1(e) of the River Transport Strategy, Chambers Wharf shall also be considered and treated as a foreshore site.'*

PW17

20.205 Matters relating to noise, vibration and disturbance were the subject of significant and sustained representations and objections by a wide range of Interested Parties and in particular the relevant local authorities. This is reflected and set out in both written representations and LIRs.

20.206 In the 3 March 2014 version of the DCO (APP177.02) the Applicant added a new draft project-wide Requirement PW17 regarding noise and vibration trigger values. The Applicant advised that the addition of PW17 to the DCO was so that: *'the values that will trigger noise insulation or equivalent mitigation are clear on the face of the DCO, and further the inclusion of this requirement would enable the Secretary of State to amend those values without needing to amend the non-statutory off-site mitigation and compensation policy'*.

20.207 We consider that the values set out are acceptable subject to the omissions and amendments described below.

- 20.208 Noise, vibration and disturbance along with representations in relation to Requirement PW17 are considered in chapter 12. As set out in detail in chapter 12 the Requirement is similar to the terms included in the 'Non-statutory off-site mitigation and compensation policy' (APP210.01). There is a new parameter added and key differences and inconsistencies identified that the Secretaries of State need to give careful consideration to. The draft Requirement also covers temporary rehousing but this is also inconsistent with APP210.01 and the Legal Agreement for Securing of Off-site Mitigation Policies and Resources for Local Planning Authorities (APP209.03).
- 20.209 The new DCO Requirement PW17 goes some way to ensure that off-site mitigation would be offered above SOAEL³⁷⁷ levels, however, 4.2.1 would need to be amended to '*minus 10dB*' from '*minus 5dB*' to be consistent with the current and previous versions of the 'Non-statutory off-site mitigation and compensation policy'. We therefore propose this change. In addition for clarity we propose the deletion of the word '*requirements*' in paragraph 2.3.3.
- 20.210 LB Tower Hamlets (REP492) has also commented with regard to vibration trigger levels in Requirement PW17, and considers that in respect to ground-borne vibration the vibration dose value (VDV) parameter currently proposed for daytime and night-time is at the higher limit of BS6472 'adverse comment possible'. Therefore either the lower level should be used, which is half the value detailed in PW17, or at worst a mid-way point be adopted. The Council's own and preferred ground-borne noise limit is '*L_{Amax}(f) 35dB and, at worst not be more than L_{Amax} 40dB*' (REP492). This suggested requirement was published on 11 March 2014, at the end of the examination, so the Applicant did not have the opportunity to respond within the examination period available.
- 20.211 However, we note from BS6472 that the Applicant's trigger level is also at the bottom of the range 'adverse comment probable', and that '*temporary respite will be triggered if the predicted or measured vibration exceeds the trigger level in the property for more than one day*' (PW17, clause 3.2). We also note that the trigger level for vulnerable people would be divided by two (PW17, clause 4.2.2). In view of the short term exposure before respite accommodation would be offered we are satisfied that the trigger levels for vibration are adequate.
- 20.212 It is unclear from the drafting of Requirement PW17, 2.1 and 2.2.1 what would be required in terms of the measurement of construction noise or re-establishment of a baseline against which to assess change and impact levels.

³⁷⁷ SOAEL: significant observed adverse effect level. Refer to chapter 12

20.213 We consider that it would be necessary to measure the ambient noise environment at residential façades and locations to be agreed with the relevant local authorities. This data would then be added to the assessment of the baseline noise environment prior to commencement of any development. This baseline data would then more accurately reflect the ambient noise levels at the façades of buildings and these revised readings should also be reviewed to determine if additional properties would be eligible for noise insulation. We return to the matter of the baseline below.

20.214 We also consider that the requirement for the eligible façade to have windows to bedrooms or living rooms narrows the definition from habitable rooms³⁷⁸ and therefore bedrooms or living rooms should be changed to 'habitable rooms'.

20.215 We consider that Requirement PW17 goes some way to ensure that temporary accommodation would be offered at levels above SOAEL, however, there are two important omissions:

- eligibility and trigger levels for when noise insulation is not possible or practicable
- houseboats as special cases.

20.216 This drafting or resolution of these omissions is not currently before us but would be required to provide appropriate assessment, control and certainty in terms of delivery of mitigation and accurate assessment of significant impact. However, the need for these matters to be dealt with was discussed widely.

