14 Ecology

Environmental Statement

Volume I

14 Ecology

Introduction

14.1 This chapter of the Environmental Statement (ES) assess the likely significant effects of the proposed Northern Line Extension (NLE) on relevant ecological receptors.

14.2 The six above-ground NLE construction sites were subject to ecology surveys in 2012 and early 2013 (see Figure 14-1). These surveys characterise the ecology baseline at each site and provide contextual information upon which this Ecological Impact Assessment (EcIA) of the scheme is based. A summary of these surveys are presented within this chapter, with greater detail available in the Phase 1 habitat survey reports contained in *ES Volume II: Appendix J1: Extended Phase 1 Habitat Reports*. A short introduction to each NLE above-ground site is provided below:

- Harmsworth Street – *A temporary grouting shaft is proposed to be located at the junction of Harmsworth Street and De Laune Street. The grouting shaft will be completely contained within the bounds of Harmsworth Street;*
- Radcot Street – *A temporary grouting shaft is proposed to be located on Radcot Street. The grouting shaft will be completely contained within the bounds of the Radcot Street;*
- Kennington Green – *A permanent ventilation shaft is to be installed within the southern bounds of Kennington Green. Kennington Green is an area of amenity grassland, with scattered mature trees;*
- Kennington Park – *A permanent ventilation shaft is proposed to be located in the northeast corner of Kennington Park, an area of notable amenity and some ecological interest;*
- Nine Elms – *An intermediate station (Nine Elms station) is to be built off Wandsworth Road, adjacent to Pascal Street. The site is dominated by buildings and hard standing, with a few scattered trees; and*
- Battersea Power Station (BPS) – *A station and associated buildings are proposed for the Battersea station site. The site comprises a mosaic of semi-natural (grassland, scrub and, trees) and man-made (buildings and hard standing) habitats. The site is situated adjacent to the River Thames. For the purposes of this chapter, Battersea station refers to the proposed NLE site, BPS refers to the Battersea Power Station itself, and the wider BPS refers to the entire BPS site (including the proposed Battersea station NLE site and the adjacent land falling within the entire BPS site).*

14.3 The EcIA was further informed by the Transport for London (TfL) Arboricultural Survey and Winter Bird Survey Reports, both of which are also presented in *ES Volume II: Appendix J2* and *ES Volume II: Appendix J3* respectively.

Scope & Objectives

14.4 The sites at Harmsworth Street and Radcot Street, which comprise hard standing, were assessed as having low quality habitats and negligible potential to support rare, notable or legally protected species. These sites were therefore scoped out of this EcIA and are not assessed further within this report. The remaining sites (Kennington Park, Kennington Green, Nine Elms station and Battersea station) are included in this EcIA.

14.5 The assessment focuses on the habitats and rare, notable or protected species that are within and adjacent to the NLE sites, with effects on statutory and non-statutory designated sites within 1km also considered. Due to the nature of the works and the urban location of the sites, it is considered unlikely that any effects will extend to sites beyond this distance.

14.6 The assessment will consider the effects of both the construction and operational phases of the NLE with the construction phase anticipated to last approximately six years, and the operational phase indefinitely. As is stated in *Chapter 4: Description of the NLE* of this ES, two construction options are proposed - Option A and Option B - although, as these two construction options are not anticipated to influence the EcIA, the assessment for both options has been presented as if for a single option.

Legislative and Planning Policy Context

14.7 This section identifies the principal legislation and planning policy relevant to ecology.

National Policy and Legislation

14.8 Legislation for the protection of wildlife and ecology in the United Kingdom (UK) includes:

- *The Wildlife and Countryside Act, 1981 (as amended) (Ref. 14-1);*
- *The Countryside and Rights of Way Act, 2000 (as amended) (CRoW Act) (Ref. 14-2);*
- *Natural Environment and Rural Communities Act, 2006 (NERC Act) (Ref. 14-3); and*
- *The Conservation of Habitats and Species Regulations, 2010 (Ref. 14-4).*

The Wildlife and Countryside Act (WCA) 1981

14.9 The WCA is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) and the European Union Directive on the Conservation of Wild Birds (79/409/EEC) (EU Birds Directive) are implemented in Great Britain.

14.10 Wild animals listed on Schedule 5 of the Act are subject to specific protection under Section 9, which make the following an offence:

- *Intentional killing, injuring and taking;*
- *Possession or control;*
- *Intentional or reckless damage to, destruction of, obstruction of access to any structure or place used by a scheduled animal for shelter or protection;*
- *Intentional or reckless disturbance of an animal occupying such a structure or place;*
- *Selling, offering for sale, possessing or transporting for the purposes of sale; and*
- *Advertising for buying or selling.*

14.11 The Act prohibits the intentional killing, injuring or taking of any wild bird (with certain exceptions) and the taking, damaging or destroying of a wild bird's nest or eggs. Special penalties are given for offences related to birds listed on Schedule

1, which includes black redstarts (*Phoenicurus ochruros*) and peregrine falcons (*Falco peregrinus*), two urban species that are known to inhabit parts of London.

14.12 It also provides a level of protection to plants listed on Schedule 8 and makes it an offence to plant or otherwise cause to grow in the wild any plant that is included in Schedule 9 of the Act, which includes Japanese knotweed (*Fallopia japonica*).

The Countryside and Rights of Way Act (CRoW) 2000

14.13 Part III of the CRoW Act requires that Government Departments have regard for the conservation of biodiversity, in accordance with the Convention on Biological Diversity in 1992. In addition, it demands that the Secretary of State publishes a list of living organisms and habitat types that are considered to be of principal importance in conserving biodiversity. These species and habitats are listed under Section 74 of the CRoW Act as amended by Section 41 of the NERC Act, and are also found within the UK Biodiversity Action Plan (UK BAP) (Ref. 14-5).

14.14 The CRoW Act amends the WCA, by also making it an offence to "*recklessly destroy, damage or obstruct*" access to a sheltering place used by an animal listed in Schedule 5 of the Act or "*recklessly disturb*" an animal occupying such a structure or place.

Natural Environment and Rural Communities Act (NERC) 2006

14.15 The NERC Act amends the CRoW Act, by further extending the requirement to have regard for biodiversity to all public authorities, which includes local authorities and local planning authorities, and requires that the Secretary of State consults Natural England in the publication of the list of living organisms and habitat types deemed to be of principal importance in conserving biodiversity.

The Conservation of Habitats and Species Regulations 2010

14.16 The Conservation of Habitats and Species Regulations 2010 (hereafter referred to as the 'Regulations') are the principal means by which the European Union Directive on the Natural Habitats and Wild Fauna and Flora (92/43/EEC) (EC Habitats Directive) is transposed in England and Wales. These 2010 Regulations update the legislation and consolidate the many amendments which have been made to the Regulations since they were first approved in 1994.

14.17 The Regulations place a duty on the Secretary of State to compile a list of sites considered to be important for habitats or species listed in Annexes I and II of the EC Habitats Directive. There are 39 plant species on Schedule 9 of the Act for which it is illegal to let escape or cause to grown in the wild.

14.18 The Regulations also assign a European level of protection to a variety of native species of plants and animals listed in Annex IV(a) of the EC Habitats Directive, which are known as European Protected Species (EPS). It is an offence to deliberately pick, collect, cut, uproot or destroy a wild plant of an EPS. In addition, wild animals, which are listed on Schedule 2 of the Regulations, are subject to the provisions in Regulation 39, which make it an offence to:

- *Deliberately capture, injure or kill a wild animal of a EPS;*
- *Deliberately disturb any such animal which is likely to:*
- *To impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or, in the case of animals of a hibernating or migratory species, to hibernate or migrate; or*
- *To affect significantly the local distribution or abundance of the species to which they belong;*
- *Deliberately take or destroy the eggs of such an animal; or*
- *Damage or destroy a breeding site or resting place of such an animal.*

National Planning Policy

National Planning Policy Framework (NPPF)

14.19 The NPPF (Ref. 14-6) states that the planning system should contribute to and enhance the natural and local environment by minimising effects on biodiversity and providing net gains in biodiversity where possible. This includes establishing coherent ecological networks that are more resilient to both current (such as habitat degradation, pollution, and invasive species) and future pressures (such as environmental changes resulting from a changing climate).

14.20 Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status.

14.21 To minimise effects on biodiversity, the NPPF advises planning policies should plan for biodiversity at a landscape-scale; identify and map components of the local ecological networks; and promote the preservation, restoration and re-creation of priority habitats and ecological networks and the protection and recovery of priority species populations and identify suitable indicators for monitoring biodiversity.

14.22 A number of principles should be applied by local planning authorities when determining planning applications. Notably, the primary aim should be to avoid significant harm to protected species and habitats and, if not possible, mitigate effects or, as a last resort, provide adequate compensation. If these options are not feasible, planning permission should be refused. Furthermore, opportunities to incorporate biodiversity should be sought.

14.23 The NPPF should be read in conjunction with the Government Circular: Biodiversity and Geological Conservation, Office of the Deputy Prime Minister (ODPM) Circular 06/2005 (Ref. 14-7).

Regional Planning Policy

The London Plan, Spatial Development Strategy for Greater London, July 2011

14.24 The London Plan (2011) (Ref. 14-8) contains the following policy of relevance to ecology.

- *Policy 7.19: Biodiversity and Access to Nature has the aim of ensuring a "*proactive approach to the protection, enhancement, creation, promotion and management of biodiversity in support of the Mayor's Biodiversity Strategy. This means planning for nature from the beginning of the development process and taking opportunities for positive gains for nature through the layout, design and materials of development proposals and appropriate biodiversity action plans*".*

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14.25 With respect to planning decisions this policy states that development proposals should:

- *Wherever possible, make a positive contribution to the protection, enhancement, creation and management of biodiversity;*
- *Prioritise assisting in achieving targets in biodiversity action plans (BAPs) and/or improve access to nature in areas deficient in accessible wildlife sites; and*
- *Not adversely affect the integrity of European sites, and be resisted where they have significant adverse impact on European or nationally designated sites or on the population or conservation status of a protected species, or a priority species or habitat identified in a UK, London or appropriate regional BAP or borough BAP.*

14.26 Policy 7.21 Trees and Woodlands states that "existing trees of value should be retained and any loss as the result of development should be replaced following the principle of 'right place, right tree'. Wherever appropriate, the planting of additional trees should be included in new developments, particularly large-canopied species."

Central London Sub-Regional Development Framework (SRDF), 2006

14.27 This SRDF covers the Central London sub-region (Ref. 14-9), which is formed by the boroughs of Camden, City of Westminster, Islington, Kensington and Chelsea, Lambeth, Southwark and Wandsworth. This sub-region includes part of the Central Activities Zone (CAZ), which it shares with the City of London and parts of Tower Hamlets and Hackney in the East sub-region.

14.28 Policy 4E - Wildlife and Biodiversity states that all major development in Central London should generate a net increase in the quality and quantity of wildlife habitat. Where wildlife habitat is not present on site and all opportunities associated with the site have been considered, financial contributions for the creation, restoration and maintenance of off-site habitats and species should be made, i.e. the Mayor's wildlife sites, and priorities identified by local BAPs.

Local Planning Policy

London Borough of Lambeth

14.29 The London Borough of Lambeth (LBL) Unitary Development Plan 2007: Policies saved beyond 5th August 2010 (Ref. 14-10) forms part of the Development Plan for LBL, along with the Adopted Local Development Framework (LDF) Core Strategy and the London Plan. The Development Plan is the principal basis for determining planning applications in the LBL. Policy 50: Open Space and Sports Facilities states that the Council will protect Open Space in the Borough from inappropriate built development. Development on open space sites may be permitted which protects the nature conservation value and biodiversity of the land. This includes open space such as parks and squares.

14.30 The Lambeth Draft Core Strategy (Ref. 14-11) sets out the vision, strategic objectives, spatial strategy and policies for the spatial development of the borough over the next 15 years.

14.31 Strategic Policy C: Tackling and Adapting to Climate Change and part 5 of this states that the council will safeguard and increase biodiversity through co-ordinated implementation of the Lambeth BAP.

14.32 Furthermore, within Policy S5 – Open Space, the Council state that they will meet requirements for open space by:

> *"(a) Protecting and maintaining existing open spaces and their function.*
>
> *(c) Improving the quality of, and access to, existing open space, including: the range of facilities available and its bio-diversity and nature conservation value and heritage value, through various means, including the implementation of the Lambeth Open Spaces Strategy. Where appropriate in major developments, financial contributions will be sought towards improvements in the quality of, and access to, open space in the borough.*"

14.33 Existing open space includes historic parks and gardens, district and local parks, nature conservation areas, play areas and adventure playgrounds, amenity land within housing estates, communal squares and gardens, front and back gardens.

London Borough of Southwark

14.34 Harmsworth Road is the only construction site in the LBS, and as this has been scoped out of this assessment, the London Borough of Southwark's (LBS) policy context has not been described.

London Borough of Wandsworth

14.35 The current statutory development plan for the London Borough of Wandsworth (LBW) is the Local Plan which comprises the adopted 2010 Core Strategy (Ref. 14-12) and associated Development Management Policies Documents and Site Specific Allocations Documents. The Core Strategy sets out LBW's spatial vision for Borough and how this will be achieved.

14.36 Within the Core Strategy, Policy PL 4 Open Space and the Natural Environment addresses the protection and enhancement of biodiversity within the borough; including both habitats and species. This policy states that:

- *"The biodiversity value of the borough will be protected and enhanced including that of the River Thames, River Wandle and Beverley Brook and species and habitats identified in the London Biodiversity Action Plan.*
- *New development should avoid causing ecological damage and propose full mitigation and compensation measures for ecological effects which do occur.*
- *Where appropriate new development should include new or enhanced habitat or design and landscaping which promotes biodiversity, and provision for management, particularly in areas identified as deficient in nature conservation."*

14.37 This policy also outlines the Council's vision for protecting open space and the natural environment within the borough. The key elements of this policy relevant to the NLE sites are detailed below:

> "*a. The Council will protect and improve public and private open space in the borough, including Metropolitan Open Land, such as the major commons, parks, allotments and playing fields as well as the smaller spaces, including play spaces, as identified in the Open Space Study and Play Strategy.*
>
> *b. New developments will be expected to incorporate appropriate elements of public open space, and to make a positive contribution to the wider network of open spaces.*

e. The borough's green chains and the open spaces along them will be protected and enhanced.

f. The biodiversity value of the borough will be protected and enhanced including that of the River Thames, River Wandle and Beverley Brook and species and habitats identified in the London Biodiversity Action Plan.

g. New development should avoid causing ecological damage and propose full mitigation and compensation measures for ecological effects which do occur. Where appropriate new development should include new or enhanced habitat or design and landscaping which promotes biodiversity, and provision for management, particularly in areas identified as deficient in nature conservation."

Biodiversity Action Plans (BAPs)

UK Post-2010 Biodiversity Framework

14.38 This document was produced in response to a change in strategic thinking following the publication of the Convention of Biological Diversity's Strategic Plan for Biodiversity 2011-2020 (Ref. 14-13) and its 20 'Aichi targets' and the launch of the new EU Biodiversity Strategy (Ref. 14-14).

14.39 It set a broad enabling structure for action across the UK between now and 2020, including a shared vision and priorities for UK-scale activities to help deliver the Aichi targets and the EU Biodiversity Strategy. A major commitment by Parties to the Convention of Biological Diversity is to produce a National Biodiversity Strategy and/or Action Plan.

14.40 The UK Post-Development Framework is relevant in the context of Section 40 of the NERC Act 2006 (Ref. 14-3), meaning that Priority Species and Habitats are material considerations in planning. These species are identified as species of conservation concern due to their rarity or a declining population trend.

London BAP

14.41 The London Biodiversity Partnership (of which TfL is a member) was established in 1996 in response to the UK BAP (now the UK Post-development Framework). The Partnership aims to protect and enhance the capital's habitats and species (Ref. 14-15). Species listed on the London BAP, which may be relevant (due to a likelihood of presence) to the NLE sites, include:

- *Black Redstart;*
- *Peregrine Falcon;*
- *Song Thrush* (Turdus philomelos)*;*
- *Starling* (Sturnus vulgaris)*;*
- *Tree Sparrow* (Passer montanus)*;*
- *House Sparrow* (Passer domesticus)*;*
- *European eel* (Anguilla Anguilla)*;*
- *Smelt* (Atherina presbyterr)*;*
- *Sea trout* (Salmo trutta)*;*
- *Atlantic salmon* (Salmo salar)*; and,*
- *Hedgehog (Erinaceus europaeus).*

London Underground (LU) BAP

14.42 The LU BAP's (Ref. 14-16) objectives include:

- *To conserve, and where reasonably practical to enhance, the biodiversity value of LU property;*
- *To increase awareness amongst staff and the travelling public of biodiversity in London;*
- *To conserve, enhance and increase the quantity of priority BAP habitat on LU property;*
- *To maintain and develop the wildlife potential on current and new LU buildings; and*
- *To reduce the invasive species Japanese knotweed and giant hogweed on LU property.*

14.43 The LU BAP produced in 2010, and developed in consultation with wildlife bodies and Natural England, among others, also seeks to recognise the role biodiversity has in climate change adaptation and mitigation.

Lambeth BAP

14.44 The Lambeth BAP (Ref. 14-17) was adopted by Lambeth Council in October 2005. The Habitat Action Plans and Species Action Plans, included in the Lambeth BAP, are considered to be relevant are:

- *The Built Environment;*
- *Parks and Greenspaces;*
- *House Sparrow;*
- *Blackbird (Turdus merula); and*
- *Bats.*

Wandsworth BAP

14.45 Wandsworth set up a Biodiversity Partnership in 2001 (Ref. 14-18), however it uses the London BAP. The Partnership focuses on contributing to London BAP targets as a priority.

Assessment Methodology and Significance Criteria

Baseline Characterisation

Technical Scope

14.46 Further detail of the technical scope of the assessment and data sources are provided below.

14.47 The technical scope of this assessment extends to:

- *A desk study to collate records of rare, notable and legally protected species and the details of designated nature conservation sites, undertaken in 2010. Desk study data includes data derived from protected species surveys undertaken as part of the BPS Environmental Impact Assessment (EIA) in 2008 and 2009;*

- *An extended Phase 1 habitat survey undertaken in October 2012, to map the habitats on each NLE site and record the presence or suitability of the sites to support notable and/ or protected species. Where noted, the presence of invasive species (species listed on Schedule 9 of the WCA) were also recorded;*
- *External bat roost assessments were undertaken at all NLE sites. An internal inspection of the lodge in the northeaster corner of Kennington Park (hereafter referred to as 'Kennington Park Lodge') was also included. All bat roost surveys were undertaken in accordance with Bat Conservation Trust (BCT) guidelines (Ref. 14-19);*
- *Winter waterbird survey was undertaken by URS Infrastructure and Environment Ltd (URS) over the winter of 2012/ 2013; and*
- *An arboricultural survey was undertaken in October 2012.*

Consultation

14.48 Initial consultation was conducted with Natural England (NE) and the Environment Agency (EA) and it was not consider the NLE application would pose any likely or significant risk to specific features of the natural environment.

Desk Study

14.49 A desk study was undertaken in 2010, comprising an ecological data search for information on non-statutory sites; protected and / or notable species records; and habitat or open space information held by the Greenspace Information for Greater London (GiGL) (Ref. 14-20). The GiGL search area included the NLE sites and the surrounding land within 1km (hereafter referred to as the 'desk study area'). The results of the data search are presented within the individual extended Phase 1 Habitat Reports for each NLE site in *ES Volume II: Appendix J1*.

14.50 Protected species survey data (for bats, breeding and wintering birds, reptiles, and macro-invertebrates) was compiled by Applied Ecology and the London Peregrine Working Group (LPWG) between 2008 and 2009 for the BPS EIA. This data was incorporated into the desk study to provide further contextual information and is contained in *ES Volume II: Appendix J4* and *ES Volume II: Appendix J5*.

14.51 The Environment Agency was contacted for records of fish and macro-invertebrates using the section of the River Thames next to BPS. This data is available from the Environment Agency and is provided in a spreadsheet format, although no published report is available. A summary of this data is provided in the Desk Study Results section. This data comprised:

- *Invertebrate data (Ref. 14-22) – Data was provided from the Environment Agency monitoring site at Battersea, which is the nearest sampling location with recent data. Sampling has been undertaken at this site each year between 2005 and 2011 using a number of techniques, including soil cores and kick sampling in the intertidal habitat. Day grab and core samples were used to collect samples within the sub-tidal areas;*
- *Fish data (Ref. 14-23) – Environment Agency fish surveys have been carried out at Battersea every year since 1983, with various techniques used to record the range of fish species present within the tidal Thames River.*

Extended Phase 1 Habitat Survey

14.52 An extended Phase 1 habitat survey of all six sites (see paragraph 14.95) was undertaken following the Joint Nature Conservation Committee Phase 1 Survey Guidelines (Ref.14-24), and was originally carried out in April 2010 and updated in August and October 2012 to identify any changes that may have occurred in the intervening time. The survey methodology and results for each site are presented within the individual extended Phase 1 Habitat Reports for each NLE site in *ES Volume II: Appendix J1*.