20.217 We therefore propose the following additional drafting to deal with these matters under Requirement PW17, paragraph 4:

- the addition of '*4.3 At any residential property where noise insulation cannot reasonably be installed the trigger value for temporary rehousing shall be the same as the trigger value for noise insulation as set out in Table 1.*'
- the addition of Houseboats as a special case (as defined APP210.01 Appendix C). '*4.4 Houseboats - development shall not commence at Putney Embankment Foreshore, Kirtling Street, Heathwall Pumping Station or Chambers Wharf until trigger values for noise insulation and temporary rehousing in relation to noise and vibration impacts on houseboats in the vicinity of those work sites have been submitted to and approved by the relevant planning authority. Thereafter, the approved values shall be applied as the trigger values for houseboats as a special case.*'

20.218 It is our recommendation that this amended drafting is necessary to ensure that the NPS tests can be met (as set out in chapter 12) and proper safeguards put in place that seek to ensure that no-

³⁷⁸ BS5228 annex E.4

one is left in a position of living in an environment that is unacceptable, particularly when considered across the long duration of some of the identified works and predicted impacts.

Additional requirement for notice of ten yearly maintenance PW18

20.219 As discussed in chapter 11 under the heading 'The effects of locating permanent works in public spaces', LB Wandsworth (REP448) has suggested a DCO Requirement PW18 to require six months' notice of the ten yearly maintenance operations. The Applicant has suggested wording (on a without prejudice basis to its starting position that the requirement is not necessary) that 28 day notice would be consistent with the Water Industry Act 1991 notice periods. We agree that this additional requirement should be added to the DCO as it would allow each relevant local authority to notify the community of the planned work. We suggest that the notice period should be '*not less than 28 days*' to be consistent with the period identified in the Water Industry Act and that other minor amendments are made as set out below in our recommended form.

20.220 We therefore recommend that Requirement PW18 is incorporated into the DCO as follows:

'The undertaker shall give notice to the relevant planning authority not less than 28 days in advance of carrying out ten yearly maintenance operations for any works at any of the sites in the area of the relevant planning authority. Such notice will provide a description of the works to be undertaken, the location and extent of the works, estimated duration and means of access to the site and necessary arrangements for maintenance/provision of associated services to be provided to the site'.

Additional requirement for ambient baseline noise measurement PW19

20.221 We consider that additional ambient baseline survey should be undertaken before contractors start on site at locations to be agreed with the relevant local planning authorities. This would ensure that the pre-construction ambient noise level could be agreed with the local authorities for specific receptors so that eligibility for noise insulation could be determined with more accuracy than the current baseline assessment permits. This would also deal with a number of site-specific requests that relate in particular to the CoCP Part B made by a number of local authorities (for example LB Hammersmith and Fulham in relation to Carnwath Road Riverside (REP444)).

20.222 The detailed drafting was not provided by the Interested Parties or the Applicant. However, the need for these matters to be dealt with was discussed widely and we have taken the model for the

wording from existing drafting within the DCO with regard to site-specific wording for Chambers Wharf in CoCP Part B.

20.223 We recommend that Requirement PW19 is added to the DCO in the following form: *'Development at any work site shall not commence until ambient noise monitoring has been carried out at sensitive receptors in the vicinity of that work site and the following conditions have been met-*

a. locations for ambient baseline noise monitoring have been submitted to and approved by the relevant planning authority

b. a method statement for noise monitoring, to include the duration of monitoring, has been submitted to and approved by the relevant planning authority

c. noise monitoring has been carried out at the approved locations in accordance with the approved method statement

d. the results of the noise monitoring have been submitted to the relevant planning authority.'

20.224 It is our view that this requirement is necessary to provide certainty in terms of delivery of mitigation and accurate assessment of significant impact as considered in chapter 12 of this report.

Site-specific requirements

20.225 Overall, we have considered other submissions regarding changes to site-specific requirements, appropriate discharging body and the inclusion of additional drafting and qualifying additional words, but do not find that these are necessary on the basis of the representations received and the responses provided by the Applicant to those submissions except as set out below. Some of the matters such as timescales and further control with regard to express discharge have already been dealt with above in project-wide requirements and matters of principle.

20.226 Throughout the examination we have received representations and LIR submissions on the drafting of site-specific requirements and the details of the supporting documentation such as the CoCP Part A (project-wide) and each Part B (site-specific), as well as documentation such as the Design Principles. As set out above we dealt with this supporting documentation within the examination. In reporting we have reviewed and considered each of the outstanding representations with regard to requirements and considered if any outstanding concerns can properly be dealt with through site-specific or other requirements.

20.227 We set out below matters that we consider we are able to deal with through drafting in the DCO and that on balance are necessary. All other representations in relation to requirements

have been considered against the response of the Applicant and the overall representations. We do not provide a list of every representation but provide examples set out below to show how we have approached, considered and come to a conclusion on these representations.

- 20.228 The LB Hammersmith and Fulham in its final submission on 11 March (REP490) maintained objections set out in written representations, LIR, the joint Borough submission (submitted by LB Southwark), oral submissions at each of the IS DCO hearings and other written submissions on 13 January and 3 March 2014. Examples of outstanding requirement drafting from these submissions include a request (REP488) (maintaining a submission from November 2013) that requirements relating to the Borough's heritage assets should be provided. This is provided as a list but not in draft form. We consider as set out in chapter 10 that adequate assessment and provision has been made with regard to heritage assets and that on balance it is not necessary for further detailed requirements to be drafted.
- 20.229 Another example is the LB Southwark who provide (3 March 2014 REP449) line by line amendments and commentary to project-wide and Chambers Wharf, Shad Thames Pumping Station, and Earl Pumping Station site-specific requirements making points of drafting, although many of these relate to the drafting of the CoCP and the request that controls be brought directly into the DCO and be made subject to approval of the local planning authority. Matters such as noise measurement have been dealt with in our proposed Requirement PW19. The other detail goes to matters that we have considered in each of our report chapters and we have concluded where we consider it is necessary on balance to recommend further drafting amendments in the DCO.
- 20.230 Submissions from Interested Parties such as Free Trade Wharf Management Company Ltd (11 March 2014 REP486), which proposes drafting for a requirement to exclude King Edward Memorial Park Foreshore site from the scheme, are taken into account in our consideration of the justification of the specific design and route of the project in chapter 17. Final representations from Interested Parties, for example Larry Broomhead (11 March 2014 REP 489) in relation to excavated materials being moved by barge, are also considered in chapter 14 above.
- 20.231 One of the difficulties we have had in responding to outstanding matters is the amount of detail that has been requested for changes in the CoCP Part A and Parts B. As set out below these are the Applicant's documents, only subject to limited review and approval by the relevant planning authorities and others, and they are not open to us to change. The Secretaries of State should be aware of these matters and may wish to consider if any further progress has been made since the close of examination and if any

subsequent agreed changes can be taken into account on a fair and equitable basis.

Chelsea Embankment Foreshore and Albert Embankment Foreshore

20.232 The EA makes a representation in its submission of 11 March 2014 (REP475) in relation to site-specific Requirements CHEEF8 and ALBEF9 and advises that these changes were confirmed by the Applicant as being errata. We confirm that these agreed errata have been accepted and included by the Applicant in the final DCO (APP204.02).

King Edward Memorial Park Foreshore

KEMPF3, 4 and 5

20.233 With regard to King Edward Memorial Park Foreshore, we consider representations on these matters by SaveKEMP, other Interested Parties and LB Tower Hamlets and set out our recommendation in chapter 8 above.

20.234 In this regard Requirement KEMPF4 states that the design of the ventilation column shall accord with the indicative type C signature design. We consider that this degree of prescription is not justified. It would be preferable for the final design to be approved by the local planning authority, having regard to the local context, without any prerequisite to adopt the thematic approach as a whole. Accordingly, we recommend an appropriate amendment to the DCO to allow for local distinctiveness to be taken into account.

20.235 Our proposed alterations therefore delete reference to 'signature' in line 1 of Requirement KEMPF4 and reference to 'and the ventilation column type C (Drawing No ...)'. There is a reference to the signature column in the indicative drawing so we have also added '*Notwithstanding the notes on drawing DCO-PP-900-ZZZZZ-290003-Rev 2 there is no requirement for the signature design to be used at this site*' by way of clarification.

20.236 On balance we believe that the other matters raised by LB Tower Hamlets in relation to historic character, materials and appearance of the Park are adequately dealt with through the site-specific design principles and requirements.

KEMPF6 and 17

20.237 As set out in chapter 11, in the section dealing with the 'Duration of works in public spaces' we consider and set out our reasoning in relation to changes sought by LB Tower Hamlets in relation to concerns about the return of the park to public use following construction (REP492).

20.238 As set out in chapter 11, whilst we share the Council's concern on this point, for the reasons given we do not think that changing the drafting of Requirement KEMP17 (or any equivalent requirement such as KEMPF6) could provide certainty in relation to the duration of works in public spaces, that would also provide the necessary construction and delivery certainty required to deliver the application project in a timely way.

Additional site-specific requirement

20.239 At King Edward Memorial Park Foreshore the local authority and other Interested Parties asked if a restriction on Saturday working could be included as a mitigation measure as a means of avoiding excessive noise on Saturdays. We asked about the impact of such a restriction for all sites in ExA Q25.8. The Applicant confirmed that it would increase the occupation of the sites by between 2 months and 3.7 months, but would not affect the overall construction period. Although pressed several times at IS hearings, the Applicant has stated that they would prefer not to restrict Saturday working. However, LB Tower Hamlets has reiterated that it considers that *'the benefits of restricted weekend working will outweigh the disadvantage of a slightly longer construction contract. Therefore working hours should exclude all weekend working except unless agreed otherwise by the local authority in consultation with the community liaison/stakeholder group'* (REP447 section 4).