Bat Scoping Survey

14.53 On 25th August 2011 a Natural England licensed bat worker undertook a thorough bat scoping survey of all six sites. As part of this, buildings and trees were assessed to determine their potential to support bats, in accordance with guidelines published by the BCT (Ref. 14-19). The suitability of the habitats for bat foraging, both on and surrounding the sites, were also taken into consideration. In September 2012, the Kennington Park Lodge was resurveyed internally for its potential to support roosting bats. An internal and external assessment was undertaken to check the building for signs of bats or features that could support roosting for bats (see *ES Volume II: Appendix J1*). Based on the results of the bat scoping surveys, no further bat surveys for any of the sites were considered necessary.

Arboricultural Survey

14.54 An arboricultural survey, carried out in accordance with BS5837, was undertaken for all six sites (see *ES Volume II: Appendix J2*). The survey recorded the species and condition of all trees on, or adjacent to the sites.

Winter Water Bird Survey

14.55 A winter water bird survey was conducted at the proposed Battersea station site between November and March, 2012/13. One visit to the site was made each month, within 1 hour of low tide. During each survey visit the surveyor recorded the species, number, and location of all water birds using the mudflats on the north and south bank of the River Thames within approximately 250m of the site. Following completion of the winter surveys, peak monthly counts for each species were calculated. For full survey details see the Winter Bird Survey Report presented in *ES Volume II: Appendix J3*.

Significance Criteria

14.56 The methodology used to assess the significance of effects on ecological receptors is based on the Institute for Ecology and Environmental Management (IEEM) EcIA guidelines published in July 2006 (Ref. 14-25). This guidance follows a 'biodiversity' approach to impact assessment using a process of assigning values to the identified ecological features and resources, predicting and characterising ecological impacts and, through this process, determining significance of potential effects on ecological receptors. The impact assessment process therefore follows three key steps: Firstly, all potential receptors are assigned a biodiversity value in accordance with the criteria detailed in Table 14-1. Secondly, where impacts on a receptor are identified, the effect significance is determined by, essentially, 'multiplying' the value of the receptor by the perceived impact magnitude (as is presented in Table 14-2). Thirdly, whether the effect is deemed to be significant in

terms of the IEEM guidance (detailed in Table 14-3) is determined. The paragraphs below provide further detail with regards this process.

14.57 The guidelines suggest that the value or importance of an ecological resource or feature should be defined in terms of a geographic scale. The following Tables 14-1, 14-2 and 14-3 provide guidance on criteria used to determine the value and geographical scale of reference for ecological receptors / resources:

Table 14-1 Resource / Receptor Evaluation Criteria

Value/Sensitivity of Resource / Receptor	**Example Criteria**
Very High (International)	An internationally designated site or candidate/proposed site (Special Protection Area (SPA), potential SPA, Special Area of Conservation (SAC), candidate SAC and/or Ramsar site). A sustainable area of a habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of the larger whole. Sustainable population of an internationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) i.e.: - UK Red data book (RDB) species that is listed as occurring in 15 or fewer 10km squares in the UK, that is of unfavourable conservation concern in Europe or of uncertain conservation status or global conservation concern in the UK BAP; or - Species listed in Annex IV of the Habitats Directive; or - Sites that support 1% or more of a biogeographic population of a species.
High (National)	A nationally designated site (Site of Special Scientific Interest (SSSI), National Nature Reserve) or a discrete area which meets the selection criteria for national designation (e.g. SSSI selection criteria). An area formally selected by Defra as a Nature Improvement Area. A sustainable area of a priority habitat identified in the UK BAP or of smaller areas of such habitat, which are essential to maintain the viability of the whole. Sustainable population of a nationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) i.e.: - Species listed on Schedules 5 and 8 of the WCA (1981); - Other UK Red Data Book species;
	- Other species listed as occurring in 15 or fewer 10 km squares in the UK; or - Sites supporting 1% or more of a national population.
Medium – High (Regional i.e. south-east England)	Sites/populations which exceed the County-level designations but fall short of SSSI selection guidelines, including the following: - Sustainable areas of key habitat identified in the Regional BAP or smaller areas of such habitat, which are essential to maintain the viability of the whole; - Population of a species listed as being nationally scarce which occurs in 16-100 10 km squares in the UK; - Population of a species listed in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; or - Sites supporting 1% or more of a regional population.
Medium (Metropolitan i.e. Greater London)	Some designated sites (including Sites of Importance for Nature Conservation, County Wildlife Sites, Sites of Metropolitan Importance). A viable area of habitat identified in the County BAP. Sustainable populations of the following species: - Species listed in a County/Metropolitan 'red data book' or BAP on account of its rarity/localisation in a county context; or, - Sites supporting 1% or more of a county population.
Low - Medium (Borough i.e. Lambeth, Southwark or Wandsworth)	Some designated sites (Local Nature Reserves (LNR), Sites of Borough Importance). Viable areas of habitat identified in a District/Borough BAP. Sites/features which are scarce within the District/Borough or which appreciably enrich the District/Borough habitat resource. Sustainable populations of the following species: - Species listed in a District/Borough BAP on account of its rarity/localisation in a district context; or, - Sites supporting 1% or more of a District/Borough population.
Low (within approximately 2km of the site)	Sites/populations, which appreciably enrich the District/Borough habitat resource (e.g. moderately species-rich hedgerows).
Site / Negligible	Limited - no ecological value

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14.58 Once the ecological receptor (designated site, habitat, assemblage or species) has been identified, a judgement is made as to whether the development is likely to result in impacts upon each receptor and, if appropriate, the nature of those effects. Each potential ecological impact has a number of characteristics that need to be adequately described before significance can be assessed. A number of factors have been considered when describing and assessing ecological impact, including:

- *Extent (area or distance);*
- *Magnitude (amount or level of impact);*
- *Duration (in time or related to species' life-cycles);*
- *Timing and frequency (e.g. related to breeding seasons); and*
- *Reversibility (whether the impact is permanent or temporary).*

14.59 Once each of these factors has been considered, a judgment on the significance of the resulting impact on a particular receptor is made. This will depend on both the characteristics of the impact and the value of the receptor. IEEM states that "*an ecologically significant impact is defined as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area.*" Effects on ecological integrity of designated sites are those which affect integrity as described by the Government Circular: Biodiversity and Geological Conservation as "*… the coherence of ecological structure and function … that enables it to sustain the habitat, complex of habitats and/or levels of populations or species for which it was classified.*" The guidelines also provide definitions for the conservation status of habitats and species:

- *"For habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area";* and
- *"For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area."*

14.60 Taking the value of the resource and the magnitude of the effects into account, an overall evaluation of whether an effect is significant can be derived. This is indicated in Table 14-2, below.

14.61 Effects on ecology and nature conservation are subsequently assessed under the IEEM guidance as being either a non-significant or significant, positive or negative effect at the relevant geographical scale. Significance criteria are presented in Table 14-3.

Table 14-2 Determining Significance of Effects

Value of Resource	**Magnitude of Effect**		
	High	**Medium**	**Low**
Very High (International)	Major	Major	Major / Moderate
High (National)	Major	Major / Moderate	Major / Moderate
Medium – High (Regional)	Major / Moderate	Moderate	Moderate
Medium (Metropolitan)	Major / Moderate	Moderate	Moderate / Low
Low – Medium (Borough)	Moderate	Moderate / Low	Low
Low (Local)	Moderate / Minor	Minor	Minor / Negligible
Site / Negligible	Minor / Negligible	Minor / Negligible	Negligible

Table 14-3 Significance Criteria in Accordance with IEEM

Overall Significance		**Equivalent IEEM Assessments of Significance at Different Geographical Levels**
Significant	Major beneficial	Positive effect on ecological integrity or conservation status at regional, national or international level
	Moderate beneficial	Positive effect on ecological integrity or conservation status at borough - county level
Non-significant	Minor beneficial	Positive effect on ecological integrity or conservation status at zone of influence - local level
Neutral	Negligible	No effect on ecological integrity or conservation status
Non-significant	Minor adverse	Negative effect on ecological integrity or conservation status at zone of influence - local level
Significant	Moderate adverse	Negative effect on ecological integrity or conservation status at borough - county level
	Major adverse	Negative effect on ecological integrity or conservation status at regional, national or international level

Determination of Appropriate Mitigation

14.62 The scale and significance of the effect will help to determine the correct level of mitigation or compensation required. Mitigation measures are identified through the mitigation hierarchy which aim to:

- Enhance;
- Avoid impacts at the source;
- Reduce impacts at the source;
- Abate impacts on the site;
- Abate impacts at receptor;
- Repair impacts;
- Compensate in kind; and
- Compensate by other means.

Residual Effect Assessment

14.63 This section identifies the remaining effects of the NLE. Residual effects are those that remain after the implementation of mitigation measures. The assessment of the significance of any residual effects follows the methodology set out above.

Cumulative Effect Assessment

14.64 The same methodology to that detailed above is used to assess cumulative effects. This assessment is essentially a receptor-based assessment. Other developments in the surrounding area that are likely to either impact a receptor that has been affected by the NLE 'alone', or reduce the usefulness of a particular mitigation measure, have been considered. The temporal and spatial parameters of the assessment have determined which additional developments have been included within the cumulative effect assessment.

Baseline Conditions

14.65 A summary of the desk study and field survey results for the Battersea station, Nine Elms station, Kennington Green and Kennington Park sites is provided below. For full details of the surveys please refer to the relevant extended Phase 1 habitat reports for each site (*ES Volume II: Appendix J1*).

Desk Study Results

Designated Sites

14.66 None of the NLE sites lie within or adjacent to any statutory protected sites. There is one statutory site within 1km of the proposed Battersea station site, namely Battersea Park Nature Areas Local Nature Reserve (LNR) which lies approximately 300m to the west (see Figure 14-2 and Table 14-4 for further detail).

14.67 There are nine non-statutory designated sites within 1km of the NLE sites (see Table 14-4). Three of these sites are coincident with the NLE sites:

- *The Battersea station site lies within BPS Site of Borough Importance for Nature Conservation (SBINC or SBI) (Grade 1 Importance) and the River Thames & Tidal Tributaries Site of Metropolitan Importance for Nature Conservation (SMINC); and.*
- *Kennington Park lies within Kennington Park Site of Local Importance (SLI).*

14.68 Table 14-4, below, presents all designated sites within 1km of the NLE site and details the distance between each NLE site and designated site.

Table 14-4 Designated Sites within 1km of the NLE Sites

Site Name and Reference	Approximate Distance/ Direction from NLE sites (km)
Statutory Designated Sites	
Battersea Park Nature Areas LNR	0.2km west of BPS
	>1km away from all other sites
Non-Statutory Designated Sites	
River Thames & Tidal Tributaries SMINC (**MO31**)	Adjacent to Battersea station
	0.5km northwest of Nine Elms station
	0.9km northwest of Kennington Green
	>1km away from all other sites
Battersea Power Station SBI Grade 1 (**WaBI07**)	Located within the Battersea station
	0.7km west of Nine Elms station
	>1km away from all other sites
Oasis Children's Nature Garden SBI Grad 2 (**LaBII07**)	0.8km south of Nine Elms station
	>1km away from all other sites
Harleyford Road Community Garden SBI Grade 2 (**LaBII08**)	0.5km west of Nine Elms station
	0.7km west of Kennington Park
	0.9km west of Kennington Green
	>1km away from all other sites
Roots and Shoots Nature Gardens SBI Grad 2 (**LaBII09**)	0.8km north of Radcot Street
	0.8km north of Kennington Green
	>1km away from all other sites
Walworth Garden Farm SBI Grade 2 (**SoBII15**)	0.5km east of Kennington Green
	0.6km east of Kennington Park
	>1km away from all other sites
Kennington Park SLI (**LaL14**)	Kennington Park lies within Kennington Park SLI.
	0.2km east of Kennington Green
	>1km away from all other sites

Site Name and Reference	Approximate Distance/ Direction from NLE sites (km)
Surrey Gardens SLI (**SoL28**)	0.7km east Kennington Green
	0.4km Northeast of Kennington Park
	>1km away from all other sites
Durand Gardens, Stockwell SLI (**LaL09**)	1.2km southwest of Kennington Park
	>1km away from all other sites
Archbishop Sumner Nature Garden SLI (**LaL10**)	0.6km north of Kennington Green
	0.7km north of Kennington Park
	>1km away from all other sites
Vauxhall City Farm SLI (**LaL05**)	0.5km west of Kennington Green
	0.9km northwest of Kennington Park
	>1km away from all other sites
Geraldine Mary Harmsworth Park SLI (**SoL15**)	0.9km north of Radcot Street
	1km north of Kennington Green
	>1km away from all other sites
Lorn Road Allotments SLI (**LaL04**)	1.35km southeast of Nine Elms station
	>1km away from all other sites
St George's Square Gardens SLI (**WeL07**)	0.75km northwest of Nine Elms station
	0.8km northeast of Battersea Crossover
	>1km away from all other sites

14.69 Figure 14-2 provides a spatial perspective of each designated site and its relation to the NLE sites.

Protected and Notable Species Records

14.70 A number of rare, protected and notable species have been recorded within 1km of the sites. Those that may be relevant to the sites are listed below, together with details of the source of their statutory protection.

Breeding Birds

GIGL Desk Study Data

14.71 A large number of legally protected and notable bird species have been recorded within the desk study area. These include birds associated with the River Thames such as kingfisher (*Alcedo atthis*), common tern (*Sterna hirundo*) and herring gull (*Larus argentatus*), and species favouring urban habitats such as starling, song thrush (*Turdus philomelos*) and house sparrow. The following protected or notable bird species have been recorded within the desk study area:

- *Peregrine falcon (Schedule 1 WCA, the Habitats Regulations) - The species nests on Battersea station and two other structures at the wider Battersea station site;*
- *Black Redstart (Schedule 1 WCA, BAP) - The species has been recorded at the Battersea station site since 1974, breeding was confirmed in 1995 and 1996 and it is likely that this species has bred every year since. Black redstarts are known to nest on the southern facades of BPS. Furthermore, all of the NLE sites are located within the black redstart Known Key Area (Ref 14-26).*

14.72 Apart from legally protected species, the following birds that are listed on Section 41 (S41) of the NERC Act (2006), the UK BAP and/or the London BAP have also been recorded the desk study area: linnet (*Carduelis cannabina*), herring gull, yellow wagtail (*Motacilla flava*), spotted flycatcher (*Muscicapa striata)*, house sparrow, dunnock (*Prunella modularis*), song thrush and lapwing (*Vanellus vanellus*).

Breeding Birds Survey at BPS (2009 – Applied Ecology)

14.73 Black redstart were recorded at BPS in 2008 (Ref. 14-27), although not within the proposed Battersea station site.

14.74 Observations by the LPWG during 2009 revealed that peregrines were present at BPS, but had, at that point, failed to breed successfully.

14.75 Twenty-two other bird species were recorded on, or near to the Battersea station site during the 2008 breeding bird survey. Table 14-5, below, lists notable species recorded and provides details regarding their behaviour and breeding status, as well as conservation importance (an explanation as the conservation codes (i.e. red, amber, and green listing is provided within *ES Volume II: Appendix J3*).

14.76 Dunnock, grey wagtail, linnet, house sparrow and starling used the wider BPS site for foraging or nesting during the breeding season. The LPWG also observed grey wagtails nesting on the BPS in 2009.

Wintering Birds

GIGL Desk Study Data

14.77 The following notable bird species have been recorded within the desk study area during the winter.

- *Scaup (Aythya marila) (WCA) – The species has been recorded on the River Thames; and,*
- *Barnacle goose (Branta leucopsis) (Habitats Regulations 2010) - The species has been recorded on the River Thames.*

Table 14-5 Status of Other Notable Bird Species

Common Name	Scientific Name	Conservation Status	Breeding Confirmed	Comment
Dunnock	*Prunella modularis*	Bird of Conservation Concern (CoCC) Amber	No	At least two territories along the western edge.
Gadwall	*Anas strepera*	BoCC Amber	No	Up to six birds over-flying the site and usually found on the nearby River Thames.
Grey heron	*Ardea cinerea*	London BAP	No	Frequent over-flyer.
Grey wagtail	*Motacilla cinerea*	BoCC Amber	Yes	One pair bred in BPS.
House sparrow	*Passer domesticus*	BoCC Red UK BAP London BAP	No	Thought not to breed, but regularly seen foraging in the south of the site. Up to seven birds.
Linnet	*Carduelis cannabina*	BoCC Red UK BAP	No	Territory occupied by at least two pairs on the western edge.
Starling	*Sturnus vulgaris*	BoCC Red UK BAP	No	Small numbers over-flying early in the period, and flocks of up to 40 juveniles foraging on waste ground in June.
Swallow	*Hirundo rustica*	BoCC Amber	No	Migrants seen overhead during May but thought not to breed on the site.
Wheatear	*Oenanthe oenanthe*	BoCC Amber	No	A single migrant in the north of the site in mid-May.

Wintering Bird Survey at BPS (undertaken in 2008 and 2009 by Applied Ecology)

14.78 A total of 14 species were recorded (Ref. 14-28) on or near to the wider BPS site. Excluding those species over-flying the site, the following six species were recorded on the wider BPS site:

- *Kestrel (BoCC Amber);*
- *Black redstart (WCA Schedule 1, BoCC Amber and London BAP);*
- *Dunnock (BoCC Amber);*
- *Grey wagtail (BoCC Amber);*
- *Linnet (BoCC Red, UK BAP); and*
- *Peregrine falcon (WCA Schedule 1 and London BAP).*

14.79 In addition, a flock of starlings (BoCC Red), numbering between 52 and 75, were noted flying over the northeast corner of the site on each survey visit.

Bats

GIGL Desk Study Data

14.80 Four species of bat have been recorded within the desk study area in the last 15 years (see Table 14-6). The majority of these records are for bats recorded near to the proposed Battersea station site.

Table 14-6 Bat Species Recorded within 1km of the NLE Sites

Common Name	Scientific Name	Site	Year
Common Pipistrelle	*Pipistrelleus pipistrellus*	0.5km west of the Battersea station site	1998
Unidentified Nyctulus	*Nyctulus sp*	0.6km north of the Battersea station site	2006
Soprano Pipistrelle	*Pipistrelle pygmaeus*	0.7km west of the Battersea station site	1998
Unidentified Pipistrelle	*Pipistrellus sp.*	0.8km southwest of the Battersea station site	1998
Noctule bat	*Nyctalus noctula*	0.9km southeast of the Battersea station site	1998
Leisler's bat	*Nyctalus leisleri*	1.0km west of the Battersea station site	2003

Other Mammals

GIGL Desk Study Data

14.81 There are a number of records for hedgehog (*Erinaceus europaeus*) within the desk study area.

Herpetofauna (Amphibians and Reptiles)

GIGL Desk Study Data

14.82 There are no records of legally protected or notable amphibians or reptiles within the desk study area.

Reptile Presence / Absence Surveys at BPS (undertaken by Applied Ecology in 2008)

14.83 No reptiles were recorded during reptile surveys undertaken at the wider BPS site in 2008.

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Fish

Environment Agency Fish Survey Data

14.84 The Environment Agency annual fish surveys at Battersea (Ref. 14-23) revealed that fifteen fish species use the stretch of the River Thames adjacent to BPS. The dominant fish species are estuarine resident fish such as common goby (*Pomatoschistus microps*), flounder (*Platichthys flesus*) and sand smelt (*Atherina presbyter*). Freshwater species including dace (*Leuciscus leuciscus*), common bream (*Abramis brama*), perch (*Perca fluviatilis*) and roach *(Rutilus rutilus*) and migratory species including eel (*Anguilla anguilla*) and smelt (*Osmerus mordax*) were also recorded. Migratory species, such as Atlantic salmon (*Salmo salar*) and sea trout (*Salmo trutta*), also pass through this area.

Terrestrial Macro-Invertebrates

Invertebrate Surveys at BPS (2008 – Applied Ecology)

14.85 The macro-invertebrate survey undertaken at BPS by Applied Ecology in 2008 recorded 384 invertebrate species within the bounds of the site.

14.86 None of the species that were recorded are legally protected, although 39 notable species were recorded in 2008. Their notable status has been ascribed to their conservation status or because they are considered to be of rare or occasional occurrence in the area.

14.87 Seven species recorded in 2008 are listed in the Red Data Book, 16 are Nationally Scarce, and 17 species, apart from those with formal conservation status, are considered to be of rare or occasional occurrence in the southeastern counties of the UK. Two additional species are priority species in the UK BAP, and a further six species, without other formal status, are included in the list of priority species and species of conservation concern in the London BAP.

14.88 Table 14-7 presents the terrestrial macro-invertebrates that were recorded that have been afforded formal conservation status, in addition to the area of the site in which they were found.

14.89 While *Stictopleurus punctatonervosus* is officially extinct, this status is no longer appropriate. This species has re-colonised in recent years, and has become widely distributed and common over a large area of southern England, occurring especially in brownfield sites.

14.90 The greatest concentration of macro-invertebrate interest was in the transitional habitats along the railway line to the west of BPS. Invertebrate diversity and activity was higher here than elsewhere on the site: 20 notable species were recorded in this area, compared to 16 in the grassland and open habitats in the southwest, 14 in the open habitats in the north and two on the railway arches. Areas of open-structured vegetation and sparsely-vegetated ground in the south-west and north produced a good range of invertebrates, and were notable not only for the presence of a number of uncommon species, but also for the abundance of some relatively common ones.

Table 14-7 Macro-Invertebrates with Nature Conservation Interest

Order	Species	Conservation Status	Location *
Araneae (spiders)	*Zodarion italicum*	London BAP	N
Coleoptera (beetles)	*Bruchela rufipes*	London BAP	N, M, F
	Kalcapion semivittatum	Nationally Scarce A, London BAP	M
	Adonis' ladybird *Hippodamia variegate*	Nationally Scarce B	S, N, M, F
	Baris picicornis	Nationally Scarce B	F
	Larinus planus	Nationally Scarce B	F
	Mecinus janthinus	Nationally Scarce B	S
	Olibrus flavicornis	Red Data Book, London BAP	S, N
	Trixagus elateroides	Red Data Book Rare	N
Diptera (flies)	*Cistogaster globosa*	Red Data Book Endangered	F
	Gymnosoma rotundatum	Red Data Book Rare	F
Hemiptera (true bugs and froghoppers, leafhoppers and planthoppers)	*Euscelidius variegatus*	Nationally Scarce B	S, N
	Macrosteles quadripunctulatus	Nationally Scarce A	S, N
	Scleroracus decumanus	Nationally Scarce B	N
	Asiraca clavicornis	Nationally Scarce B, London BAP	F
	Bathysolen nubilus	Nationally Scarce B, London BAP	S, N
	Deraeocoris flavilinea	London BAP	M, F
	Lygus pratensis	Red Data Book Rare	N, M, F
	Stictopleurus punctatonervosus	Extinct	S, N, M, F

Order	Species	Conservation Status	Location *
Hymenoptera (bees, wasps, ants and sawflies)	*Andrena flavipes*	London BAP	F
	Four-spotted flower bee *Anthophora quadrimaculata*	Nationally Scarce B	F
	Hylaeus signatus	Nationally Scarce B, London BAP	F
	Lasioglossum alachurum	Nationally Scarce A, London BAP	S, F
	Hedychridium roseum	London BAP	S
	Auplopus carbonarius	Nationally Scarce B, London BAP	F
	Red-banded sand wasp *Ammophila sabulosa*	London BAP	F
	Mimesa bruxellensis	Nationally Scarce A	F
Lepidoptera (moths and butterflies)	Toadflax brocade *Calophasia lunula*	Red Data Book Rare London BAP	S
	Small heath *Coenonympha pamphilus*	UK BAP, London BAP Priority Species	S, N, F
Orthoptera (grasshoppers and crickets)	Long-winged cone-head *Conocephalus discolour*	Nationally Scarce A, London BAP	S, F

** S - grassland and open habitats in the southwest, N - open habitats in the north, M - spoil mounds, F - rail-side fringe*

Aquatic Invertebrates

Environment Agency Aquatic Invertebrate Survey Data

14.91 Fifty taxa were recorded at Battersea during the 2005-2011 period over which samples were collected (Ref. 14-22). Surveys revealed that pollution tolerant species in the taxa *Oligochaeta* (worms) were relatively abundant, together with other pollution tolerant species such as the snail *Potamopyrgus antipodarum*. G*ammarus zaddachi*, a moderately pollution-sensitive species was also highly abundant and *Theodoxus fluviatilis* (pollution sensitive river neritid) was present most years.

14.92 In addition to the native species, the amphipod *Gammarus tigrinus*, of North American origin, was recorded at Battersea (one individual) in 2006. This species lives in fresh and brackish waters and can expand rapidly, outcompeting local amphipods. However, the Environment Agency data indicates that this species is much less abundant than the native *Gammarus. zaddachi* within the Tidal Thames.

14.93 The only species of high nature conservation importance recorded was the mudshrimp *Corophium lacustre*, a RDB species which was present in subtidal samples at the site. Environment Agency data have however shown *Corophium. lacustre* to be common in the Tidal Thames.

Notable Flora

GIGL Desk Study Data

14.94 In 2007, cornflower (*Centaurea cyanus*) (listed on the WCA) and mistletoe (*Viscum album*) (a London BAP species) were recorded 0.7km northwest and 0.5km southwest of the Kennington Park, respectively.

Field Survey Results (Extended Phase 1 Habitat Survey)

Habitats

14.95 The Phase 1 habitat types that were recorded across the four sites surveyed are listed below, in addition to their associated alphanumeric reference codes (refer to *ES Volume II: Appendix J1* for Phase 1 habitat maps):

- Scattered trees (A.3);
- Poor semi-improved grassland (B2.2);
- Scattered scrub (A2.2);
- Tall ruderal (C3.1);
- Amenity grassland (J.1.2.);
- Ephemeral/ short perennial (J1.3)
- Introduced shrub (J.1.4);
- Buildings (J3.6);
- Bare ground (J4); and
- Hardstanding (J5).

14.96 A brief description of the habitats is presented in Table 14-8 below. Where a habitat type was not recorded on-site during the field survey, ‘N/A’ has been added to the table.

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Table 14-8 Summary of Phase 1 Habitat Types Recorded on the NLE Sites

NLE Site	Scattered Trees	Poor Semi-improved Grassland	Amenity Grassland	Ephemeral/ Short Perennial	Tall Ruderal	Introduced Shrub	Buildings	Bare Ground	Scattered Scrub	Hardstanding	Habitats on Adjacent Land
Kennington Green	5 scattered trees on the grassland and 6 within the pavement. Species include cherry *Prunus cerasus*, London plane *Platanus x hispanica*, black acacia *Acacia melanoxylon* and ginko *Ginkgo biloba*.	N/A	An area of short mown grassland comprising perennial rye grass *Lolium perenne* and common forbs.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Hardstanding
Kennington Park	Twenty-nine trees including London plane, oak *Quercus sp.*, silver birch *Betula pendula* and ash *Fraxinus excelsior*.	N/A	An area of short mown grassland comprising perennial rye grass and common forbs.	N/A	N/A	N/A	Kennington Park Lodge is a building with mature garden surrounding which contains a number of artificial bee hives.	N/A	N/A	N/A	Hardstanding, buildings, trees, amenity grassland
Nine Elms Station	Eight scattered trees including sycamore *Acer pseudoplatanus*, rowan *Sorbus aucuparia*, hawthorn *Crataegus*	N/A	N/A	N/A	N/A	Non-native shrubs were present in the landscaped areas	There are four buildings on site. A security office, an electricity substation, an office block and a	N/A	N/A	N/A	River Thames and railway line.

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NLE Site	Scattered Trees	Poor Semi-improved Grassland	Amenity Grassland	Ephemeral/ Short Perennial	Tall Ruderal	Introduced Shrub	Buildings	Bare Ground	Scattered Scrub	Hardstanding	Habitats on Adjacent Land
	monogyna.and London plane.						petrol filling station.				
Battersea Station	N/A	A small area of poor semi-improved grassland is present within the south-west corner of the site. This area is heavily degraded due to construction-related activity within the Battersea station site. This area is dominated by false-oat grass *Arrhenatherum elatius,* together with Yorkshire fog *Holcus lanatus,* smooth meadow-grass *Poa pratensis* and a range of forbs.	An area of short mown grassland comprising perennial rye grass *Lolium perenne* and common broad-leaved plants.	Small areas of ephemeral short perennial plants have established on the site.	Small areas of tall ruderal plants had established around the site, dominated by common nettle *Urtica dioica*, mugwort *Artemisa vulgaris* and hoary mustard *Hirschfeldia incana*.	Non-native shrubs were present in the landscaped areas.	There are three buildings. A single-storey, metal shed, a partially demolished brick built, two-storey building with a pitch roof and a modern glass and metal building.	Areas of compacted gravel.	Scattered scrub was present across the site. The dominant plant species were butterfly-bush *Buddleja davidii* and bramble *Rubus* sp.	Areas of concrete that have become degraded and cracked in places.	A narrow belt of mudflats and sand was present along the edge of the River Thames. No vegetation was recorded. Buildings, hardstanding, active railway line, River Thames, amenity grassland.

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Fauna

Bats

14.97 With the exception of building B3 at the Nine Elms station site (assessed as having low potential to support roosting bats), bat roost assessments of buildings and trees found no evidence of bats or potential to support roosting bats.

14.98 Descriptions of buildings and surrounding habitats associated with each site are presented in Table 14-9 below, with greater detail (including Phase 1 Habitat plans for each site showing building or tree locations) available in *ES Volume II: Appendix J1*. The descriptions, below, provide an indication of the potential for the sites to support roosting, foraging and commuting bats.

14.99 Some of the sites are located near to open spaces and / or the River Thames and these may attract bats to the area. Furthermore, residential gardens may support bats and their presence increases the potential of bats being present on the sites. For these reasons, valuable habitats adjacent to the sites are also included in this assessment.

Table 14-9 Assessment of the Potential to Support Bats

NLE Site	Building Description and Bat Roost Potential	Habitat Description
Kennington Green	There are no buildings on this site.	There are no trees which could support roosting bats. Trees and grassland may provide foraging habitat.
Kennington Park	Occupied building. Brick-built with pitched, tiled roof and internal roof void. Negligible roost potential.	Trees in the garden of the house lack features that could support roosting bats, but, may provide bat foraging habitat.
Nine Elms Station	B1 – Adjacent supermarket constructed of metal with a flat roof. No access points. Negligible roost potential. B2 - Banham Security Ltd offices. Multi-storey brick building with a metal sheet roof. No access points. Negligible roost potential. B3 - Electricity substation. Brick building with a number of vents which may lead to crevices within the structure. Low roost potential. B4 - Office block. Multi-storey brick building with a flat, bitumen roof. No access points. Negligible roost potential. B5 - Recycling centre made of concrete with a sheet metal roof. No gaps in the walls and no roof voids. Negligible roost potential. B6 – Electrical substation. Brick building with flat roof and no apparent roof void. No access points. Negligible roost potential. B7 – Petrol station forecourt and adjacent shop. Flat-roofed buildings with no roof voids and no access points. Negligible roost potential.	The trees on the site and on the surrounding roads would provide very limited foraging habitat for bats.
Battersea Station	B1- Single-storey, metal shed. Negligible roost potential. B2- Partially demolished brick built, two-storey building with a pitch roof. Exhibits some potential for bats although currently subject to	Adjacent grassland habitats may support invertebrates which support bats. Grassland and scrub along the railway lines may provide

NLE Site	Building Description and Bat Roost Potential	Habitat Description
	demolition from a previous planning consent. Not considered further in this assessment. B3- Modern glass and metal building. Negligible roost potential.	foraging and commuting habitat.

Wintering and Water Birds (Battersea Station, only)

14.100 Winter and water bird data was collected for the winter bird core period of November 2012-February 2013. During this time all birds using the River Thames within 200m of the proposed NLE works were recorded once a month at low tide.

14.101 The numbers and diversity of birds using the exposed mudflats was low. This is likely to be due largely to the very small areas of mudflats exposed at low tide. None of the birds recorded are considered to be wading birds, but rather the assemblage was dominated by mallard (dabbling duck), cormorant (diving bird) and black-headed gull (gull). More importantly, the survey area did not support any species that extract food from below the surface of the mud and this suggests that the mudflats here are not rich in the invertebrates that attract specialist wading birds. Furthermore, only moorhen was recorded foraging on the mudflats; the mallard, coot, gulls and cormorant were recorded swimming or roosting on the pontoons or jetty, and this reinforces the assertion that the mudflats do not provide an important food resource for wintering birds.

14.102 All of the birds recorded are widespread birds that are relatively common in the area. They are also generalist species that inhabit a range of habitats and, if displaced by the NLE, are likely to find suitable habitat elsewhere. Furthermore, with the exception of moorhen, such birds are highly mobile in the winter and frequently move between sites to forage and roost. It is therefore unlikely that the works at the Battersea station site will have any impact on the fitness or populations of water birds.

14.103 Please see *ES Volume II: Appendix J3* for further detail with regards to the findings of the winter bird surveys.

Reptiles

14.104 The extended Phase 1 Habitat survey revealed that all NLE sites lacked sufficient suitable habitat (such as grassland, ruderal vegetation, and scrub), to support reptiles. This view is supported by the findings of Applied Ecology's reptile survey of the wider BPS site in 2008 (see Desk Study Results section), which did not record any reptiles.

Terrestrial Macro-Invertebrates

14.105 The habitats across all NLE sites do not exhibit features which are likely to support notable assemblages of invertebrates. While a bee hive is present within the grounds of Kennington Park Lodge, these bees are not considered intrinsically valuable as they are a common species of honey-bee. Furthermore, although habitats adjacent to the Battersea station site (including the rail line to the west of the site) may support notable invertebrates, habitats on-site have become degraded (due to BPS being a working construction site) and are therefore of limited value to invertebrates.

Aquatic Macro-Invertebrates

14.106 The aquatic habitats (including the River Thames, intertidal and sub-tidal habitats) adjacent to the Battersea station site exhibit potential for supporting assemblages of aquatic invertebrates. This view is reinforced by the desk study data provided by the Environment Agency (Ref. 14-22).

Fish

14.107 The River Thames, located immediately adjacent to the Battersea station site, has the potential to support a range of fish species, including European eel, sand smelt, sea trout and Atlantic salmon.

Mammals

14.108 The habitats present across all NLE sites have the potential to support widespread mammal species including hedgehog and fox. However due to the relatively small areas of suitable habitat on-site, they would represent only a small proportion of the home range of these animals.

Notable Flora and Invasive Plant

14.109 No legally protected or notable plant species were recorded during field survey at any of the proposed NLE sites. Furthermore, no WCA schedule 9 species were recorded on any NLE site during the field survey.

Evaluation of Ecological Receptors

14.110 The paragraphs below and Table 14-10 provide an evaluation of the biodiversity receptors identified during baseline data gathering. Biodiversity evaluations have been produced in accordance with the criteria presented in Table 14-1, above.

Statutory Designated Sites

14.111 Battersea Park Nature Area LNR has been subject to high levels of disturbance from construction activity during recent years. Consequently, only very small areas of vegetation remains on the site and these areas are subject to high levels of noise and dust that limits their value to wildlife. For these reasons the LNR is assessed as being of biodiversity at the site scale.

Non-statutory Designated Sites

14.112 The River Thames and Tidal Estuaries, the only SMINC within 1km, is assessed as being of biodiversity value at the metropolitan scale.

14.113 Three SBINC fall within the desk study area are assessed as being of biodiversity value at the borough scale.

14.114 The remaining five sites located within the desk study area, are all SLINCs, and are assessed as being of biodiversity value at the local scale.

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Habitats and Species

Table 14-10 Evaluation of Habitats and Species

NLE Site	Habitats	Bats	Breeding Birds	Wintering Birds	Common Reptiles	Terrestrial Macro-invertebrates	Aquatic Macro-invertebrates	Fish	Mammals	Notable Flora
Kennington Green **Kennington Park** **Nine Elms Station**	Mature and semi-mature semi-natural trees are present within the bounds of these sites. These specimens, although comprising either relatively common or introduced specimens, are notable due to the relative rarity of trees within the highly urbanised location within which they sit. Scattered mature trees are therefore assessed as being of biodiversity value at the local scale. All other habitats encountered on site are either man-made (buildings, hard standing) or comprise common ornamental plant species (introduced shrub and amenity grassland). These habitats are assessed as being of negligible intrinsic value for biodiversity.	**Roosting bats:** Building 3 (B3), the electricity substation at the Nine Elms site was noted as having low potential to support roosting bats. The Nine Elms site is close to features which promote connectivity within the surrounding landscape; including the River Thames and the railway line to the north of the site. However, given the generally low quality of the surrounding habitat and of low potential of the roost to support bats, it is anticipated that this structure (B3) would only be likely to support a very small bat numbers (likely to be pipistrelle). All other trees and buildings across the three sites exhibited negligible potential for supporting roosting bat. Considering the low potential at B3 and	Potential breeding bird habitat across the three sites (including buildings and scattered trees) provide some opportunity for birds to nest during the breeding season. Given the limited extent and general sub-optimal nature of these habitats, breeding birds are likely to be restricted to small numbers of relatively common species. The number and assemblage of breeding birds present within the site is therefore assessed as being of site biodiversity value, only.	N/A	No suitable reptile habitat was recorded across the three sites and reptiles are therefore likely absent from the site. Reptiles are therefore assessed as being of negligible conservation value.	No suitable terrestrial invertebrate habitat was recorded across the three sites. Assemblages of these species present within the bounds of these sites are therefore unlikely to be notable. Terrestrial invertebrates are therefore assessed as being of site biodiversity value.	N/A	N/A	The habitats present within the field survey area have the potential to support common mammal species such as hedgehog and red fox. These species, if present on site, are assessed as being of site biodiversity value.	No notable flora were recorded within the field survey area.

NLE Site	Habitats	Bats	Breeding Birds	Wintering Birds	Common Reptiles	Terrestrial Macro-invertebrates	Aquatic Macro-invertebrates	Fish	Mammals	Notable Flora
		negligible potential across all other features, roosting bats assessed as likely absent from Kennington Green and Park, and of negligible biodiversity value at the Nine Elms station site. **Foraging and commuting bats:** The desk study has revealed that bats are present within 1km of all three sites. Kennington Park supports semi-natural open habitats (such as grassland and trees) which may be of local importance to bats. Although bats may be present on the site, there is limited foraging habitat or features which bats may use as a commuting resource within or immediately adjacent to Kennington Green and the Nine Elms station site. These sites are therefore assessed as being of site biodiversity value for foraging and commuting bats.								

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NLE Site	Habitats	Bats	Breeding Birds	Wintering Birds	Common Reptiles	Terrestrial Macro-invertebrates	Aquatic Macro-invertebrates	Fish	Mammals	Notable Flora
Battersea Station	The terrestrial semi-natural habitats within the Battersea station site are degraded and of a relatively limited extent. These areas therefore do not exhibit a notable degree of intrinsic value. A small area of sand and mudflats are exposed on the edges of the River Thames. Sand and mudflats are restricted within London to the banks of the River Thames. Given the relative scarcity of this habitat types within the local area, sand and mudflats are assessed as being of local biodiversity value. All other habitats encountered on site are either man-made (buildings, hard standing) or comprise common ornamental plant species (introduced shrub and amenity grassland). These habitats are assessed as being of negligible intrinsic value for biodiversity.	**Roosting bats:** The trees and buildings within the survey area exhibited negligible potential for supporting roosting bats. Bats are therefore unlikely to be present on the site and are assessed as being of negligible biodiversity value. **Foraging and commuting bats:** There is limited foraging habitat for bats within the bounds of the Battersea station site although adjacent habitats, including the River Thames and rail line to the west of the site, provide suitable foraging and commuting habitat for bats. Bats foraging and commuting within the vicinity of the Battersea station site are therefore assessed as being of at least local biodiversity value.	BPS SBI is known to support a range of common nesting birds, as well as notable species including black redstart and peregrine falcon. The Battersea station site however exhibits limited potential to support these species as suitable habitats are not present within the bounds of the site. In terms of black redstart, these species may however be nesting adjacent to the site and, if present, are assessed as being of borough importance. Peregrine falcon may also nest and perch on various structures (including BPS	Wintering birds present within the survey area are restricted to low numbers of relatively common species. Populations of water bird relevant to this study are therefore assessed as being of site biodiversity value.	Reptiles are assessed as likely absent from the Battersea station site.	Habitat within the Battersea station site is unlikely to support notable assemblages of invertebrates. Species present are therefore likely to be limited in number and diversity and are assessed as being of site biodiversity value.	While the macro-invertebrate assemblage is relatively typical for this stretch of the River Thames, the intertidal and subtidal substrates support a relatively high density of native macro-invertebrates. On account of the density of macro-invertebrates, and the presence of C. *lacustre* within the subtidal sediments, it is considered that the subtidal and intertidal macro-invertebrate assemblage is of borough value.	A number of species of fish are known to use the section of the River Thames which abuts the Battersea station site. These include four species listed on the UK BAP and London BAP (European eel, sand smelt, sea trout and Atlantic salmon), although sea trout and Atlantic salmon only use this section of the river for part of the year when on migration. Fish populations with the	The habitats present within the field survey area have the potential to support low numbers of common mammal species such as hedgehog and red fox. These species, if present on site, are assessed as valuable at the scale of the site, only.	Notable flora species are assessed as likely absent from the Battersea station site.