20.240 The Applicant has given (on a without prejudice basis to its starting position that it does not support any further control of Saturday working) suggested revised wording for restriction in Saturday working to be set out in the CoCP (APP115.03, para 8.2.9 and 8.2.11). It has requested that this would be applied only to the four sites close to amenities ie Barn Elms, King George's Park, Deptford Church Street and King Edward Memorial Park Foreshore) and should allow maintenance work on Saturdays. We consider that the restriction on Saturday working should be applied in relation to the King Edward Memorial Park as explained in chapters 11, 12 and 17.

20.241 In relation to King Edward Memorial Park we received submissions from the LB Tower Hamlets in the third DCO IS hearing (HEA155) requesting this respite period in relation to the Park. In our judgement taking the full range of submissions on the consequences by the Applicant and amenity issues from Interested Parties, we consider that at this site the benefit from the respite of a quieter Saturday outweighs the dis-benefit of having the site occupied for another three months (out of three years) and any other potential operational issues arising. However, this needs to be secured as an amendment to the DCO.

20.242 We therefore propose that this is secured through a site-specific requirement to deal with this in the form requested by the

Applicant but as Requirement KEMPF18: *'Notwithstanding any other provisions or requirements, unless otherwise agreed with the relevant planning authority standard working hours at King Edward Memorial Park Foreshore site shall not include 08:00 to 13:00 Saturday. The maintenance period will not be limited during the period and will include 08:00 to 13:00 Saturdays'*. This recommended addition is fully supported and explained in chapter 12 in relation to noise as set out above.

Schedule 15 Deemed Marine Licence

- 20.243 At the outset of the examination there were representations in relation to the drafting of the Deemed Marine Licence (DML) and related river and marine activities and responsibilities within the river environment from MMO (RRP654 and WRR051), PLA (RRP1079 and WRR083) and EA (RRP710 and WRR038).
- 20.244 We requested that the main Parties involved enter into constructive dialogue and if possible a Statement of Common Ground (SoCG) be entered into (PD003 and PD008).
- 20.245 Matters relating to the DML and river environment continued to be the subject of representations from MMO, PLA and EA and were explored further in each of the IS DCO hearings.
- 20.246 By the close of the examination there was broad agreement from the MMO, PLA and EA being set out in a 4WLA (APP183) and matters have been dealt with through agreed drafting in the DCO articles and requirements (APP204.02), the DML and Protective Provisions schedule 16 (part 2 and part 3).
- 20.247 Article 50 giving effect to the DML is also now in agreed form (APP204.02) and no longer the subject of any outstanding drafting representations.
- 20.248 The main area of concern for the MMO was and is the transfer of the DML and the partial transfer of the same.
- 20.249 At the third IS DCO hearing resumed on 21 February 2014 (HEA153 to HEA158) we raised the question of the transfer. The Applicant responded at the hearing and in its written summary of oral submissions (APP158). Following this exploration we requested that the MMO and Applicant continue a dialogue and come to an agreed conclusion or make legal submissions on the basis of the areas of contention with full reasoning.
- 20.250 The MMO in its written submission of 3 March 2014 (REP451) sets out under the heading Article 9 - Transfer of benefit of order that:
- '1. In our submission of the 12 February 2014 to the panel, we highlighted that the MMO was considering the wider issue of the transfer of benefit and would provide an opinion and position on*

the specific proposed solution in the Thames Tideway Tunnel Development Consent Order ('DCO') application.

2. The MMO recognises that section 156(1) of the Planning Act 2008 ("2008 Act") does allow the benefit of a DCO to rest with multiple parties. As section 149A of the 2008 Act does not make any further contrary provision regarding the scope of section 156(1) the MMO accept that there is no reason in principle why the benefit of a deemed marine licence ('DML') granted as part of a DCO could not be partially transferred so that the benefit of the DML was effectively 'split' between more than one person.

3. Whilst the MMO recognise the legal position as set out in the 2008 Act, the MMO consider that ensuring the practical operation of any DML in terms of compliance, monitoring and enforcement to be of equal importance. As defined in section 149A of the 2008 Act, a DML granted within a DCO is deemed to have been granted under Part 4 of the Marine and Coastal Access Act ('2009 Act') and as such the MMO is the responsible regulatory authority to ensure works licensed in the marine environment are undertaken in accordance with the DML. Where works are not undertaken in accordance with the DML as made, the MMO is the responsible regulatory authority to take appropriate action under Part 4 and 8 of the 2009 Act.

4. From a compliance perspective, the MMO would have concerns regarding the adequate monitoring and subsequent enforcement of the DML where the benefit of that DML had been 'split'. For example, it would potentially be significantly more difficult to determine who had responsibility for complying with any particular part of the DML, and consequently may interfere with the ability of the MMO to take appropriate regulatory action in line with our statutory obligation to protect the environment, protect human health and prevent interference with legitimate uses of the sea.