NLE Site	Habitats	Bats	Breeding Birds	Wintering Birds	Common Reptiles	Terrestrial Macro-invertebrates	Aquatic Macro-invertebrates	Fish	Mammals	Notable Flora
			and a peregrine mast within the wider BPS site) adjacent to the site. If present, a breeding pair of these species is assessed as being of local biodiversity value. There is limited breeding habitat for common bird species within the bounds of the Battersea station site. Breeding birds within the site are therefore likely to be restricted to low numbers of relatively common species assessed as being of site biodiversity value.					potential to be affected by the NLE are therefore assessed as being of biodiversity value at the borough value.		

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Evaluation Summary

14.115 In accordance with IEEM guidance, only receptors that have been valued at local value or above will be assessed further to determine whether there is the potential for significant effects as a result of the NLE. Where a receptor has been assessed as being of less than local value, but receives a degree of statutory protection (as is often the case with common breeding birds or mammals), the potential for impacts and effects to this receptor has nonetheless been assessed. This is to ensure the NLE complies with relevant biodiversity legislation. Therefore, the ecological receptors that have the potential to be significantly impacted by the NLE and / or which receive a degree of statutory protection, and their ecological value (importance), are summarised in Table 14-11 below.

Table 14-11 Ecological Receptors

Ecological Receptors	Geographical Scale of Importance	Relevance to NLE Site
LNR	Site	Battersea station
SMINC	Metropolitan	Kennington Green
		Nine Elms station
		Battersea station
SBINC	Borough	All Sites
SLINC	Local	All Sites
Trees	Local	All Sites
Mudflats	Local	Battersea station
Brownfield Habitats	Site	Battersea station
Bats - roosting	Site	Nine Elms station
	Negligible	All other sites
Bats – foraging and commuting	Local	Battersea station
	Site	All other sites
Breeding Birds	Site	All sites
Water birds and overwintering Birds	Site	Battersea station
Terrestrial Invertebrates	Site	Battersea station
Aquatic Invertebrates	Borough	Battersea station
Fish	Borough	Battersea station
Common Mammals	Site	All Sites

Impact Assessment – Construction Effects

14.116 This section addresses the potential ecological impacts associated with the construction and operation of the NLE. Construction and operation effects have been assessed initially in the absence of mitigation, with mitigation then presented and the residual effects assessed in the Mitigation and Residual Effects section which follows.

14.117 Where appropriate, impacts on each receptor have been presented separately for each NLE site. Based on the NLE's design detail, presented in *Chapter 4: Description of the NLE*, the following effects are associated with the construction and operation of the NLE:

Construction Related Effects

- *Permanent and / or temporary loss of habitat – Demolition and construction activities are likely to require the clearance of vegetation and habitats falling within each site's construction area.*
- *Damage or degradation to habitats – Works have the potential to degrade or damage habitat either directly (for example through compaction and disturbance by machinery) or indirectly (through for example emission of pollutants). It is not anticipated that emissions related degradation to habitats will occur further than 200m from the source of the impact (please see Chapter 10: Air Quality for further detail with regards to construction related aerosol and dust emissions). Dredging activities at the Battersea station site have the potential to degrade aquatic environments through introduction of pollutants to the watercourse and / or disturbance to sediments;*
- *Killing or injury of species – Demolition and construction activities such as building or vegetation removal, digging, or hazardous chemical spills may kill or injure plants or animals. Furthermore, species sensitive to the noise and vibration produced during dredging and piling (such as fish or aquatic invertebrates) can be killed or injured by excessive noise and vibration;*
- *Disturbance of species – Noise and light pollution arising from construction activities are the key impacts likely to affect sensitive species. Disturbance could result from a number of activities during the construction programme (including the dredging and piling associated with the jetty works).*

Operational Related Effects

14.118 Once completed, the majority of the NLE's operating infrastructure will be below ground level. Adverse effects on habitats and species are therefore not anticipated at the operational phase. There will be two (relatively) small buildings in perpetuity at the Kennington Park site, although these are of a scale and extent which are unlikely to generate impacts (noise, light, air quality) of a magnitude which could potentially significantly affect protected and / or notable habitats and species. Please see *Chapter 4: Description of the NLE*, and *Chapter 9: Noise and Vibration* of this ES for further detail. In terms of positive effects on biodiversity, ecology reinstatement plans will be produced as part of the mitigation strategy for each NLE site. As these reinstatement plans will conform to the aims of the LU BAP and the relevant borough BAPs, they will not only seek to reinstate / replace habitats lost during construction, but will also aim to enhance sites for biodiversity, where possible and appropriate. There is therefore the potential for positive effects for

biodiversity as a result of enhancement measures contained within the sit specific ecology reinstatement plans (please see 14.175 for further details).

Impact Avoidance

14.119 The implementation of the measures necessary to ensure legislative compliance in relation to the construction, operation and decommissioning of the NLE is assumed i.e. construction workers and operational staff will operate within the law and with standard industry best practice guidance. This will minimise the risk of adverse effects on biodiversity receptors and has been taken into consideration in this impact assessment. This includes adherence to standards including the Environment Agency's Pollution Prevention Guidelines (PPGs) set out in PPG5 (Ref. 15-30), PPG1 (Ref. 15-31), and PPG6 (Ref. 15-32).

Kennington Green

Designated Sites

Habitat Degradation

14.120 The closest designated site to the Kennington Green site is Kennington Park SLINC, located approximately 200m to the east. All other designated sites are located further than 500m away from the Kennington Green site. Considering the intervening distance (>200m) between the Kennington Green site and Kennington Park SLINC, and the (relatively) limited scale and extent of the proposed works, the magnitude of indirect demolition and construction impacts (noise, vibration, dust and various other substance emissions) on Kennington Park SLINC and other designated sites is expected to be negligible. In the absence of mitigation, the effect of construction and demolition on all designated sites (irrespective of their biodiversity value) is likely to be negligible due to a negligible impact magnitude on receptors valued between local – metropolitan biodiversity values.

Trees

Habitat Loss and degradation

14.121 There are 11 trees within the Kennington Green site boundary, including eight mature and semi mature native species, which will be removed during demolition and construction. The loss of a small number of native trees from the local area is assessed as **minor adverse** due to the magnitude of the impact (low) on a receptor of local value.

Bats – Foraging and Commuting

Disturbance

14.122 There is some, albeit limited, potential for individuals or very small numbers of commuting or foraging bats to be present within the vicinity of the Kennington Green site. Any noise or light disturbance is likely to be restricted in both duration and extent and is unlikely to affect the ability of the local bat population to forage or commute within the local landscape. In the absence of mitigation, the effect is therefore assessed as negligible due to a low impact magnitude of a biodiversity receptor of site value.

Breeding Birds

Killing, Injury, and Loss of Breeding Habitat

14.123 There is potential for small numbers of breeding birds to be present within or in close proximity to the Kennington Green site. The removal of trees on-site may kill or injure breeding birds and will result in the temporary loss of breeding habitat for these species. These effects will be temporary and will not affect the ability of the local population to breed or forage within the local area, as sufficient other habitat is available within the wider landscape. In the absence of mitigation, effects on these species are unlikely to be of greater than negligible significance due to the magnitude of the impact (low) and the value of the receptor (negligible).

14.124 Killing or injury of breeding birds will however have legal implications for the NLE and control measures are therefore proposed to ensure compliance with biodiversity legislation (please see the Legislation and Planning Policy section with reference to the WCA for further details).

Common Mammals

Killing and Injury

14.125 Common mammals (including red fox) may be present (foraging or seeking shelter) within the bounds of the Kennington Green site and there is therefore potential for the unlawful killing or injury of these species during construction. In the absence of mitigation, effects on common mammals are likely to be negligible due to the value of the receptor (negligible) and magnitude of the impact (low).

14.126 Killing or injury of common mammals will however have legal implications for the NLE and control measures are therefore proposed to ensure compliance with biodiversity legislation (please see the Legislation and Planning Policy section with reference to the Wild Mammals Protection Act for further details).

Kennington Park

Designated Sites

Habitat Loss and Degradation

14.127 The Kennington Park site is located within Kennington Park SLINC. Demolition and construction works will result in the loss of approximately 250m^2 of land within the designated site. The majority of the loss will be temporary and will include the loss of 19 trees, amenity grassland, Kennington Park Lodge and associated garden area. A small area (approximately 100m^2) of amenity grassland will be lost permanently as the head-house associated with maintenance of the NLE will be located within this area. The loss of habitat will not affect the integrity of this SLINC and it will continue to function as a haven for wildlife and amenity resource for the community.

14.128 In addition to habitat loss, there is the potential for temporary degradation to SLINC habitats located adjacent to the works area.

14.129 The effect of demolition and construction activities on Kennington Park SLINC are therefore assessed as minor adverse, due to a low impact magnitude of a receptor of local biodiversity value.

14.130 All other designated sites, which are located further than 200m away from the Kennington Park site, are not anticipated to receive impacts as a result of the NLE.

This is due to the intervening distance, relatively limited extent and duration of construction, and adherence to best practice during construction. The effect of demolition and construction at the Kennington Park site on these designated sites is therefore assessed as negligible.

Trees

Habitat Degradation and Loss

14.131 19 mature and semi-mature trees within the Kennington Park site will be removed during demolition and construction. The temporary loss of these trees, a relative rarity within the local area, is assessed as minor adverse due to the magnitude of the impact (low) and receptor of local value.

Bats - Foraging and Commuting

Disturbance

14.132 Kennington Park has been assessed as a locally important area for foraging and commuting bats. Demolition and construction activities have the potential to disturb bats (through increased noise, vibration and light pollution) if works are undertaken at night during the bat activity season. This disturbance will be temporary, will not lead to the severance of any commuting route, and will not affect the ability of the local bat population to commute and forage within the local area. In the absence of mitigation, effects on bats are therefore assessed as minor adverse due to the likely impact magnitude (low) and value of the receptor (local).

Breeding Birds

Killing, Injury, and Loss of Breeding Habitat

14.133 There is potential for small numbers of common breeding birds to be present within or in close proximity to the Kennington Park site. The removal of trees on-site may kill or injure breeding birds and will result in the temporary loss of breeding habitat for these species. These effects will be temporary and will not affect the ability of the local population to breed or forage within the local area, as sufficient other habitat is available. In the absence of mitigation, effects on these species are unlikely to be of greater than negligible significance due to the magnitude of the impact (low) and the value of the receptor (negligible).

14.134 Killing or injury of breeding birds will however have legal implications for the NLE and control measures are therefore proposed to ensure compliance with biodiversity legislation (please see the Legislation and Planning Policy section with reference to the WCA for further detail).

Common Mammals

14.135 Common mammals (including red fox) may be present (foraging or seeking shelter) within the bounds of the Kennington Park site and there is therefore potential for the unlawful killing or injury of these species during construction. In the absence of mitigation, effects on common mammals are likely to be negligible due to the value of the receptor (negligible) and magnitude of the impact (low).

14.136 Killing or injury of common mammals will however have legal implications for the NLE and control measures are therefore proposed to ensure compliance with biodiversity legislation (please see the Legislation and Planning Policy section with reference to the Wild Mammals Protection Act for further detail).

Nine Elms Station

Designated Sites

Habitat Degradation

14.137 The closest designated site to the proposed Nine Elms station site is the River Thames and Tidal Tributaries SMINC, located approximately 450m to the north. All other designated sites are located over 500m away from the Nine Elms station site. Impacts to all designated sites will be negligible due to the intervening distance, relatively limited extent and duration of construction, and adherence to standard best practice measures during construction.

Trees

Habitat Loss

14.138 Demolition and construction works will result in the loss 8 mature and semi-mature trees. The loss of these trees, a relative rarity within the local area, is assessed as **minor adverse** due to the magnitude of the impact (low) and receptor of local value.

Bats - Roosting, Foraging and Commuting

Killing, Injury and Disturbance

14.139 Building B3 (the electricity substation), was noted as having low potential to support roosting bats. The demolition of this building has the potential to kill or injure bats if present and result in the permanent loss of roosting habitat. However, considering the low quality of the roost (in accordance with BCT criteria) and surrounding habitats, affected individuals would likely be restricted to a small number of bats using the roost temporarily during the summer months. Consequently, the effect on roosting bats is assessed as negligible given the magnitude of the impact (low) and the value of the receptor (site). However, this evaluation will need to be updated after further survey work for roosting bats have been undertaken.

14.140 There is some, albeit limited, potential for individuals or very small numbers of commuting or foraging bats to be present within or in the vicinity of the Nine Elms station site. This disturbance will be temporary, will not lead to the severance of any commuting route, and will not affect the ability of the local bat population to commute and forage within the local area. Therefore, in the absence of mitigation, effects on bats are unlikely to be greater than negligible, as populations of bat with the potential to be impacted are of less than local biodiversity value and the impact is low. The potential presence of low numbers of roosting bats, despite being of limited ecological value, may have legal and policy implications for the NLE. Control measures for bats are detailed in Paragraph 14.185 to ensure that the NLE complies with relevant biodiversity legislation.

Breeding Birds

Killing, Injury, and Loss of Breeding Habitat

14.141 There is potential for small numbers of common breeding birds to be present within or in close proximity to the Nine Elms station site. The removal of trees on-site may kill or injure breeding birds and will result in the temporary loss of breeding and foraging habitat for these species. These effects will be temporary and will not

affect the ability of the local population breed or forage within the local area, as sufficient other habitat is available in the wider area. In the absence of mitigation, effects on these species are unlikely to be of greater than negligible significance due to the magnitude of the impact (low) and the value of the receptor (negligible).

14.142 Killing or injury of breeding birds will however have legal implications for the NLE and control measures are therefore proposed to ensure compliance with biodiversity legislation (please see the Legislation and Planning Policy section with reference to the WCA for further detail).

Common Mammals

14.143 Common mammals (including red fox) may be present (foraging or seeking shelter) within the bounds of the Nine Elms station site and there is therefore potential for the unlawful killing or injury of these species during construction. In the absence of mitigation, effects on common mammals are likely to be negligible due to the value of the receptor (negligible) and magnitude of the impact (low).

14.144 Killing or injury of common mammals will however have legal implications for the NLE and control measures are therefore proposed to ensure compliance with biodiversity legislation (please see the Legislation and Planning Policy section with reference to the Wild Mammals Protection Act for further detail).

Battersea Station

14.145 The proposed Battersea station site is located within the River Thames and Tidal Tributaries SMINC and the Battersea Power Station SBINC. In order to ensure a holistic assessment of these designated sites, the assessment has considered the effects of construction on the overall 'integrity' of this site i.e. assessing impacts on habitats and species for which it has been designated.

Designated Site: River Thames and Tidal Estuaries SMINC

Habitat Loss and Degradation

14.146 Dredging is proposed to facilitate the creation of a berth-pocket adjacent to the northern edge of the jetty, requiring the removal of approximately 4500m^3 of subtidal habitat. This is considered to be a capital dredge, as, although this area was subject to dredging when the BPS was operational prior to 1983, the habitats are likely to have reverted to their original state in the 30 year interim. It is anticipated that the area will be dredged on one occasion to create the berth pocket, as the subsequent movement of the barges will ensure that the riverbed does not revert to its original depth during the course of the construction programme.

14.147 As the dredging is only likely to occur on the northern edge of the jetty, within the sub-tidal zone, direct loss of inter-tidal or mudflat habitat as a result of dredging is not anticipated. Dredging will however result in the temporary loss of approximately 4500m^3 of sub-tidal habitat. It is anticipated that once barge movements stop, following the cessation of spoil removal activities for the NLE (likely to occur after 2 years), the sediments will no longer be disturbed and the riverbed will revert back to its natural state.

14.148 Works to the jetty will also require the instating of seven 400mm x 400mm H-piles, approximately 10m into subtidal habitats adjacent to the northern edge of the jetty. This will result in the loss of approximately 16m^3 of subtidal habitat. The loss of this small area of intertidal habitat is not considered to be significant when viewed within the context of the wider River Thames environment.

14.149 The River Thames and Tidal Estuaries SMINC is also sensitive to habitat degradation in the form of potential spills of water containing suspended sediment, oils/fuels, concrete or cement products, contaminated runoff or wind-blown dust or contaminants during construction. Any discharge of contaminants onto the mudflats and into the River Thames could destabilise the fragile ecosystem and impact the diversity of wildlife it supports, including invertebrates, fish, mammals and birds. However, assuming that impact avoidance methods are adhered to (as are detailed in Paragraph 14.118), the likelihood of a pollution event of a significant magnitude occurring is minimal.

14.150 In the absence of mitigation, the effect of demolition and construction on the habitats contained within River Thames and Tidal Estuaries SMINC is assessed as minor adverse. This is due to a low impact magnitude (assessed as low due to the transient nature of the impact, the relatively limited extent of the habitat loss, and the fact that the habitats are likely to self-regenerate over time) on a receptor of metropolitan biodiversity value. Please see the relevant species sections below for assessments for fish, aquatic invertebrates, over-wintering and water birds – all species of importance to the River Thames and Tidal Estuaries SMINC.

Designated Site: Battersea Power Station SBI Designated Site

Habitat Loss and Degradation

14.151 Although relatively large areas of brownfield habitat were once present within the bounds of the Battersea station site, these habitats have become degraded and largely disappeared as a result of the wider BPS site becoming working construction site as of 2011. As a result, the habitats contained within the Battersea station site are of limited intrinsic biodiversity value due to their degraded nature, limited extent, and / or largely artificial origin (hard standing, buildings, and amenity grassland).

14.152 The construction of Battersea station site will result in the loss of habitat of a low intrinsic value and which is not critical to supporting key species for which the site is designated (black redstart and peregrine falcon). The effect of demolition and construction on the BPS SBI is therefore assessed as minor adverse due to the temporary nature of the works and low magnitude of impact on the designated site and its habitats and species. Please see relevant species sections below for further assessment with regards to black redstart and peregrine falcon.

Other Designated Sites

Habitat Degradation

14.153 All other designated sites are located greater than 200m away from the Battersea station site. Considering the intervening distance between the designated sites and the Battersea station site, and the absence of any impact-pathway, the magnitude of either direct or indirect construction impacts on designated sites, is expected to be negligible. Therefore, in the absence of mitigation, the effect of the construction of the Battersea station site on designated sites (irrespective of their biodiversity value) is likely to be negligible.

14 Ecology

Bats – Foraging and Commuting

Disturbance

14.154 Habitats within and adjacent to the Battersea station site have the potential support foraging and commuting bats. Works will not sever an important bat commuting route (such as the River Thames or the rail line to the west of the site), although there is potential for works to affect bats as a result of light and noise pollution if undertaken during the bat activity season and at night. Given the relatively limited extent of works and the availability of other suitable foraging habitat in the local area (Battersea Park and the rail line to the west of the site), the effect is assessed as minor adverse due to the impact magnitude (low) on a receptor of local biodiversity value.

Loss of Foraging Habitat

14.155 Habitats within the Battersea station site offer generally sub-optimal foraging habitat for bats. Demolition and construction works will result in the temporary loss of this habitat although this is unlikely to affect the ability of the local bat population to forage given the availability of other suitable habitat within the wider landscape (Battersea Park and the rail line to the west of the site). The effect is therefore assessed as minor adverse due to the magnitude of the impact (low) and the value of the receptor (local).

Black Redstart

Killing, Injury, Disturbance and Loss of Foraging Habitat

14.156 As is detailed above, there is no suitable black redstart nesting habitat within the Battersea station site and limited foraging habitat. The species is however known to nest within BPS and may forage within suitable habitat adjacent to BPS (although these areas are likely to have now become degraded as a result of construction activity on-site). There is therefore potential for the demolition and construction works of the NLE to disturb black redstart nesting within BPS and (to a lesser extent) foraging within the wider BPS habitats. Considering the location and scale of the proposed NLE works in relation to BPS (the core Battersea station site construction area where the majority of excavation and construction work is to be undertaken is located approximately 100m away from the BPS building), levels of noise or human disturbance created during construction are not anticipated to be sufficient to significantly disturb black redstart nesting within BPS. Furthermore, there is likely to be sufficient foraging habitat within the wider landscape (Battersea Park, railway sidings to the south and west, and potentially intertidal habitats along the River Thames) to support black redstart present and breeding within BPS.

14.157 During construction, the open ground, heavy machinery and structures present on-site, if left undisturbed for more than two weeks during the bird breeding season, have the potential to offer attractive nesting opportunities for this species. If this environment is created during construction, there is a chance that black redstart could be killed, injured, or disturbed once construction recommences.

14.158 In the absence of mitigation, the effect of construction of the Battersea station site on black redstart is assessed as minor adverse due to an impact of a low magnitude (transient and limited in extent) on a receptor of borough biodiversity value.

Peregrine Falcon

Disturbance

14.159 As is detailed above, there is no suitable peregrine nesting habitat and limited foraging habitat within the Battersea station site. Peregrine are however potentially nesting on BPS and on a peregrine mast currently located approximately 50m to the west of the conveyor belt to the north-western corner of the Battersea station site. Noise and human disturbance generated as a result of the operation of the conveyor belts and spoil removal activities at the jetty are not anticipated to significantly disturb peregrine potentially nesting on BPS or the peregrine mast. Once construction of the NLE commences, the wider BPS site will have been an active construction site for approximately 2 years, and any peregrine nesting within BPS and the peregrine mast are likely to have become habituated to levels of construction disturbance higher than those associated with the construction of the NLE. In the absence of mitigation, it is therefore unlikely that construction activities associated with the NLE will disturb breeding peregrine and the effect is assessed as negligible due to a negligible impact magnitude on receptor of local value.

Other Breeding Birds

Killing, Injury and Loss of Nesting and Foraging Habitat

14.160 Breeding bird habitat within the Battersea station site is limited to the buildings and areas of scattered scrub on-site. Breeding birds are likely to be restricted to common species, although more notable species such as dunnock and house sparrow may use the site for foraging. The removal of vegetation and buildings, as well as the noise, vibration and light disturbance created during demolition and construction activities, has the potential to directly kill, injure birds, or cause adults to flee an active nest. In the absence of mitigation, this could result in the death of a small number of relatively common bird species.

14.161 Construction activities are also likely to result in the temporary loss of small areas of potential breeding and foraging habitat. This is unlikely to affect the ability of a local population of bird species to breed or feed, as sufficient habitat of a similar or better quality is present within the wider area (Battersea Park, the railway lines to the south and west, and other buildings within the local area).

14.162 The effect of construction of the Battersea station site on other breeding birds is assessed as negligible due to an impact of low magnitude on a receptor of negligible biodiversity value. Killing or injury of breeding birds will however have legal implications for the NLE and control measures are therefore proposed to ensure compliance with biodiversity legislation (please see the Legislation and Planning Policy section with reference to the WCA for further detail).

Over - Wintering and Water Birds

Killing, Injury and Disturbance

14.163 The dredging and piling activities, as well as barge movements and general construction works have the potential to affect water birds (throughout the year). However, the water birds using the Battersea station site are already habituated to high levels of disturbance in the form of human activity, noise and illumination generated by construction activities at the BPS. This is likely to reduce the impact of the scheme on water birds.

14.164 In the absence of mitigation, it is concluded that construction activities will have limited impact on wintering and water birds due to the low numbers of birds present, the types of birds and because the birds are somewhat habituated to the scheme. Whilst water birds are unlikely to use land adjacent to the Battersea station site during the construction phase, it is predicted that they will find alternative habitats nearby and return to the site once disruptive works are complete.

14.165 The effect of construction activities on over-wintering water birds is therefore assessed as negligible due to a negligible impact magnitude on a site valued receptor.

Intertidal and Subtidal Invertebrates

14.166 Dredging and piling activities within the vicinity of the jetty have the potential to affect areas of subtidal habitat within the River Thames. Construction of a conveyor support tower will require the instating of seven 400mm x 400mm H piles to a depth of approximately 10m in an area of subtidal habitat along the northern edge of the jetty. Furthermore, dredging of the berth pocket will require the removal of approximately 4500m^3 of subtidal habitat.

14.167 The subtidal habitat contains relatively high numbers of native macro-invertebrates including the nationally scarce (but locally abundant) *C. lacustre*. Considering that macro-invertebrates would be contained within sediment below and either side of the channel being dredged, it is unlikely that total defaunation of invertebrates would occur within the vicinity of the dredge and piling or localised area (within 50m of the dredge). Furthermore, the impact would be temporary as dredging would take place only initially to create the berth pocket, and subsequent movement of barges would stop following cessation of spoil removal (which would occur after approximately 2 years).

14.168 Considering that the dredges affect a relatively limited extent of subtidal and intertidal habitat, which are expected to recover in the medium-term upon cessation of the NLE construction activities, the effect of the proposed dredging on macro-invertebrates is assessed as minor adverse given the low impact magnitude on a receptor of (up to) borough value.

Fish

Loss of Feeding and Resting Habitat for Fish due to Sediment Disturbance

14.169 As discussed above in paragraphs 14.162 – 14.164, dredging and piling activities are likely to impact areas of both subtidal and intertidal habitat. The extent of the impact on these habitats will be of a relatively limited extent, when viewed within the context of the wider River Thames environment, and will be temporary in nature.

14.170 These activities are therefore not anticipated to significantly affect the ability of fish using the Thames to feed or find shelter, as there is a wealth of intertidal and subtidal habitat of a similar quality is present within the local area. In the absence of mitigation, the effect of dredging and piling on the feeding and or / sheltering fish is assessed as minor adverse due to a low impact magnitude on a receptor of borough biodiversity value.

Interference with the Migratory Movement of Fish

14.171 Dredging and piling activities have the potential to interfere with the migratory movement of fish within the River Thames. Potential impacts on fish would be most significant between March and October, when estuarine fish fry and Atlantic salmon are migrating along the margins of the river. Smelt and dace would be sensitive to disturbance between March and June, when the fry are in their early stages and are therefore less mobile (key dace and smelt spawning sites are present within the River Thames between Kensington and Blackfriars Bridge). Fish would also be sensitive to impacts between June and October, as during this time adult Atlantic salmon are migrating upstream. The magnitude of impact would depend on the time of year when works are undertaken, but, assuming a worst-case, scenario (i.e. construction occurring during one of the aforementioned fish migratory periods) could be up to a high magnitude. Impacts would, however, be temporary, as the potential for disturbance would cease once the work has stopped and the sediments have settled.

14.172 In the absence of mitigation, the effect of dredging and piling works on the migratory movement of fish has the potential to be up to moderate adverse due to a potentially high impact magnitude on a receptor of borough biodiversity value.

Effects of Waterborne Noise and Vibration on Fish

14.173 Dredging and piling works will increase levels of waterborne noise and vibration within the River Thames and consequently have the potential to affect fish. The effects of waterborne noise and vibration on fish will vary according to the proximity of the receptor to the source, ranging from potential death at very close proximities, through injury, and behavioural disturbance with increasing distance from the source. In the absence of mitigation there is the potential for increased impacts associated with the NLE dredging and piling works to be of up to high magnitude. Under this scenario, the effect is assessed as up to moderate adverse to the potential for a high impact magnitude on a receptor of borough value.

Common Mammals

Killing and Injury

14.174 There is the potential for small numbers of common mammals (including red fox and / or hedgehog) to be present foraging or commuting within the bounds of the Battersea station site. Any effects to these species arising during construction (such as killing or injuring), are unlikely to be of greater than negligible significance, considering that common mammals are of less than local biodiversity value. As above, any impacts on common mammals may, however, have legal implications for the NLE (please see the Legislation and Planning Policy section with reference to the Wild Mammals Protection Act for further detail).

Operational Phase

14.175 As is stated in paragraph 14.117, effects on habitats and species at the operational phase of the NLE are not anticipated, due to the majority of the operational infrastructure being located underground. Please see *Chapter 4: Description of the NLE* and *Chapter 9: Noise and Vibration* of this ES for further detail. However, it is anticipated that there will be an indirect effect on habitats and species at the operational phase, as a result of the mitigation measures implemented following construction (please see paragraphs 14.180 – 14.181). Such measures will not only reinstate / replace habitats lost during construction, but will also seek to

enhance the sites for biodiversity, where possible and appropriate. As the specific ecology reinstatement plans will be produced in consultation with relevant local authorities and wildlife bodies, as appropriate, and will conform to the aims of the LU BAP as well as relevant borough BAPs, there is potential for beneficial effects for biodiversity if enhancement measures are built into the reinstatement plans.

Kennington Green

14.176 There will be no above-ground infrastructure which could give rise to noise or light disturbance. No impacts on habitats and species are therefore anticipated at the operational phase for the Kennington Green site.

Nine Elms Station

14.177 Once operational, the Nine Elms station site will be situated underground with a Sainsbury's led development occupying the above-ground space. No impacts are therefore anticipated as a result of the operation of the Nine Elms station site.

Kennington Park

14.178 Two structures will be located above ground during the operational phase of the Kennington Park site: a head house (used for maintenance of the NLE facilities) and a community building (which will be used for community activities). These buildings are unlikely to significantly increase levels of disturbance (light or noise) within the park and are therefore unlikely to affect any notable species (such as bats or birds) which may be present within the area. All habitats will be reinstated in accordance with the LU BAP and Lambeth BAP. No impacts on habitats and species are therefore anticipated at the operational phase for the Kennington Green site.

Battersea Station

14.179 Once operational, the majority of the Battersea station site will be situated underground. Operational impacts in terms increased lighting and noise and effects on habitats and species as a result of the NLE are therefore not anticipated.

Mitigation Measures and Residual Effects

14.180 The following section proposes measures to mitigate and compensate for the impacts to receptors which are likely to be affected during the construction phase of the NLE. Mitigation and compensation measures aim to not only conserve and safeguard ecological receptors, but also to provide enhancements for biodiversity. The mitigation and compensation measures have been informed by the Promoter's CoCP, the LU BAP, the local borough BAPs (Lambeth, Southwark, and Wandsworth), and consultation with statutory bodies (including Natural England and the Environment Agency). Please see the relevant sections below for detail with regards to proposed mitigation.

All Designated Sites, Habitats and Trees

Habitat Loss and Degradation

14.181 In accordance with the Promoter's CoCP, specific ecology reinstatement plans will be produced for each NLE site. These plans will be produced in consultation with relevant local authorities and wildlife bodies, as appropriate. The plans will conform to the aims of the LU BAP as well as relevant borough BAPs. As is detailed in the LU BAP, compensation measures will not only replace habitats lost during construction, but will also seek to enhance the sites for biodiversity, where possible and appropriate. These measures are likely to include measures which:

- Create and enhance habitats for protected and notable species;
- Increase the quantity of priority BAP habitat (where possible); and,
- Increase habitat connectivity within the local environment and across priority habitats.

14.182 As the CoCP details, after construction, habitats or ecological features that have been affected by construction activities will be reinstated or allowed to recolonise so that (so far as is reasonably practicable), habitat will be of better quality than its pre-construction condition. Where appropriate, landscape planting (other than ornamental and specimen tree planting) will be undertaken using native species typical of the area and, as far as reasonably practicable obtained, from local sources.

14.183 In addition to the above habitat creation and enhancement measures, control measures (presented in the CoCP) that will be adhered to during construction to safeguard habitats from damage and degradation include, but are not limited to:

- Appropriate control measures will be adopted in the event that legally controlled and alien invasive species are found on site to ensure that they are not knowingly introduced or caused to grow in the wild;
- Impacts on adjacent wetland habitats and watercourses will be avoided by appropriate design of site drainage and by use of construction techniques to maintain existing drainage patterns along appropriate sections of the route;
- TfL will use reasonably practicable measures to minimise the loss of trees. Any essential remedial or protective work to trees adjacent to construction activity will be carried out by suitably trained or qualified personnel using recognised methods in accordance with BS 5837 'Guide for trees in relation to construction';
- In terms of dredging and piling activities, the extent of the dredging will be limited as far as reasonably practical to limit the extent of the temporary damage and disturbance. Best practice dredging methods will be employed to limit the amount of sediment spill into the river. Furthermore the general control and construction measures, as are detailed above, will be adhered to prevent a pollution event and potential degradation to the SMINC;
- A detailed Construction Ecological Management Plan will be produced for each site to cover all enabling and construction work activities. The plan will be approved by the Local Biodiversity Officer prior to any works beginning on the site.

14.184 Assuming the above measures are adhered to during construction, the residual effect of habitat loss and degradation across all designated sites, trees, and habitats is assessed as **negligible**. In the event that measures to promote biodiversity enhancement can be built into the ecology reinstatement plans, there is potential for a residual beneficial effect on biodiversity at the operational phase of the NLE. The degree to which these enhancement measures are beneficial would however depend greatly on the detailed design and specifics of each reinstatement plan.

Bats (Roosting) – Nine Elms Station Site

Killing, Injury and Disturbance

14.185 Building B3 at the Nine Elms station site is planned to be demolished in late 2014. Given the time period between demolition and the current assessment, and taking in to account that the roost is likely to be a transitory summer roost, it is recommended that a pre-demolition emergence survey is undertaken approximately 6 weeks prior to the building's demolition. Although there is a very low likelihood of bats using the structure, it is felt that this approach will safeguard bats and ensure that the NLE complies with the WCA. If bats are recorded during this survey a Natural England development licence may be required to facilitate development. In this instance, further advice should be sought from a suitably qualified ecologist. Assuming this approach is taken, the residual effect on roosting bats is likely to be **negligible**.

Bats (Foraging and Commuting) – All Sites

Disturbance

14.186 Sensitive lighting should be implemented during construction to ensure that any adjacent commuting routes and foraging habitat for bats are not disturbed or severed. In addition, lighting should only be used where necessary and levels reduced when not needed. The height of columns should be minimised and lights, where required, will be fitted with hoods and directed away from adjacent semi-natural habitats. Furthermore, low-pressure sodium lamps will be selected over high-pressure sodium or mercury lamps where appropriate and any mercury lamps will be fitted with ultraviolet filters. Assuming these measures are employed during construction, the residual effect on commuting and foraging bats is assessed as **negligible** across all sites.

Black Redstart – Battersea Station Site

Killing, Injury, Disturbance and Loss of Foraging Habitat

14.187 To mitigate the potential for disturbance to nesting black redstarts during the construction of the Battersea station site, the Battersea station site will ideally not be left dormant for more than two weeks during the construction phases and during the black redstart breeding season (February to mid-August). Activity, noise and light on the site during this period would cause a large enough disturbance impact to deter any nesting birds. Considering that the site is currently a working construction site, it is not anticipated that this will be an issue. However, if the site is left dormant for two weeks or more during the construction phases of the NLE between February and mid-August, a suitably qualified ecologist will check for the presence of nesting black redstart before work continues. If any active nests are found, construction will cease and an appropriate buffer zone will be established. This will comprise an area that will be left intact until it has been confirmed by the ecologist that the young have fledged and the nest is no longer in use. In accordance with the CoCP, NLE construction activities should be screened to protect nature conservation sites and reduce disturbance to adjacent habitats and species.

14.188 As has been stated above, there is limited black redstart foraging habitat within the bounds of the Battersea station site and construction activities therefore will not result in a loss of significant foraging habitat. In accordance the LU BAP, TfL will however seek to work with partners (including the Battersea Power Station Development Company (BPDC)) to enhance habitats for protected species (including black redstart), where appropriate. A Peregrine Falcon and Black Redstart Management Strategy for the period 2011 – 2013 has been prepared in partnership with the BPDC and LPWG for the entire wider BPS site to ensure that black redstart are safeguarded both during and after construction. This Management Strategy will be updated for post 2013 works at the site. Please refer to *Appendix J6: Peregrine Falcon and Black Redstart Management Report of ES Volume II* for further detail.

14.189 Assuming the above recommendations, CoCP, and the measures outlined in the Black Redstart and Peregrine Falcon Management Strategy are adhered to, residual effects on black redstart potentially nesting or foraging within the adjacent wider BPS site are therefore anticipated to be **negligible**.

Peregrine Falcon – Battersea Station Site

Disturbance

14.190 In the absence of mitigation, effects on peregrine falcon are likely to be **negligible**. Assuming the Peregrine Falcon and Black Redstart Management Strategy for the period 2011 – 2013 is adhered to, no additional mitigation is recommended for this species, although best practice working methods, as are detailed within the CoCP, should be adhered to during construction.

Other Breeding Birds – All Sites

Killing, Injury and Loss of Nesting and Foraging Habitat

14.191 In accordance with the CoCP, where practicable, suitable breeding bird habitat removal will take place outside the breeding bird season (approximately 1st March to the 31st July) to avoid impacts on nesting birds. Where this is not practicable, breeding bird habitat will be checked by a suitably qualified ecologist for nesting birds before removal. If any are identified, appropriate mitigation measures will be agreed with Natural England and implemented. In accordance the LU BAP, the Promoter will work with partners to enhance habitats for protected species (including redstart), where appropriate. Assuming the above recommendations and the CoCP are adhered to, residual effects on breeding birds potentially nesting or foraging within the wider BPS site are therefore anticipated to be **negligible**.

Intertidal and Subtidal Invertebrates – Battersea Station Site

14.192 The extent of the dredging will be limited as far as reasonably practical to allow for the creation of the berth pocket. Furthermore, in order to ensure no net loss in macro-invertebrates from the site, as result of the dredging, there is the possibility of depositing the sediment on-site, although the potential for on-site deposition is dependent on the presence of contaminants within the dredged material. Research indicates that, recovery from small-scale (<1km^2) disturbance events is often rapid (Ref. 14-33). Considering the levels of disturbance that will take place in this case, it is expected that the faunal communities would recover relatively rapidly in these areas. Consequently, over the short-medium term, the residual effect of dredging on macro-invertebrates is assessed as **negligible**.

Fish – Battersea Station Site

14.193 In order to avoid effects on fish, dredging and piling works will be timed to avoid periods of fish migration. Works should therefore be restricted to between the

months of November and February. Sensitive piling methods which use vibration piling (as opposed to impact piling) should be used to reduce the effect of increased noise and vibration on fish Furthermore, best practice guidance with regards to undertaking works within the River Thames is provided by the Port of London Authority (PLA) (Ref. 14-34). This guidance should inform works and be adhered to during all construction activities within the River Thames to reduce impacts on fish. Assuming this work is timed to take place during the least sensitive time of year, residual effects on fish are anticipated to be **negligible**.

Common Mammals – All Sites

14.194 Measures will be employed during the construction phase to mitigate potential impacts on wild mammals (red fox and possibly hedgehog), including the covering of all deep holes and trenches overnight and/or the provision of planked escape routes for any trapped wildlife. In addition, any liquids held on-site will be stored in a secure lock-up.

Residual Effect Summary

14.195 Residual effects are summarised in relation to each of the sites, in Table 14-12 below. Each receptor, impact and residual effect is shown.

Table 14-12 –Residual Effects Summary All Sites (for all NLE sites if not specified)

Ecological Receptor	Potential Impact	Significance of Effect (Pre-Mitigation)	Mitigation, Compensation and Enhancement	Significance of Residual Effect (Post-Mitigation)
Construction Impacts				
Kennington Park SLINC	Habitat Loss	Minor adverse	Adherence to CoCP and enhancement measures in accordance with the LU BAP and local borough BAPs	**Negligible**
	Degradation	Minor adverse		
BPS SBINC	Habitat Loss	Minor adverse	Adherence to CoCP and enhancement measures in accordance with the LU BAP and local borough BAPs	**Negligible**
	Degradation	Minor adverse		
River Thames and Tidal Estuaries SMINC	Habitat Loss	Minor adverse	Adherence to CoCP and enhancement measures in accordance with the LU BAP and local borough BAPs Adherence to the Environment Agency's PPG Adherence to PLA guidance on dredging Adherence to construction Ecological Management Plan	**Negligible**
	Degradation	Minor adverse		
Other Designated sites	Degradation	Negligible	Adherence to the CoCP and best practice guidance	**Negligible**
Trees	Habitat loss	Minor adverse	Adherence to CoCP and enhancement measures in accordance with the LU BAP and local borough BAPs	**Negligible**
Bats Roosting – Nine Elms only	Killing, injury, disturbance	Negligible	Pre-demolition dawn / dusk bat survey Application for a Natural England development licence (if required)	**Negligible**
Bats – foraging and commuting	Disturbance and loss of foraging habitat	Negligible – minor adverse	Adherence to CoCP and enhancement measures in accordance with the LU BAP and local borough BAPs Use of sensitive lighting during construction Adherence to construction Ecological Management Plan	**Negligible**
Black Redstart – Battersea only	Killing, injury, disturbance	Minor adverse	Adherence to CoCP and enhancement measures in accordance with the LU BAP and local borough BAPs Adherence to construction Ecological Management Plan Use of sensitive lighting during	**Negligible**

Ecological Receptor	Potential Impact	Significance of Effect (Pre-Mitigation)	Mitigation, Compensation and Enhancement	Significance of Residual Effect (Post-Mitigation)
			construction	
Peregrine falcon – Battersea only	Disturbance	Minor adverse	Adherence to CoCP and enhancement measures in accordance with the LU BAP and local borough BAPs Adherence to construction Ecological Management Plan	**Negligible**
Common breeding birds, overwintering birds and water birds	Killing and injury and loss of foraging habitat	Negligible	Adherence to CoCP and enhancement measures in accordance with the LU BAP and local borough BAPs Adherence to construction Ecological Management Plan	**Negligible**
Aquatic invertebrates	Killing, injuring and habitat loss	Minor adverse	Adherence to CoCP Adherence to the Environment Agency's PPG Adherence to PLA guidance on dredging Adherence to construction Ecological Management Plan	**Negligible**
Fish	Killing, injuring and habitat loss	Minor adverse	Adherence to CoCP Sensitive timing of works Adherence to the Environment Agency's PPG Adherence to PLA guidance on dredging Adherence to construction Ecological	**Negligible**

Ecological Receptor	Potential Impact	Significance of Effect (Pre-Mitigation)	Mitigation, Compensation and Enhancement	Significance of Residual Effect (Post-Mitigation)
			Management Plan	
Common mammals	Habitat loss	Negligible	Adherence to CoCP Adherence to construction Ecological Management Plan	**Negligible**
Operational Impacts				
It is anticipated that there will be an indirect effect on habitats and species at the operational phase, as a result of the mitigation measures implemented following construction (please see paragraphs 14.180 – 14.181). These will not only reinstate / replace habitats lost during construction, but will also seek to enhance the sites' biodiversity, where possible and appropriate. As the specific ecology reinstatement plans will be produced in consultation with relevant local authorities and wildlife bodies, as appropriate, and will conform to the aims of the LU BAP as well as relevant borough BAPs, there is potential for beneficial effects for biodiversity if enhancement measures are built into the reinstatement plans. The degree to which these enhancement measures are beneficial would however depend greatly on the detailed design and specifics of each reinstatement plan.				