5. As such the MMO would maintain our preferred position to be:

- that there be a single identified licence holder for a DML;*
- that the transfer of a DML from that licence holder to another single identifiable person should be undertaken either:*
 - by the MMO under section 72(7) of the 2009 Act; or*
 - where the transfer of the benefit of the DML is to be undertaken in accordance with the transfer of benefit provisions in the main body of the DCO, as a single transfer of the whole benefit of the DML from the licence holder to another single identified person;*
- that if it can be established by the applicant at a pre-consent stage that particular identifiable parts of the development would be better suited to being undertaken by different persons, for the DCO to contain more than one DML, with each DML governed independently in accordance with the above principles. Alternatively there could be a single DML*

within the DCO and other aspects of the development could be provided for by way of a separate marine licence on application to the MMO.

6. This would provide clarity to the MMO of where responsibility and liability lies for complying with the DML and enable the MMO to properly monitor and enforce licensed works as the lead regulator for the marine environment, without restricting any required flexibility for the construction of the development itself.

7. The MMO note that in this particular case the applicant feels that, due to the complexity of the potential number of new infrastructure providers (IPs), and the unknown split of works at this time, that the MMO's preferred position is not feasible for this development. If this view is accepted by the panel, the MMO seeks the inclusion of additional conditions within the DML as an alternative acceptable means of control to assist subsequent compliance, monitoring and enforcement by minimising the potential problems the MMO perceives as outlined above. Furthermore the potential for multiple persons with benefit of the DML would be reflected in the licence holder definition, to read (as drafted by the applicant) 'licence holder' means Thames Water Utilities Limited and any transferee pursuant to Article 9 of the order. The MMO have provided their required additional text as an annex to this submission (Annex A). Specifically the MMO have expanded the information to be provided for approval before the commencement of works (DML condition 7) and a condition to provide notice to the MMO, when a transfer of benefit is made (DML condition 4 and 5).'

- 20.251 The MMO in its final written submission of 11 March 2014 (REP494) confirmed satisfaction with: *'the DCO updates and deemed marine licence (DML), as agreed with TWUL, and would recommend the documents annexed to our 3 March 2014 submission to the panel are adopted in the Examining Authorities recommendation report to the Secretary of State.'*
- 20.252 We have full regard to the MMO's recognition that: *'section 156(1) of the Planning Act 2008 ('2008 Act') does allow the benefit of a DCO to rest with multiple parties'.*
- 20.253 As a result of the agreed position confirmed by the MMO in its letter 11 March 2014 (REP494) we have confidence that the drafting now incorporated into the Applicant's DCO (APP204.02) provides adequate safeguards in relation to transfer provisions and notification to ensure who has the benefit of certain powers and who will be responsible for delivery and therefore any enforcement issues arising.
- 20.254 In making the recommendation to accept the Applicant's drafting in this regard we are aware it is not the MMO's preferred approach to the transfer of a DML. However, in the particular circumstances

of this application, drafting, agreements entered into (APP183) and safeguards provided in protective provisions, it is acceptable to the MMO and can therefore be relied upon by the Secretaries of State in determination of this application.

Schedule 16 Provisions for Protection of Specified Undertakers

- 20.255 Protective provisions negotiated between Applicant and other Parties during the examination are now incorporated on a broadly agreed basis (APP204.02).
- 20.256 The extent to which each of these protective provisions has overcome issues arising in relation to s127 and s138 and other statutory party interests and responsibilities is set out in chapter 19 above at Appendices E3 to E6.
- 20.257 Outstanding matters are addressed below in the relevant part and in chapter 19 above.

Part 2 The Port of London Authority

- 20.258 All outstanding matters except those set out in table 1 at paragraph 1.1.4 of SoCG of 11 March 2014 (APP215.02) are agreed. We also note the representation withdrawing PLA's objection to the application (REP470).
- 20.259 We are therefore satisfied that the Secretaries of State can have confidence in confirming the drafting proposed by the Applicant (APP204.02).

Part 3 The Environment Agency

- 20.260 Although there are still outstanding detailed matters of disagreement between the Applicant and the EA as documented in full in the update to the SoCG (APP215.03) and addressed in chapter 6 under the heading 'Whether there would be unnecessary loss of aquatic habitat, the EA has agreed to the disapplication of Flood Defence Consent for the project as drafted by the Applicant (APP204.02). A set of protective provisions has also been agreed between the Parties and has been included in the Applicant's final DCO (APP204.02). An associated legal agreement has also been completed and submitted (APP183).

Part 4 Transport for London

- 20.261 We have seen and considered the final position set out in the SoCG (APP215.01) and note the considerable work, during the examination, put into narrowing the areas outstanding and continuing work by the Applicant and TfL. The SoCG at para 1.1.1, 1.1.2 and table 1 sets out the matters still to be agreed between the Applicant and TfL.