Summary and Conclusion

14.196 Following an assessment of the construction and operational impacts on sensitive biodiversity receptors, it is concluded that the residual effect of developing the NLE will be **negligible** across all receptors. This conclusion is based on the assumption that the mitigation and enhancement measures, detailed above, will be implemented and adhered to throughout the construction and operation of the NLE.

Cumulative Effect Assessment

14.197 This section identifies any effects on ecological receptors listed in Table 14-12 which may arise as a result of the NLE in conjunction with the cumulative schemes listed in *Chapter 2: EIA Methodology* of this ES. Consideration is given to temporary impacts during construction of the NLE, in addition to impacts during operation.

Battersea Power Station, Wandsworth

14.198 The Battersea station site, despite being a separate planning application, is closely associated with the redevelopment of the wider BPS site and general regeneration of the VNEB OA. During the construction phase of the NLE and wider BPS site, there is potential for cumulative effects to designated sites (including BPS SBINC and the River Thames and Tidal Estuaries SMINC) and protected species (most notably black redstart and peregrine falcon). A suite of mitigation measures have been proposed as part of the BPS EIA which aims to safeguard designated sites and protected species. Similarly, mitigation measures proposed above will safeguard designated sites and protected species at BPS during construction. Phasing of both schemes will be important in order for mitigation proposed for both

schemes to be successful and to not exacerbate any impacts on site. However, it is assumed that, if the mitigation proposed in both scheme's EIA are adhered to, effects on receptors are not anticipated to be greater than **minor adverse** during construction.

14.199 In terms of operation, the NLE is unlikely to have adverse cumulative effects with the wider BPS site redevelopment. The NLE may increase human presence (and hence disturbance) within the vicinity of the Battersea and Nine Elms stations, although this increase is not anticipated to be at a level which is likely to have an adverse effect on designated sites or protected species. It is therefore assumed that cumulative effects at the operational phase of both schemes will be **negligible**.

Thames Tideway Tunnel, Multiple Boroughs

14.200 There is the potential for the NLE and Thames Tideway Tunnel project to have cumulative effects on the River Thames and Tidal Estuaries SMINC and associated interest features if construction activities (primarily the dredging works for NLE) are undertaken concurrently. To avoid cumulative impacts to these receptors, construction activities for both schemes (and the redevelopment works at the wider BPS site) should be phased so as to reduce the likelihood of adverse cumulative effects as a result of construction. Assuming works are phased, and the mitigation and compensation measures as detailed in the EIA for these projects are implemented, **negligible** cumulative effects are anticipated.

All Other Cumulative Schemes

14.201 The remaining cumulative schemes listed in *Chapter 2: EIA Methodology* of this ES are not expected to contribute towards any adverse cumulative effect in conjunction with the NLE. These schemes are too far from the River Thames and Tidal Tributaries SMINC and BPS SBINC to potentially impact these sites or their interest features. Also, none of the cumulative schemes are thought to result in a loss of brownfield habitat of potential importance for macro-invertebrates or black redstarts. As such, there are no potential cumulative impacts with respect to these receptors. Furthermore, none of these schemes involve work within the River Thames, meaning that there are no potential cumulative impacts in relation to subtidal and intertidal habitats or macro-invertebrates. Cumulative effects between the NLE and other schemes are therefore assessed as **negligible**.

References

Ref. 14-1 Her Majesty's Stationary Office (HMSO) (1981); The Wildlife and Countryside Act (WCA) (as amended)

Ref. 14-2 HMSO (2000); The Countryside and Rights of Way (CRoW) Act

Ref. 14-3 DEFRA (2006); Natural Environment and Rural Communities Act

Ref. 14-4 HMSO (2010); The Conservation of Habitats and Species Regulations

Ref. 14-5 UK Biodiversity Partnership (1992); UK Biodiversity Action Plan. UK Biodiversity Partnership

Ref. 14-6 Department for Communities and Local Government (2012); National Planning Policy Framework

Ref. 14-7 ODPM (2005); Government Circular: Biodiversity and Geological Conservation- Statutory Obligations and Their Impact Within The Planning System

Ref. 14-8 Greater London Authority (GLA) (2011); The Mayor's London Plan, Spatial Development Strategy for Greater London

Ref. 14-9 GLA (2006); The London Plan Sub-Regional Development Framework, Central London

Ref. 14-10 London Borough of Lambeth (LBL) (2007); The Lambeth Unitary Development Plan

Ref. 14-11 LBL (2010); Lambeth LDF Core Strategy

Ref. 14-12 London Borough of Wandsworth (LBW) (2009); Wandsworth Local Development Framework. Core Strategy

Ref. 14-13 Convention on Biological Diversity (2010); Strategic Plan for Biodiversity 2011–2020. Available at: http://www.cbd.int/decision/cop/?id=12268

Ref. 14-14 European Commission (2011) 'The EU Biodiversity Strategy to 2020

Ref. 14-15 London Biodiversity Partnership (2004); London Biodiversity Action Plan. GLA. London. Available at: http://www.lbp.org.uk/londonhabspp.html

Ref. 14-16 LU (2010); London Underground Biodiversity Action Plan

Ref. 14-17 LBL (2005); Lambeth Biodiversity Action Plan

Ref. 14-18 LBW (2001); Wandsworth Biodiversity Action Plan

Ref. 14-19 Hundt L (2012); Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust

Ref. 14-20 Greenspace Information for Greater London (GiGL), (2010); 'An Ecological Data Search for the NLE.'

Ref. 14-21 Applied Ecology Limited (2008); Battersea Power Station Ecology Survey Report for URS Corporation Ltd.

Ref. 14-22 Environment Agency (2012); Battersea Aquatic Invertebrate Spreadsheet

Ref. 14-23 Environment Agency (2012); Battersea Fish Data Spreadsheet

Ref. 14-24 JNCC (2010); Handbook for Phase 1 Habitat Survey- a technique for environmental audit

Ref. 14-25 Institute of Ecology and Environmental Management (IEEM) (2006); Guidelines for Ecological Impact Assessment.

Ref. 14-26 London Biodiversity Partners (2007); Black Redstarts.org.uk.

Ref. 14-27 Applied Ecology Limited (2009); Breeding Bird Survey at BPS

Ref. 14-28 Applied Ecology Limited (2008-2009); Wintering Bird Survey at BPS

Ref. 14-29 Applied Ecology Limited (2008); Macroinvertebrate Survey at BPS

Ref. 14-30 Environment Agency (2008); Works and Maintenance in or Near Water: PPG5

Ref. 14-31 Environment Agency (2001): General Guide to the Prevention of Pollutions: PPG1

Ref. 14-32 Environment Agency (2010); Working at Construction and Demolition Sites: PPG6

Ref. 14-33 Hall, S. J. et al (1994); Physical Disturbance and Marine Benthic Communities: Life in unconsolidated sediments. Oceanography and Marine Biology: An Annual Review, 32 – 179-139

Ref. 14-34 Port of London Authority (2013); Environmental Guidance http://www.pla.co.uk/display_fixedpage.cfm/id/4147/site/environment.

Location Plan

Key:

- Track Alignment
- Borough Boundary
- Indicative Construction Site
- Other Ecology Survey Sites
- Sites included in EIA

1. Harmsworth Street Grouting Shaft
2. Kennington Park Ventilation Shaft
3. Radcot Street Grouting Shaft
4. Kennington Green Ventilation Shaft
5. Nine Elms Station
6. Battersea Station

Client:

Transport for London

URS

Project:

NORTHERN LINE EXTENSION

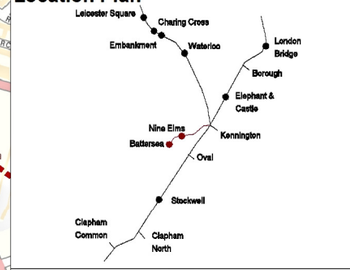
Drawing:

ECOLOGY SURVEY SITES

Suitability: S4 FORMAL ISSUE TO CLIENT

Drawn by:	DT	Date:	04/03/2013
Checked by:	TW	Date:	04/03/2013
Approved by:	HW	Date:	04/03/2013
Drawing Scale:	1:10,000 @ A3		
Drawing No:	Figure 14-1	Revision:	01

Location Plan



Key:

- Route Alignment
- 1 km Route Buffer
- Sites of Importance for Nature Conservation

1. Harmsworth Street Grouting Shaft
2. Kennington Park Ventilation Shaft
3. Radcot Street Grouting Shaft
4. Kennington Green Ventilation Shaft
5. Nine Elms Station
6. Battersea Station

Client: **Transport for London**

URS

Project: NORTHERN LINE EXTENSION

Drawing: LOCATION OF DESIGNATED SITES WITHIN 1KM OF THE NLE SITES

Suitability: S4	FORMAL ISSUE TO CLIENT		
Drawn by:	DT	Date:	04/03/2013
Checked by:	TW	Date:	04/03/2013
Approved by:	HW	Date:	04/03/2013
Drawing Scale:	1:11,000 @ A3		
Drawing No:	Figure 14-2	Revision:	01

15 Townscape and Visual Amenity

Environmental Statement

Volume I

15 Townscape and Visual Amenity

Introduction

15.1 This chapter of the Environmental Statement (ES) assesses the likely significant effects of the NLE upon townscape character and visual amenity within the study area, shown in Figure 15-1. It describes the policy context; assessment methods used; baseline conditions; potential direct, indirect and induced impacts during construction and operational phases of the NLE; wider development townscape and visual impacts; mitigation measures and relevant residual and cumulative effects.

15.2 Three appendices (in ES Volume II) support this chapter, as follows:

- Appendix K1 – Methodology for producing visually verified photomontages (VVMs);
- Appendix K2 – Schedule of visual receptors and predicted impacts on these; and
- Appendix K3 – Verified baseline photography and VVMs showing the NLE upon completion in representative views, and supporting text.

Planning Policy Context

15.3 This section reviews those policies that are relevant to the townscape and visual context of the NLE. Further details and the wider policy background are provided in *Chapter 5: Planning Policy Context* of this ES.

European Landscape Convention

15.4 The European Landscape Convention (ELC) was signed by the UK Government in February 2006 and became binding on the UK from 1 March 2007 (Ref 15-1). The Convention aims to promote landscape protection, management and planning at all scales. The Convention includes a number of articles which include both general and specific measures aimed at recognising the importance of landscapes in law through to the identification and assessment of landscapes.

National Policy

National Planning Policy Framework

15.5 The National Planning Policy Framework (NPPF), published in March 2012, represents a broad shift in Government planning policy (Ref 15-2). Those parts which are of direct relevance to landscape and visual amenity in the context of the NLE are summarised out below:

- Paragraph 66 - Local planning authorities should not refuse planning permission for buildings or infrastructure which promote high levels of sustainability because of concerns about incompatibility with an existing townscape, if those concerns have been mitigated by good design (unless the concern relates to a designated heritage asset and the impact would cause material harm to the asset or its setting which is not outweighed by the proposal's economic, social and environmental benefits);
- Paragraph 99 – *"New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure";*
- Paragraph 109 – *"The planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interests and soils";*
- Paragraph 114 – states that Local planning authorities should plan *"positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure";*
- Paragraph 125 **–** *"By encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation";*
- Paragraph 132 – *"When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation…Substantial harm to or loss of a grade II listed building, park or garden should be exceptional";*
- Paragraph 137 – *"Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably."*

Regional Planning Policy

The London Plan 2011

15.6 The London Plan (Ref. 15-3) contains a number of policies relevant to townscape character and views:

- Policy 2.18 Green infrastructure: the network of open and green spaces- states that the *"Mayor will work with all relevant strategic partners to protect, promote, expand and manage the extent and quality of, and access to, London's network of green infrastructure";*
- Policy 7.4 Local Character - requires that development should have regard to local character, improve an area's visual or physical connection with natural features and build on the positive elements in areas of poor or ill-defined character;
- Policy 7.5 Public Realm - provides for the highest quality design and management of public spaces;
- Policy 7.11 London View Management Framework - vistas towards strategically important landmarks are protected against inappropriate development. This policy is enshrined in the London View Management Framework (LVMF) SPG detailed below;
- Policy 7.12 Implementing the London View Management Framework - New development should not harm, and where possible should make a positive contribution to, the characteristics and composition of the strategic views and their landmark elements;
- Policy 7.18 Protecting local open space and addressing local deficiency - supports the creation of new open space and resists the loss of local protected

open spaces unless equivalent or better quality provision is made within the local catchment area; and

- Policy 7.21 Trees and Woodlands - requires that they should be protected, maintained, and enhanced, following the guidance of the London Tree and Woodland Framework (described later).
- VNEB OA Planning Framework

15.7 The Vauxhall Nine Elms Battersea (VNEB) Opportunity Area Planning Framework (OAPF) is supplementary planning guidance to the London Plan (Ref. 15-4). It sets out the strategic policy framework for development within the Opportunity Area which extends north-east from Battersea Bridge to Lambeth Bridge along the south bank of the River Thames.

15.8 Chapter 7 of the framework sets out a detailed public realm strategy for the area. Of the key principles listed, the following have the most bearing on the NLE:

- *"To create a new strategic green link from Lambeth Palace to Battersea Park including a linear park from Vauxhall through Nine Elms to Battersea Power Station;*
- *To ensure that each development in the OA delivers a good quality public realm on its own site and also contributes to the overall public realm strategy for the wider area;*
- *To activate the railway arches throughout the OA including opening up key arches to enable new pedestrian connections in line with the overall public realm strategy."*

London View Management Framework (LVMF)

15.9 The LVMF Supplementary Planning Guidance (SPG) (Ref. 15-5) protects 27 'Designated Views' of London and some of its major landmarks and classifies views in the following ways:

- London Panoramas: panoramas across substantial parts of London;
- Linear Views: views of landmarks framed by objects in the landscape;
- River Prospects: broad prospects along the River Thames; and
- Townscape Views: views of the urban townscape.

15.10 In order to protect the integrity of the Designated Views, the SPG provides a method to describe and assess the views in terms of foreground, middle ground and background elements, and the landmark buildings within them. It also seeks to protect and enhance the place from which the view is seen. Geometric corridors between the viewing place and the key landmarks in Designated Views comprise a Landmark Viewing Corridor and a Wider Setting Consultation Area which are collectively defined as 'Protected Vistas' in the SPG.

Local Planning Policy

London Borough of Lambeth

15.11 The London Borough of Lambeth's (LBL) Local Development Framework (LDF) Core Strategy, adopted in January 2011 (Ref. 15-6), sets out the vision and policies regarding the spatial aspects of development in LBL. It is supplemented by the Unitary Development Plan 2007: Policies saved beyond 23 July 2010 (Ref. 15-7). Relevant policies from the Core Strategy are discussed below:

- Policy PN7 Oval – the Council will support and add to the quality of the area's existing well defined character and sense of place. The Kennington Park site falls within this area; and
- Policy S9 Quality of the Built Environment – this policy, which aims to improve and maintain the quality of the built environment includes specific provisions for the protection of strategic views, including those that affect the outstanding universal value and setting of the Westminster World Heritage Site.

15.12 Relevant LBL UDP Saved Policies are as follows:

- Policy 31 Streets, Character and Layout – requires that developments respect and contribute to the urban grain including the connected patterns of streets, landmarks, topography and landscape features in the area;
- Policy 33 Building Scale and Design – requires that all development should be of a high quality design and contribute positively to its surrounding area;
- Policy 39 Streetscape, Landscape & Public Realm Design – requires that development proposals should include a *"co-ordinated public realm, with robust and appropriate materials and landscape design, enhancing the setting"*;
- Policy 41 Views – this policy retains protection for other views. It states that permission will not be granted for developments which detract from important views, backdrops or settings of listed buildings, Conservation Areas (CA), ancient monuments, landmark buildings and groups, monuments and statues, London squares and historic parks and gardens, views of the City and North London from various public open spaces, and the Thames, its embankments and bridges. The policy sets out criteria against which developments will be assessed including the number of people using the areas from which the views will be seen, the extent to which the proposal dominates or blocks foreground views, the degree to which the proposal blocks clear sky against which landmark structures are seen, whether the proposal adds to or detracts from the quality of the backdrop of the object of the view and whether the improvement to the setting or framing of the view mitigates against some narrowing or loss of the view; and
- Policy 47: Conservation Areas – states that *"Development proposals in a conservation area should preserve or enhance the character or appearance of the conservation area."*

London Borough of Wandsworth

15.13 The London Borough of Wandsworth's (LBW) Core Strategy and Development Control Polices Document, adopted in 2010 (Ref. 15-8), sets out a clear vision for the spatial aspects of development in Wandsworth. The policy relevant to the NLE's townscape impacts is:

- Policy IS 3 Good quality design and townscape – this policy is concerned with the protection and reinforcement of the existing varied character and heritage of the borough and the creation of places, streets and spaces which are visually attractive and while having their own distinctive identity, maintain and reinforce local character. It is also requires that *"Views of the Westminster*

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World Heritage Site will be protected in accordance with the London Plan and the LVMF."

London Borough of Southwark

15.14 The Core Strategy (Ref. 15-9) contains the following relevant policy:

- Strategic Policy 12 – Design and conservation**.** This policy requires that the height and design of development conserves and enhances strategic views and is appropriate to its context, the historic environment and important local views so that new buildings do not block these views or make them less attractive.

15.15 Saved Policies of the LBS UDP (Ref. 15-10) are as follows:

- Policy 3.13 – Urban Design Requires that the principles of good urban design must be taken into account in all developments defined as the relationship between different buildings and streets, squares, parks and waterways and other spaces that make up the public domain; the nature and quality of the public domain itself; the relationship of one part of an urban area to another; and the pattern of movement and activity; and
- Policy 3.22 Important local views Presumes against developments that would impact negatively on important local views in order to maintain the image and environmental quality of the borough and wider London.

Assessment Methodology and Significance Criteria

15.16 The assessment is based on a thorough understanding of the baseline conditions developed through desk study and site visits. In addition, the following material has been collected and used as part of the assessment:

- A photographic record of the study area;
- Aerial photography;
- Ordnance Survey Digital mapping;
- Digital terrain data;
- Information on CAs and Listed Buildings;
- Countryside Agency Landscape Character Assessment, digital Geographical Information Systems (GIS) data;
- Information on London View Management Framework (LVMF) Strategic Views; and
- Contextual geographical and environmental information.

15.17 The assessment makes use of photographs which are referred to in the text to assist in describing the character of the study area and existing views Visually Verified Photomontages (VVM) are used to describe the likely visual impact of the NLE on a series of representative views which have been agreed with the LBL and LBW, shown in Appendix K3.

15.18 The iterative design process has sought to reduce, off-set or compensate for predicted effects on townscape character and views. Mitigation is proposed to remove or minimise any adverse residual effects.