- 20.262 Disapplication of the Traffic Management Act is dealt with above in relation to the articles relating to street and traffic regulation. As set out in chapters 14 and 19, in the absence of an overarching framework agreement being in place, we find that it is necessary to incorporate the additional protective provisions requested by TfL, but substantially in the form amended by the Applicant as set out in APP198.41.
- 20.263 Should the Secretaries of State receive confirmation of satisfactory settlement of the outstanding matters and evidence of completion of the overarching framework agreement then it may be appropriate to revisit the inclusion of this drafting. However, in the absence of such confirmation, we cannot give the prospect of future agreement any weight.
- 20.264 In coming to this conclusion and recommendation we have had full regard to the position and responsibility of TfL as strategic highway authority.

Part 6 Communications Network Operators

- 20.265 The Applicant has incorporated protective provisions for the benefit of the communications and network operators and these are broadly agreed. These matters are also referenced in chapter 19 above.
- 20.266 The only outstanding representations were received from British Telecommunications Plc (BT) (REP434).
- 20.267 With regard to certain matters raised these are set out in the relevant articles above under the headings Article 43, Article 48 and Article 57 and 63.
- 20.268 In relation to the substance of the outstanding objection by BT it is that there is inconsistency with regard to protective provisions and the way BT are being treated in comparison to for example electricity and gas undertakers (REP434): *'in respect of electricity and gas undertakers, at paragraph 9 of Part 1 of Schedule 16 of the DCO draft dated 12 February 2014, such undertakers are provided with an indemnity in respect of consequences of the construction, use, maintenance or failure of any of the authorised development of where in consequence of any act or default of the promoter, any damage is caused to apparatus or property or there is an interruption in any service provided. In such circumstances, the promoter shall bear the cost reasonably incurred by the undertaker in making good such damage or restoring supply and indemnify the undertaker for any other expenses, losses, demands, proceedings, damages, claims, penalties or costs incurred by or recoverable from the undertaker by reason or in consequence of damage or interruption or the undertaker becoming liable to a third party.'*

- 20.269 We note that some protection is provided in Schedule 16 Part 6 paragraph 5(4) in respect of the payment '*to any operator of an electronic communications code network an amount equal to the cost reasonably incurred by the operator in or in connection with— (a) the execution of protection or relocation works required in consequence of the temporary or permanent stopping up of the highway, and (b) the doing of any other work or thing rendered necessary by the execution of protection and/or relocation works.*' This is acknowledged by BT but it does not address all BT's concerns.
- 20.270 We also note BT's additional reference to protection as a whole in relation to the PLA and EA, whose protective provisions are found in part 2 and 3 of schedule 16.
- 20.271 We have considered the response to this submission from the Applicant and note that these are all matters of ongoing discussion between BT and the Applicant and that the intention is that an asset protection agreement will be agreed and entered into. However, at the close of the examination there was no agreement or evidence before us that an appropriate asset protection agreement had been put in place.
- 20.272 The Panel has no proposed amendments by either Party that would achieve what appears to be an agreed requisite level of protection in the continued absence of an agreed asset protection agreement between BT and the Applicant. Given the absence of full information as noted in the Applicant's response (APP198.06) it has only been possible to draft a provision addressing indemnity. As a consequence the Panel considers that the most reasonable way forward is to recommend the following amendment to Schedule 16 Part 6 which reflects the indemnity provisions provided for electricity and gas undertakers at Schedule 16 Part 1.
- 20.273 In Part 6 Communications Network Operators insert the following text before Arbitration and then renumber Arbitration paragraph to 7

Indemnity

'[6.](1) Subject to sub-paragraphs (2) and (3), if by reason or in consequence of the installation of any such works authorised by this Schedule or in consequence of the installation, use, maintenance or failure of any of the authorised development by or on behalf of the promoter or in consequence of any act or default of the promoter (or any person employed or authorised by him) in the course of carrying out such works, including without limitation works carried out by the promoter under this Schedule or any subsidence resulting from any of these works), any damage is caused to any apparatus or alternative apparatus (other than apparatus the repair of which is not reasonably necessary in view of its intended removal for the purposes of those works) or property of an undertaker, or there is any interruption in any

service provided, or in the supply of any goods, by any undertaker, or the undertaker becomes liable to pay any amount to any third party, the promoter shall—

(a) bear and pay on demand the cost reasonably incurred by that undertaker in making good such damage or restoring the supply; and

(b) indemnify that undertaker for any other expenses, loss, demands, proceedings, damages, claims, penalty or costs incurred by or recovered from the undertaker, by reason or in consequence of any such damage or interruption or the undertaker becoming liable to any third party as aforesaid.

(2) The fact that any act or thing may have been done by an undertaker on behalf of the promoter or in accordance with a plan approved by an undertaker or in accordance with any requirement of an undertaker or under its supervision shall not (subject to sub-paragraph (3), excuse the promoter from liability under the provisions of this sub-paragraph (1)).

(3) Nothing in sub-paragraph (1) shall impose any liability on the promoter with respect to any damage or interruption to the extent that it is attributable to the neglect or default of an undertaker, its officers, servants, contractors or agents.

(4) An undertaker shall give the promoter reasonable notice of any such claim or demand and no settlement or compromise shall be made without first consulting the promoter and considering their representations.'

20.274 In the absence of agreement and asset protection agreement being in place, we cannot rely on such future documentation or give the prospect of agreement on such substantive matters any weight. Therefore we find that it is necessary to incorporate the additional recommended drafting that addresses as far as is reasonably possible BT's concerns.

20.275 In coming to this conclusion and recommendation we have had full regard to the position and responsibility of BT as a statutory undertaker.

Part 7 The City of London Corporation

20.276 The City of London reached agreement with the Applicant in relation to the drafting of protective provisions in accordance with the Applicant's letter dated 11 March 2014 (APP216) and we have added this drafting to the Applicant's final DCO identified in green in our recommended draft (appendix F).

20.277 The clause not agreed and still sought by the City of London relates to remedial works and is for addition to Part 7 protective provisions at 4(3) as submitted and supported (REP435 and REP481).

20.278 On balance and due to the nature of bridge assets under consideration in relation to this requested protective provision we recommend that the additional clause should be added to Part 7 as drafted by the City of London.

Schedule 17 Procedure for Discharge of Requirements etc Appeals

20.279 There was considerable representation and debate about the process, timescales and differentiation between major and minor requirements throughout the examination.

20.280 We started with written questions in relation to both the proposed bespoke appeals procedure and the approach to requirements and we continued raising questions throughout each of the IS DCO hearings. We also received strong representations from the local authorities on these matters throughout.

20.281 The Applicant relied on the precedent order of Hinkley Point C New Nuclear Power Station to support the approach of a bespoke scheme fully incorporated within the DCO. In addition, the Applicant repeated the need for urgency and certainty due to the need for the project.

20.282 At the close of the examination the Applicant made amendments to the drafting to remove the distinction between major and minor requirements, resulting in a single time period for discharging requirements. This change satisfied many outstanding representations. In addition, the Applicant refined the appeals mechanism to be more inclusive and to respond to detailed representations made.

20.283 A number of local authorities still requested the incorporation of the ability to charge for pre-application work (examples include: LB Hammersmith and Fulham REP444, LB Wandsworth REP448 and cost recovery LB Southwark REP449) or allow for change to fees by index, referencing the Crossrail precedent (City of London REP435) and the incorporation of a three day deadline rather than single day for sending consultation letters (REP444).

20.284 In considering these outstanding matters there is no consistency on the request for different levels of fees or indexing therefore we have not recommended a change in this regard. However, we note that the matter of resources is covered in the Legal Agreement for Securing Off-site Mitigation Policies and Resources for Local Planning Authorities which would be secured by Article 60 (APP209.03, Schedule 8). The Applicant commits to seek to agree a new memorandum of understanding with the local authorities which would include resources for pre-application discussions arising from requirements of the DCO, amongst other matters. This was submitted on 11 March 2014 so the local authorities have not had an opportunity to comment.

20.285 In relation to the use of the term '*within one business day*', this provides for no flexibility or error at all and could be counter-productive in seeking to create a timely and effective process if it results in a number of procedural failures. The change to within three business days should allow for all circumstances, whilst still encouraging timely performance.

20.286 We are satisfied that the drafting now proposed save for the specification of action within one business day at 2(3) is broadly agreed and in a form that balances the need for timely decision making in the context of the specific urgency and need set out by the Applicant in relation to this particular project and certainty and due process and engagement.

20.287 We therefore recommend that subject to the change of one day to three days in 2(3) the drafting as set out by the Applicant (APP204.02) should be accepted.

Schedule 19 Miscellaneous Controls

20.288 We deal with the disapplication of legislation and changes in drafting that affect referenced legislation in chapters on Noise, Transport, Rationale and CA and as set out in relation to other DCO changes in this chapter set out above.

OTHER RELATED DOCUMENTATION

20.289 As can be seen from the drafting of the DCO there is extensive reliance on linked documentation such as the CoCP Part A and Part B. At the close of the examination there were a considerable number of outstanding representations in relation to this and other linked documentation.

20.290 As this associated documentation is not drafting of the DCO itself it is not a matter for our amendment. However, the matters raised are drawn to the Secretaries of State's attention and we have sought to address them as far as practicable in our findings, conclusions and recommendations throughout the report. As can be seen in this chapter it has been necessary to recommend some additional drafting be incorporated within the DCO itself. However, it has only been possible to do this on a limited basis.