Assessment Methodology

General Approach

15.19 The method of townscape and visual impact assessment adopted for the NLE has been devised to address the specific impacts raised by a development of this scale and nature. Based on an analysis of information obtained during a desk study and field survey, the assessment uses structured, informed and reasoned professional judgement, taking account of a combination of quantitative and qualitative factors. This approach accords with current good practice set out by the Landscape Institute and Institute of Environmental Management & Assessment (Ref. 15-11) and the Countryside Agency and Scottish Natural Heritage (Ref. 15-12).

Terminology

15.20 The following terminology has been used in this chapter:

- **Townscape Character Areas (TCA)** are areas of relatively homogenous townscape character. They are defined by the combination of elements that contribute to townscape context, character and value. Typical townscape elements include street pattern and movement, urban blocks and buildings, open space and public realm and the contribution and setting of heritage assets. More subjective criteria are also considered such as scale, unity and enclosure;
- **Zones of Visual Influence (ZVI)** provide graphical representation of places within the study area where the NLE would be visible from (at eye level of a person standing on the ground, unless otherwise stated). The ZVI is the area within which a proposed development could have an influence or effect on visual amenity;
- **Visual receptors** are special interest or viewer groups who would have views of the NLE. Visual receptors are identified through interrogation of the ZVI supported by field survey observations; and
- **Visually Verified Photomontages (VVM)** or verifiable photomontages are used to illustrate the visible elements of the NLE within certain views to allow an assessment of potential townscape and visual impacts to be undertaken.

15.21 The ES draws a clear distinction between townscape and visual impacts:

- **Townscape impacts** relate to the degree of change to physical characteristics or components of the townscape, which together form the character of that townscape, e.g. landform, vegetation and buildings; and
- **Visual impacts** relate to the degree of change to an individual receptor's view of that landscape, e.g. local residents, users of public footpaths or motorists passing through the area.

Description of Baseline Conditions

15.22 For the purposes of this assessment, the extent of the study area is that shown in Figure 15-1. A detailed study of the existing townscape components and character and views of the NLE sites and study has been carried out in terms of:

- Topography;
- Vegetation;
- Roads and access;

- Settlement and land-use;
- Site context;
- Townscape character; and
- Representative views.

15.23 The planning context with respect to townscape character and visual amenity has also been summarised, taking into account relevant European, national, regional and local planning policies. Certain townscape planning designations, including Historic Parks and Gardens, Protected London Squares and CAs, were mapped across the full extent of each baseline townscape drawing.

15.24 The baseline study forms the basis of the assessment of the predicted impacts of the NLE.

15.25 The character of each TCA was summarised in character area descriptions considering a synthesis of elements that contribute to townscape character including:

- Land use;
- Street and block pattern;
- Age, massing, scale, and density of buildings;
- Vehicular and pedestrian movement corridors;
- Enclosure and street proportions;
- Roofscape and skyline;
- Characteristic building materials and boundaries;
- Scale and distribution of open space and relationship to built form;
- Presence of visible historic components and their setting;
- Habitats and landscape features; and
- Nodes, orientation elements, views, visual sequences, landmarks, gateways.

15.26 A unique reference is provided for each TCA, which precedes its name in the text, and is used to identify them in the assessment of effects and significance.

Definition of Scope

Spatial Scope

15.27 The NLE is inherently linear. However, as the route would be subterranean, direct impacts would only occur at and in the vicinity of above ground construction works including the ventilation and intervention shafts and stations. The spatial extent of the townscape assessment has been limited to 500m from the boundary of each site. Where there is a degree of intervisibility between the worksites and the surrounding townscape indirect impacts may occur; these are considered separately.

15.28 It should be noted that townscape character invariably forms part of a continuum and that the TCA boundaries have been generalised in many instances as a result.

15.29 The extent of the study area for the visual impact assessment was influenced by the sensitivity of receptors within the approximate ZVI for each site.

15.30 The assessment considers the potential impacts of the temporary (construction) or permanent (operational) works.

15.31 A reasonable worst case (i.e. winter condition) was assumed for assessment of impacts during the construction phase and in the opening year of operation (2020). For the operational phase, residual impacts after landscape mitigation were assessed as a reasonable worst case (i.e. winter condition) at 2031, where proposed planting would have established to a reasonable degree and providing an assessment year that is representative of the life-cycle of the project.

Townscape Assessment Methodology

15.32 No universally acknowledged guidance currently exists for townscape assessment. However, key agencies and bodies including the Landscape Institute, English Heritage, Natural England, and the Commission for Architecture and Built Environment (CABE) promote the use of 'urban characterisation methodology' to aid the understanding of the distinctive and sensitive nature of townscapes. Townscape is described at the national and local level. The assessment of the potential effects on the townscape of the study area is based on the TCAs identified at the local level.

Sensitivity of Townscape Character Areas

15.33 A variety of factors and attributes which affect the existing character and value of the townscape were considered when determining the sensitivity of each TCA. These include:

- Townscape quality and condition - the degree to which it is attractive or unattractive with regards to particular patterns and combinations of features, the condition of individual townscape components, and the degree to which townscape character remains intact;
- Sense of place and legibility - the extent to which the townscape retains or has lost a distinctive character and sense of place;
- Unspoilt character - the degree to which the townscape is unaffected or affected by intrusive or detracting influences;
- Scarcity of the resource - whether the townscape type represents a scarce or especially fragile townscape resource;
- Conservation interests - whether there are other notable conservation interests, including historic or ecological features, that contribute to townscape value; and
- Tranquillity - the degree to which the townscape is affected by intrusive elements in terms of noise, increased movement, visual and light pollution.

15.34 Each TCA was assigned a sensitivity based on the character and quality of the existing townscape and its ability to accommodate change. Sensitivity is classified as follows:

- High sensitivity: townscape of relatively distinctive components and characteristics, sensitive to small changes;
- Medium sensitivity: townscape of relatively common components and characteristics, reasonably tolerant of changes; and

- Low sensitivity: landscape of relatively inconsequential components and characteristics, the nature of which is potentially tolerant of substantial change.

Townscape Effects

15.35 An assessment was made of both direct and indirect impacts on each TCA within which the above-ground built elements of the project will be located. Indirect effects on adjacent townscape character areas were considered.

15.36 Magnitude of impact is determined by considering the combination of the scale of the development, the type of development and the level of integration of new features with existing elements. Magnitude of impact is classified as follows:

- High: ranging from a limited change in townscape characteristics over an extensive area, to an intensive change over a more limited area;
- Medium: moderate change in a localised area;
- Low: minor change in a localised area;
- Negligible: virtually imperceptible change in any component; and
- Neutral: no change discernible in any component.

Visual Assessment Methodology

15.37 The ZVI of each of the NLE sites is a product of a desk study and has been validated by fieldwork against the following criteria:

- Receptor function / activity;
- Distance from the application site;
- Topography and elevation;
- Degree of exposure to view e.g. the presence of features between the development and receptors, such as buildings and vegetation
- Period of exposure;
- Designation of the viewing place;
- Availability of alternative views; and
- Distribution of receptors.

15.38 Indicative ZVIs are shown in Figures A15-1 to A15-6 in *ES Volume II: Appendix K2*.

Sensitivity of Visual Receptors

15.39 The sensitivity of visual receptors has been categorised based upon their function or activity (e.g. residents, sightseers, commuters, workers), the degree of focus on the surrounding townscape, and the location, context and importance of the existing view. Sensitivity is classified as follows:

- High sensitivity receptors: those with a high interest or appreciation of the view (e.g. residents or people engaged in outdoor recreation whose attention is focussed on the landscape) and/or a high value of existing view (e.g. a designated landscape, unspoilt countryside or CA);
- Medium sensitivity receptors: those with a medium interest or appreciation of the view (e.g. people engaged in outdoor recreation that does not focus on an appreciation of the landscape) and/or a medium value of existing view (e.g. suburban residential areas or intensively farmed countryside); and
- Low sensitivity receptors: those with a low interest or appreciation of the view (e.g. people at work or motorists travelling through the area) and/or low value of existing views (e.g. industrial areas or derelict land).
- For the NLE, these are shown in *ES Volume II: Appendix K2*.

15.40 Magnitude of visual impact can be adverse or beneficial, and results from a combination of the degree of change to the view, the extent of the area over which the changes would be visible, the period of exposure to the view and reversibility. Magnitude of impact is classified as follows:

- High: high degree of change to existing view (e.g. loss of characteristic features) and/or high degree of exposure to view (e.g. close or open views);
- Medium: medium degree of change to existing view (e.g. partial loss of characteristic features) and/or medium degree of exposure to view (e.g. middle-distance or partial views);
- Low: low degree of change to existing view (e.g. limited loss of characteristic features) and/or low degree of exposure to view (e.g. long-distance, interrupted or glimpsed views);
- Negligible: barely perceptible change to existing view and/or very brief exposure to view; and
- Neutral: no change discernible in existing view.

15.41 For the NLE, this is shown in *ES Volume II: Appendix K2*.

Analysis of Representative Views

15.42 To support the assessment of potential visual effects, representative views were selected and agreed with the relevant London borough. Verified baseline photography was undertaken and VVMs were produced, using the methodology set out in Appendix K1.

Significance Criteria

15.43 Impacts are defined as:

- **Beneficial** classifications of significance indicate an advantageous or beneficial effect on an impact area, which may be minor, moderate, or major in effect;
- **Neutral** classifications of significance indicate imperceptible effects on an impact area; and
- **Adverse** classifications of significance indicate a disadvantageous or adverse effect on an impact area, which may be minor, moderate or major in effect.

15.44 Temporary, short-term impacts are considered to be those associated with the construction works. Medium to long-term impacts are those associated with the completed development.

15.45 Impacts can also be either direct (e.g. introduction of built forms), or indirect (e.g. off-site visual impact of construction traffic).

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Significance of Effects

15.46 Whilst there is a degree of subjectivity involved in determining the significance of townscape and visual effects, significance can broadly be determined by the interaction of sensitivity of receptor and magnitude of impact (see Table 15-1). Effects can be adverse or beneficial, and are considered significant if they are major moderate/major or moderate. Any effect lower than moderate is considered not significant. A textual description of townscape and visual effects is given in Table 15-2.

Mitigation of Impacts

15.47 Opportunities to reduce, remedy or compensate for adverse impacts on townscape resources and visual amenity have been identified, where practicable and appropriate. Mitigation measures can take the form of changes in construction working methods. Primary measures include use of high quality design, appropriate height, scale and massing for new built development and the use of materials appropriate to the local setting. Secondary mitigation measures include the introduction of new planting, landform and paving etc.

15.48 Illustrations of the appearance of above ground structures which would occur at the various sites are provided in the Design and Access Statement (see *Appendix M of ES Volume II*). These take account of design based mitigation that has occurred throughout the design evaluation and show the height, scale and massing and other key attributes.

Table 15-1 Significance of Effect

Sensitivity of Receptor	**Magnitude of Impact**				
	High	**Medium**	**Low**	**Negligible**	**Neutral**
High	Major	Moderate / Major	Moderate	Minor / Moderate	Neutral
Medium	Moderate / Major	Moderate	Minor / Moderate	Minor	Neutral
Low	Moderate	Minor / Moderate	Minor	Negligible	Neutral

Table 15-2 Description of Significance of Effects

Significance of Effect	**Description of Townscape Effect**	**Description of Visual Effect**
Major	Where the proposed changes would be sufficiently large to substantially alter important townscape features / valued aspects of townscape.	Where the proposed changes would be sufficient to substantially alter a nationally important view, or view of high scenic quality.
Moderate / Major	Where the proposed changes would be noticeably out of scale with the underlying character of an area or substantially alter a locally important landscape feature / valued aspect of townscape.	Where the proposed changes to views would be noticeably out of scale with the existing view and/or substantially alter a locally important view, or view of scenic quality.
Moderate	Where the proposed changes would be out of scale with the underlying character of an area or noticeably alter a townscape feature or aspect of townscape.	Where the proposed changes to views would be out of scale with the existing view or noticeably alter a view.
Minor / Moderate	Where proposed changes would be readily apparent and at slight variance with the underlying character of an area and / or townscape features.	Where proposed changes to views would be noticeable and at slight variance with the existing view.
Minor	Where proposed changes would be intermittent and at slight variance with the underlying character of an area and townscape features.	Where proposed changes to views would be intermittent and at slight variance with the existing view.
Negligible	Where proposed changes would have an indiscernible effect on the character of an area and townscape features.	Where proposed changes would have an indiscernible effect on views / visual amenity.
Neutral	Where there is a balance of beneficial and adverse townscape impacts or perceived benefits and disbenefits.	Where there is a balance of beneficial and adverse visual impacts or perceived benefits and disbenefits.

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Baseline Conditions

15.49 This section describes the existing (2013) baseline conditions within the study area. Reference should be made to Figure 15-1: Topography, Figure 15-2: Townscape Context and Figure 15.3: Townscape Character Areas at the end of this chapter.

Topography

15.50 The topography of the study area is heavily influenced by the tidal River Thames, which runs through the north-western part of the study area at approximately sea level (Ordnance Datum) as shown on Figure 15-1. Two areas of higher ground occur at the southern limit of the study area between 13m and 17m above ordnance datum (AOD) and to the north at 8m AOD. The proposed shaft and station sites all sit between 2m and 3m AOD.

Vegetation

15.51 The study area is heavily urbanised with very little in the way of 'natural' vegetation other than the occasional small pocket within the foreshore of the River Thames or on vacant land.

15.52 There are a number of large, formal urban parks with mature tree and shrub planting including Battersea Park and Ranelagh Gardens in the west, Larkhall, Lambeth and Myatt's Field Parks in the south, Kennington Park in the east and Archbishop's Park in the north. Vegetation is otherwise confined to private gardens, the grounds of housing estates, small public parks and open spaces (e.g. Kennington Green) and street trees.

15.53 The Nine Elms area, including the Battersea Power Station (BPS) site, the Covent Garden Market Authority (CGMA) and surrounding industrial areas are particularly lacking vegetation cover.

15.54 A detailed arboricultural condition survey, carried out by Transport for London, identifies and assess the condition of trees within or adjacent to the site boundaries of the proposed scheme. A copy of this survey is included in *Appendix J2 of ES Volume II*.

Roads and Access

15.55 The study area is well served by roads and public transport including trains, the London Underground and buses. The A3 runs north-east from Clapham to Newington, passing through Kennington and in proximity to the Kennington Park site. The A3205 runs north-west from Battersea, past the proposed Battersea station site. The A3036, which runs past the proposed Nine Elms station site, and A203 run north from Clapham and the A3202 runs south-west from Newington to Vauxhall. The A202 crosses the study area from Camberwell in the east. The A3216 runs north from Clapham crossing the River Thames at Chelsea Bridge and leading on to Belgravia.

15.56 Several overland railway lines cross the western part of the study area. Trains running south from London Bridge run through Vauxhall and Queenstown Road station towards Clapham Junction station. Trains from Victoria station in the northern part of the study area run south towards Clapham Junction and Brixton through Battersea Park station and Wandsworth Road station respectively. On the eastern edge of the study area, trains from Elephant & Castle run south through Camberwell.

15.57 There are also a number of London Underground stations within the study area. North of the river there are underground stations at Victoria (Victoria, Circle and District) and Pimlico (Victoria) and south of the river there are stations at Vauxhall (Victoria), Stockwell (Victoria and Northern), Oval (Northern), Kennington (Northern) and Elephant & Castle (Bakerloo and Northern). Several cycle routes pass through the study area. The Barclays Cycle Superhighway Route 7 follows Kennington Park Road as it passes through the area (Ref 15-13). The Barclays Cycle Hire Scheme, implemented in 2010, provides access to five self-service docking stations within the study area as part of a City-wide network of 570 stations (Ref. 15-14).

Settlement and Land Use

15.58 To the south of the River Thames is a continuous urban area which has developed from what were once a number of discrete settlements. While the centres of these settlements remain identifiable at Newington, Vauxhall and Kennington, the areas in between have merged and share similar patterns of development which is mostly residential with numerous estates, private residential streets, shops, parks and open spaces and schools and colleges. The world renowned Oval cricket ground is located approximately 500m south-east of Vauxhall.

15.59 The western part of this area, located between Battersea Park and Nine Elms is industrial and commercial. Major sites include the Royal Mail South London Mail centre and the CGMA site with other uses comprising a mix of active distribution centres, offices, warehouses and small factories. The area is undergoing extensive transformation to a mixed-use quarter, with an anticipated 16,000 new homes expected as part of the VNEB OA redevelopment. There are a number of vacant sites, including the former BPS site and sites undergoing redevelopment adjacent to the A3205.

15.60 North of the river, there are identifiable settlement centres at Pimlico and Belgravia but again, these have merged to form a continuous urban area. Victoria station, in the northern part of the area, has a strong influence on the area and is surrounded by theatres, shops, restaurants and bars. Other land uses include Ranelagh Gardens, the site of the annual Chelsea Flower Show, on the north bank of the River Thames, and the Tate Gallery, north of Vauxhall Bridge.

Open Spaces

15.61 The distribution of open spaces within the study area is shown in Figure 15-2. Those which would potentially be affected by the NLE are described within the Site Context section below.

Site Context

Harmsworth Street Temporary Grouting Shaft

15.62 Harmsworth Street is located in a residential area of the LBS to the north of Kennington Park and to the east of Kennington Park Road (A3). It runs south-east from De Laune Street to Doddington Grove with Sharsted Street and Faunce Street connecting as side roads to the north. The temporary construction shaft would be located between the junction with De Laune Street and Sharsted Street and lies on the border of the Kennington Park Road CA within the LBS.

15.63 The street is wide with pavements and on-street parking on both sides and young street trees at the eastern end. Tall brick walls and the ends of houses increase the sense of enclosure. There are no active frontages between De Laune Street and Faunce Street other than a commercial building (Scribbler Holdings) opposite Faunce Street.

Radcot Street Temporary Grouting Shaft

15.64 Radcot Street is located within the LBL, falling within the Kennington CA. It runs north-east, connecting Ravensdon Street and Methley Street. The street is enclosed by two and three storey private dwellings to the east and the ends of terrace dwellings and their rear gardens to the west. The street is flanked by pavements and on-street parking on both sides. Street trees line the pavements on both sides of the street.

Kennington Park Ventilation Shaft

15.65 Kennington Park is located within the LBL but bounded by LBS in north-eastern corner. It is broadly rectangular, measures 15 hectares (ha) and runs approximately north-south bounded by Kennington Park Road (A3) to the west, Kennington Park Place to the north, St. Agnes Place to the east and New Camberwell Road (A202) to the south. The park is listed as Grade II on the Register of Historic Parks and Gardens.

15.66 The site lies entirely within the St. Mark's CA (LBL), directly adjacent to the boundary of the LBS. The western part is currently set out as a grassed dog exercise area, enclosed by metal railings and accessed by a gate at the north-eastern corner close to the Kennington Park Road entrance and a gate on the eastern side, close to the entrance from St. Agnes Place opposite Royal Road. An avenue predominantly of semi-mature ash with the occasional laburnum tree runs along the northern boundary. The majority of these trees have been assessed as being of poor quality (Cat. C or U). There is also a small group of young birch trees in the north-eastern corner of this area (*Appendix J2 of ES Volume II: Arboricultural Report*). Kennington Park provides the setting of eleven Grade II listed buildings and structures, all located outside of the site and within the LBS: 10, Kennington Park Place; 11 and 12, Kennington Park Place; The Bishops House; Gate, Piers and Walls to the Bishops House; and Numbers 1-7 St. Agnes Place and attached railings.

15.67 The proposed head house (including shaft access) building would be located on the site of the existing building, referred to in this ES as Kennington Park Lodge. The lodge is located in the north-eastern corner of Kennington Park but separated from it by a close-boarded fence to the south and west which forms a tight enclosure to the rear of the building. It is a plain two-storey red brick building in a domestic style, dating from the late 1930s. The lodge and its garden are used by community groups and for bee keeping with a number of bee hives to the rear. The lodge building has been extended by the addition of lean-to structures to the sides and rear. There is also a contemporary timber building with a green roof in the southern part of the garden. The vegetation within the garden is an ad hoc mixture of grass, mature trees and shrubs, some of which are in planters. The quality of maintenance and orderliness is poor, with building materials, containers and gardening paraphernalia scattered around the garden. The railings which line the northern and eastern boundary are in a poor state of repair.