21 SUMMARY OF OVERALL CONCLUSIONS AND RECOMMENDATION

SUMMARY AND CONCLUSIONS

- 21.1 The case for development is set out in chapter 18. The Panel's conclusion is that the issues are finely balanced and that, in our view, the changes and additions to the draft Development Consent Order (DCO) that we are recommending tip the balance in favour of making the Order. Consequently, having regard to all of the matters referred to in that chapter, our conclusion is that, on balance, the matters weighing in favour of making the DCO outweigh the matters weighing against. We therefore find that the case for development is made out and we recommend accordingly.
- 21.2 In reaching our recommendation, we have had full regard to the Local Impact Reports. As identified throughout the report there were still outstanding matters at the close of the examination, in particular in relation to the management of highways, noise and disturbance and site selection. These matters have been weighed in the overall balance.
- 21.3 We have also taken into account all other matters raised and representations made during the examination. In considering these matters the Panel found no relevant matters of such importance that they would individually or collectively lead us to a different recommendation to that set out below.
- 21.4 In relation to the application for compulsory acquisition (CA) powers within the recommended Order, the Panel concludes:
- That the National Policy Statement for Waste Water: A framework document for planning decisions on nationally significant waste water infrastructure, March 2012 (NPS) identifies a national need for the Thames Tideway Tunnel.
 - That securing the land and rights required to construct the development within a reasonable timescale and therefore ensure the delivery of the Thames Tideway Tunnel as part of Government policy to fulfil United Kingdom obligations under the Urban Waste Water Treatment Directive (1991/271/EEC), the Freshwater Fish Directive (2006/44/EC) and the Water Framework Directive (2000/60/EC) represents a significant public benefit.
 - That the private loss to those affected would be mitigated to a large degree by limiting the use of CA powers to land essential to deliver the project and by the use of temporary possession powers wherever possible to minimise both land take and the extent of rights and interests to be acquired.
 - That the Applicant has shown that all reasonable alternatives to CA have been explored.
 - That there is an established regulatory regime for funding the project (including CA costs and non-CA compensation and

project costs) and therefore it is reasonable to conclude that funding would be made available.

- That the resource implications of possible acquisition resulting from blight notices and other non-statutory measures such as rehousing and off-site mitigation measures have been taken into account in relation to funding.
- That the proposed interference with the human rights of individuals would be for a legitimate purpose that would justify such interference in the public interest and to a proportionate extent.

21.5 Taking these various factors together, and subject to confirmation of the recommended drafting, there is a compelling case in the public interest for the CA powers sought in respect of the CA Land shown on the Land plans (as amended). The Panel therefore concludes that the proposal would comply with s122(3) of the Planning Act 2008 (as amended) (PA 2008).

21.6 In relation to s104 of PA 2008, the Panel further concludes:

- That making the recommended Order would be in accordance with the NPS except as identified in chapter 12 where we note that the application would not meet the first aim of paragraph 4.9.9 of the NPS, which is to avoid significant adverse impacts on health and the quality of life from noise. On balance we have concluded that the application would meet the other aims of paragraph 4.9.9 despite the uncertainties identified. Having regard to paragraph 4.9.13 of the NPS, we have taken account of the off-site mitigation offered by the Applicant. In chapter 20 we have suggested changes to the DCO in relation to off-site mitigation. For the reasons given in chapter 18, we consider that, subject to those changes, the off-site mitigation together with the other matters which we are required to take into account by the NPS outweigh the failure to meet the first aim of paragraph 4.9.9. Consequently, when the application is considered against the NPS as a whole, it can be said to accord with it.
- The recommended Order would be in accordance with the Marine Policy Statement, and other relevant policy, all of which have been taken into account by the Panel in this report.
- In consideration of the other exceptions referred to in s104 PA 2008, we find no reason on the basis of the matters before us to believe that deciding the application in accordance with the relevant NPS would:
 - (i) lead to the United Kingdom being in breach of its international obligations

- (ii) lead to the Secretaries of State³⁷⁹ being in breach of any duty imposed on the Secretaries of State by or under any enactment or
 - (iii) be otherwise unlawful by virtue of any enactment.
- That having regard to all matters, as set out in chapter 18 our conclusion is that, on balance, the matters weighing in favour of making the DCO outweigh the matters weighing against.

RECOMMENDATION

- 21.7 For all the above reasons and in the light of the Panel's findings and conclusions on important and relevant matters set out in this Report, the Panel, as Examining authority under the Planning Act 2008 (as amended), recommends that the Secretary of State for Communities and Local Government and Secretary of State for Environment, Food and Rural Affairs should make an order granting development consent, subject to modifications in the form set out in appendix F.

³⁷⁹ Secretary of State for Communities and Local Government and Secretary of State for Environment, Food and Rural Affairs (Secretaries of State)

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