Kennington Green Ventilation Shaft

15.68 The Kennington Green site is located in the LBL, adjacent to Kennington Road (A23) which runs along its western side, and is approximately 170m north-west of Kennington Park. The site and its surroundings are within the LBL Kennington CA. The green itself measures approximately 960m^2 and is bounded by a spur of Kennington Road which wraps around the western and northern sides. The green forms part of the original Georgian street plan and is protected under the under the London Squares Preservation Act 1931. The existing layout limits its value for active use and several of the elements including the four existing cherry trees (*Prunus spp.*) and the walls and pavements which bound it are in poor condition. A number of substantial 4-5 storey townhouses face onto this spur, some of which have been converted to offices. Montford Place leads south-west from this spur and is fronted by a terrace of cottages on the western side and a continuation of the tall wall enclosing the Beefeater Gin Distillery site on the eastern side. Commercial properties including small shops, restaurants and bars extend north from the northern side of the green along Kennington Road. Directly opposite the green on the eastern side of Kennington Road is the former Vauxhall Manor School, now a gated residential development, and to the north, a self-storage facility which also fronts onto Milverton Street. Several of the buildings fronting the green are listed, six of which are Grade II: 346, Kennington Road; 348 Kennington Road; 354 Kennington Road; 356 Kennington Road; 362, 364 and 366 Kennington Road; and Vauxhall Manor School Annexe, Kennington Road. Numbers 350 and 352 Kennington Road are Grade II*.

15.69 There is an access gate in the north-western corner which leads into the Beefeater Gin Distillery which is partly enclosed by a brick wall, measuring approximately 3.5m in height. This wall wraps around corner of Montford Place and Kennington Green, measuring approximately 6m in height and decorated by false arches. The main distillery buildings are located on Montford Place. The façade of a five-storey red-brick building dating from 1905 has been extended to the rear and to the south by post-war concrete and metal clade industrial buildings of a similar height. The land to the north of the distillery is derelict and enclosed by a steel palisade fence.

15.70 There are four mature cherry trees (*Prunus spp.*) within the green and three mature ash trees just outside the square on the northern and western sides.

Nine Elms Station

15.71 This site is located within the LBL, to the north and west of Wandsworth Road (A3036) with Pascal Street to the south, Parry Street to the west and the Nine Elms Sainsbury's supermarket (and associated petrol station) to the north.

15.72 The western part of the application site is currently occupied by a collection of moderately sized commercial and office buildings (Banham Security Locks and Alarms) accessed from Parry Street and Pascal Street. Plant in the north-western corner of the site includes a tall concrete chimney associated with a boiler house and owned by CGMA.

15.73 The northern part of the application site forms part of the supermarket car park, and there is a secondary vehicular access to the supermarket from Pascal Street. The car park is bounded on the southern side by a tall brick wall with occasional sections of bright blue railings. There is a small plant building located close to the vehicular entrance on the eastern side. There are a small number of semi-mature trees and shrubs located adjacent to the walls surrounding the car park.

Battersea Station

15.74 The Battersea station site, which is currently derelict and vacant, is located adjacent to and north of Battersea Park Road (A3205) in the LBW. Hoarding runs along the southern boundary preventing access and views across the site. The western boundary is formed by a railway line, raised above arches linking Victoria station and Wandsworth Road station. To the north is the imposing former BPS (Grade II* listed) and beyond this, the tidal River Thames. The eastern boundary is within the vacant site, close to Kirtling Street.

15.75 The area to the south of the site is predominantly residential, accessed from Battersea Park Road, with a limited number of commercial properties. The area to the northeast is industrial with waste and water treatment facilities amongst derelict and vacant sites. Wharves and jetties line the northern edge, adjacent to the River Thames. Cranes associated with the wharves are included within the listing of the BPS. (see Figure 15-2).

Landscape and Townscape Character

15.76 The character of the study area is described at a national and local level in the following sections.

National Character Areas

National Character Area 112: Inner London – Natural England

15.77 This National Character Area covers the whole of the inner London area from Hammersmith in the west to Bexley in the east and Enfield in the north to Croydon in the south and the description is therefore very broad.

15.78 The gently terraced landform is described as being almost completely obscured by the dense, complex mosaic of urban styles and forms punctuated in places by a series of large parks and open spaces. Of particular relevance to the study area are the references to the River Thames which forms a connecting and unifying thread running through the city and which is increasingly fronted by new glass and steel office blocks. Reference is also made to iconic landmark features which appear against the skyline including BPS.

Local Townscape Character Areas

15.79 Ten townscape character areas have been identified within the study, as shown in Figure 15-3 and described below.

TCA 01: Battersea Park

15.80 Battersea Park is located to the west of the proposed Battersea station, north of the Prince of Wales Drive and west of Queenstown Road. The park, which opened in 1858, is 83ha and the part which falls within the study area is approximately 9.7ha. In contrast with the surrounding areas, this area is characterised by dense plantings of trees and shrubs, which create a sense of enclosure, seclusion, and tranquillity, interspersed with open areas including the formal Millennium Sports Arena which includes an athletics tracks and hard surfaced courts which, when in use, are lively and vibrant. The eastern part of this TCA takes in part of the duck pond and boating lake, an expanse of open water surrounded by dense vegetation and including a number of small treed islands limiting longer distance views and increasing enclosure. Close to the entrance from Queen's Circus, there are high quality, formal planting beds and connecting to the Carriage Drives which wrap around the lake from which a network of formal footpaths provides access to other areas of the park. The sensitivity of this area is assessed as being high.

TCA 02: Battersea

15.81 This area comprises a complex mixture of predominantly residential, industrial and commercial land uses dissected and strongly influenced by the railway lines, raised on high embankments which cause severance and limit intervisibility with surrounding areas. The fragmented spaces between the railway lines create irregular shaped sites which have been developed for a variety of uses including the Battersea Dogs and Cats Home and Gas Holders on Prince of Wales Drive in triangles of land north of Battersea Road and the modern Chelsea Bridge Wharf development which occupies a narrow site between the Queenstown Road and the Battersea Park to Victoria railway line. Residential estates in the south of the TCA are equally affected by severance creating tight, enclosed spaces. Overall, the sensitivity of this area is assessed as being medium.

TCA 03: Battersea Power Station

15.82 This area is dominated by the remnants of BPS, built in the 1930's and extended in the 1950's but which ceased generating electricity in 1983 and has since fallen into disrepair. Designed by Sir Giles Gilbert Scott it is the largest brick building in Europe and is Grade II* listed in recognition of its *"outstanding interest on architectural grounds as a monumental example of an inter-war utilities building"* (Ref. 15-15). The buildings are a recognised London landmark and social icon. However, neglect has caused significant deterioration to the buildings and the site is derelict. The area surrounding the former power station has been levelled and cleared and is of poor townscape quality. The BPS (Grade II*) and neighbouring Battersea Pumping Station (Grade II) Buildings are included on the English Heritage at Risk Register (Ref. 15-6). Overall, the sensitivity of this area is assessed as being low.

TCA 04: River Thames

15.83 The part of tidal River Thames forming this TCA is located between Chelsea Bridge in the west and Lambeth in the east. The openness and increased sense of exposure of this area is in contrast to the neighbouring, highly urban TCA 02, TCA 03 and TCA 05. The tidal nature of the Thames at this location causes the character to change throughout the day as the water rises and then recedes exposing the muddy foreshore and associated inter-tidal habitats. The combination of large scale, openness and natural outlook increases tranquillity. There are a diverse mix of uses along the embankment with some residential, commercial and industrial including wharfs for loading boats. The sensitivity of this area is assessed as being high.

TCA 05: Nine Elms Industry and Commerce

15.84 This TCA, located to the south of the River Thames, comprises a mixture of commercial and industrial land uses and redevelopment sites and is bisected by the railway line which runs between Vauxhall and Clapham Junction. There is a coarse grain of development as a result of large land parcels and relatively few roads. Public access is limited and this reduces permeability and increases severance between neighbouring areas. A number of large sites are currently being redeveloped for a mix of uses, primarily residential, including some which front directly onto the River Thames. The sensitivity of this area is assessed as being low.

TCA 06: South Lambeth

15.85 This extensive, dense and diverse residential area is located to the east of New Covent Garden Market and west of the A202 Camberwell New Road. There are a number of large, extensive post-war housing estates comprising blocks of 3-5 storey flats, generally surrounded by communal open space for residents some of which are fenced and gated. Whilst there is some variation in style on the western edge, the pattern of development is often repeated and as in places monotonous. The extent of communal space and lack of public access tends to restrict movement and causes severance. Elsewhere, particularly in the central and eastern part of the area, there is a predominance of terraced housing with more private open space. There is a contrast between the more peaceful residential areas and the busy main roads such as the A3 Clapham Road and the A23 Brixton Road which are more active. Part of the area falls within the Vauxhall CA. Vauxhall Park is located on the northern edge of the TCA providing openness in an otherwise densely developed area. Mature trees provide structure and are also found in the streets surrounding the park. Fentiman Road which runs across the southern part of the area is wide and tree lined and includes a row of Almshouses. The sensitivity of this area is assessed as being medium.

TCA 07: The Oval

15.86 This area is dominated by the massive structure of the Oval Cricket ground which is a local landmark and which affects the local street pattern. The Kennington Oval loops around the cricket ground and is fronted by 4-5 storey blocks of flats which form parts of the many estates which are present in the TCA. The post-war Claylands Road Estate lies to the south of The Oval whilst the 1930s Kennington Park Estate, one of the London County Council's largest inter-war estates of five storey neo-Georgian blocks of flats, lies to the north. There are also industrial uses in the north and west, including the Beefeater Gin Factory (which now falls within the Kennington CA and gas holders at Montford Place, vacant and derelict sites, schools and a large superstore. The sensitivity of this area is assessed as being medium.

TCA 08: Kennington Park

15.87 Kennington Park, which opened in 1854, was laid out by James Pennethorne following an Act of Parliament in 1852 allowing the enclosure of the greater part of Kennington Common. The park is listed as Grade II on the Register of Historic Parks and Gardens of special historic interest in England. This extensive, open area, which appears to be well maintained, retains its important historic features, such as the Refreshment House, Model House, Bandstand and Tinworth Fountain as well as avenues of mature trees including London Plane and evergreen Oak which create texture and structure. The parts of the area away from the busy Kennington Road are quieter. The southern end of the park includes colourful, formal gardens and is generally more wooded creating and increased sense of enclosure. The eastern part of the area includes extensive playing courts and pitches, some of which include floodlighting. These areas are more active and increase the diversity of the area. South of the A202 Camberwell New Road is the Grade II* listed Church of St. Mark, the grounds of which is publicly accessible and is used as a thoroughfare. The sensitivity of this area is assessed as being high.

TCA 09: Kennington

15.88 This area, which broadly conforms to the Kennington CA (as amended march 2012), is predominately residential comprising a mixture of Georgian and Victorian residential terraced housing and post-war estates and infill development. It is centred on the junction of the A3204 Kennington Lane and the A23 Kennington Road which is a vibrant local centre with numerous small shops, restaurants and bars, many with contrasting, colourful frontages. Georgian townhouses front the wide A3 Kennington Park Road in the east of the area with mature street trees in the wide pavements in front. The residential areas between the main roads are quiet and often secluded. Private open space prevails with most houses having gardens. Communal open space with access limited to residents linked to housing estates is most common in the north of the area. Cleaver Square, a high quality, publicly accessible tree lined space is located close to the A3 Kennington Park Road, fronted by Georgian townhouses. Kennington Green, a small open space with mature trees is located adjacent to the A23 Kennington Road increasing openness locally. This open space has suffered from neglect and railings have recently been removed. The green is protected under the London Squares Preservation Act 1931Light industry and commerce is most common in the south with the reuse of old building typical along Kennington Road and mews development along Stannary Street. The sensitivity of this area is assessed as being high.

TCA 10: South Newington

15.89 This extensive residential area is located to the north of Kennington Park with the eastern part mostly falling in the LBS and the area to the west of the A3 Kennington Park Road falling in the LBL. The latter includes the Cotton Gardens Development, a series of 20-storey high rise tower blocks and Hamlet and Ariel Court, which are set within generous communal open spaces. East of the A3 Kennington Park Road private houses are more common and public open space is much more limited although private open space and street trees are common. The northern part of the area includes the Guinness and Guinness Trust buildings, a series of four substantial 4-storey brick buildings. The sensitivity of this area is assessed as being high.

Conservation Areas

15.90 There are 12 CAs within the study area. Vauxhall Gardens CA is excluded from the assessment as it is located on the very edge of the study area is less than 1ha and would not have a significant influence the baseline conditions. All CAs have been assessed as being of high sensitivity. The CAs are shown on Figure 15-2 and described below.

London Borough of Lambeth

Albert Square

15.91 The study area includes the northern part of this CA and is located to the west of Clapham Road (A3), approximately half way between Stockwell and Oval London Underground stations. It is "*characterised by formal terraces of middle class 19th Century housing with unified architectural detailing. The formality of the buildings and their arrangements along conventional streets and a square is of particular interest so too is the mature landscaping of the square and the presence of rear gardens*". (Ref. 15-17).

Kennington

15.92 The Kennington CA covers a large area to the west of Kennington Park Road (A3) and surrounding the crossroads of Kennington Lane (A3204) and Kennington Road (A23). The Kennington Green and Radcot Street sites fall within this area. It is "c*haracterised by smart terraced housing which developed from the late 18th century onwards. It also incorporates the impressive Duchy of Cornwall Estate, which was laid out in the 1910s to a very high standard of design and layout"* (Ref. 15-18).

Landsdowne Gardens

15.93 This CA is located in the southern part of the study area, between Wandsworth Road (A3036) and South Lambeth Road (A203). It is "*characterised by 19th Century middle class villas in mature gardens. They can be detached, semi-detached or set in small terraces and generally have neo-Classical or Italianate detailing. A formal 'circus' with axial streets adds greatly to the character of the area; so too do the church, numerous mature trees and reinstated traditional railings present in the area"* (Ref. 15-19).

Larkhall

15.94 A small part of this CA falls within the southern part of the study area, located either side of Wandsworth Road (A3036). The description makes reference to later 19th century residential along Landsdowne Way (Ref. 15-20).

South Lambeth Road

15.95 Two small sections of this CA fall within the southern part of the study area taking in areas either side of Clapham Road (A203) and Brixton Road (A23), the former described as an historic route. The description provided in the CA statement explains the buildings predominantly date from the 19th Century (Ref. 15-21).

St. Marks

15.96 The extensive St Marks CA falls entirely within the study area taking in substantial parts of Kennington Park Road (A3), Clapham Road (A3) Fentiman Road and Kennington Park. It is *"characterised by smart terraced housing dating from the early 19th Century onwards; of particular note is Hanover Square. The imposing St Mark's Church is its principal landmark"* (Ref. 15-22).

Vauxhall

15.97 The eastern part of this CA falls within the study area taking in Vauxhall Park and the quiet residential areas to the north. It stretches "*from Kennington Lane through Harleyford Road and down to Vauxhall Park. There are numerous sub-areas, with an 18th and 19th century urban mixed residential and commercial character*" (Ref. 15-23).

London Borough of Southwark

15.98 There are two CAs in LBS within the study area. However, CA appraisals were not available at the time this chapter was written (Ref. 15-24):

- CA18 Kennington Park Road SE11 D, September 27 1968; and
- CA19 Sutherland Square SE17 D, January 12 1982.

London Borough of Wandsworth

Battersea Park

15.99 This CA is located at the western extent of the study area, in the main the west of Victoria to Clapham Junction railway line, north of Battersea Park Road (A3205) and south of the River Thames. The description states that "*its special character derives from the dominance and vibrant greenery of Battersea Park, its riverside setting and the distinctive formal relationship between the park and the high quality mansion flats which front it to the west and south"* (Ref. 15-25).

Park Town

15.100 The northern part of this CA protrudes into the south-western corner of the study area. This part of the CA is "dominated by railways with the Victoria to Brighton railway crossing the Waterloo to Southampton railway at high level on brick arches, with the Victoria to Kent railway also crossing the Waterloo to Southampton line at Queenstown Road station, with a loop from this line towards Clapham Junction crossing Queenstown Road near Ravenet Street. The complexity of interconnecting rail routes gave rise to the name 'Battersea Tangle' for the rail network in this area" (Ref. 15-26).

Listed Buildings

15.101 Listed buildings which would potentially be affected by the proposed scheme are listed and described in *Chapter 8: Archaeology and Built Heritage*. This townscape and visual impact assessment only considers the potential indirect impacts on the setting of heritage assets.

15.102 In addition, Kennington Park is listed as Grade II on the Register of Historic Parks and Gardens by English Heritage.

15.103 The setting of all listed buildings and registered parks and gardens is assessed as being of **high** sensitivity.

Visual Baseline

15.104 A selection of representative views have been selected, in agreement with the relevant London boroughs. These are shown as existing baseline views alongside VVM images and descriptive text of the views in the proposed NLE scenario (see *Appendix K3 of ES Volume II*).

LVMF Strategic Views

15.105 The study area is crossed by three strategic views which are defined and described within the LVMF, as shown in Figure 15-2. The Kennington Green ventilation shaft site falls within the Background Wider Setting Consultation Area (BWSCA) of the Primrose Hill to the Palace of Westminster (4A.2). This defines a threshold of 43.5mAOD above which proposed developments are subject to specific Visual Management Guidance and consultation and referral procedures. The height of the proposed structure at Kennington Green would fall substantially below this threshold at 14.5m AOD and is not therefore considered further in this assessment. None of the other sites fall within the viewing corridor or wider setting consultation areas of strategic views.

Visual Receptors

15.106 A total of 96 visual receptor groups with views of the application sites and the proposed developments have been identified within the study area. The ZVI for each of the NLE sites is shown on Figures 15-5 to 15-10, together with the locations of individual visual receptor groups. The sensitivity of the visual receptors together with a detailed description of the baseline views is presented in *Appendix K2 of ES Volume* II of this ES along with a group of figures (Figures A15-1 to A15-6) in this Appendix.

15.107 The proposed route of the NLE would pass through a densely developed urban area. The varied character, which ranges from the narrow residential streets in the east to the more open setting of BPS in the west gives rise a range of views. A summary of the visual baseline surrounding each site is given below.

Harmsworth Street and Radcot Street – Temporary Grouting Shafts

15.108 Views are generally short, contained by terraced housing which fronts directly onto the narrow streets and the walls which surround the gardens of these properties. Visual receptors include residents and those passing through the area. Views are in most cases oblique with some residents exposed to direct views of the NLE sites. Refer to Figures A15-1 and A15-2 (in *Appendix K2 of ES Volume II*) for the location of visual receptor groups.

Kennington Park - Ventilation and Intervention Shaft

15.109 Views from within the park are open at the northern end in proximity to the application site but progressively more screened by vegetation further south. Residents and people travelling on Kennington Park Place and St. Agnes Place experience a range of short-distance views. These views are partially screened by intervening vegetation and railings along the park boundaries. Refer to Figure A15-3 (*Appendix K2*) for the location of visual receptor groups.

Kennington Green - Ventilation and Intervention Shaft

15.110 There are direct, open or partially screened views of the application site from buildings facing onto the green and from the west of Kennington Road. There are also oblique views from some properties on side streets including Montford Place and Milverton Street. People passing through the area experience dynamic views of the green. Views travelling north from Kennington Park Road are direct where the green is a focal point.

15.111 There are views of the site of the proposed water tank along Montford Place. Views are also possible from rear of Imperial court, across derelict land and the Beefeater Gin Distillery compound. Refer to Figure A15-4 (*Appendix K2*) for the location of visual receptor groups.

Nine Elms Station

15.112 Residents of Pascal Street to the south and Wandsworth Road to the east look directly onto the application site. Views are of the existing supermarket car park bounded by a tall wall and railings (approximately 2.4m) at the eastern end and offices and warehouse buildings at the western end. There are glimpsed, oblique and partially screened views from other residential streets including Bramley Crescent to the south and Wilcox Road to the east. People passing through the area on Wandsworth Road experience a range of views of the application site which is more open than the surrounding development. People travelling by train to the north look down onto the application site although views are short in duration. Views at street level further north are blocked by the railway viaduct. Refer to Figure A15-5 (*Appendix K2*) for the location of visual receptor groups.

Battersea Station

15.113 Direct views towards the application site from the residential properties fronting Battersea Park Road are currently partially screened by hoarding. This hoarding also screens the dynamic views of people travelling along Battersea Park Road. The landmark of BPS dominates the skyline above. There are also oblique views from side streets to the south including Savona Street and Thessaly Road. Views from the elevated railway lines to the west are more open but are short in duration. The elevated railway viaducts largely screen longer views of the application site. Refer to Figure A15-6 (*Appendix K2*) for the location of visual receptor groups.

Future Baseline

15.114 The VNEB OA is expected to undergo a significant amount of development in the coming years. As described in the Cumulative Effects section of this chapter, there are 26 major projects that have either been submitted for planning, are consented or are under construction. These schemes will be considered later, however for the effects of the NLE on townscape consideration should be given to a future baseline, whereby the current townscape character areas and density of development is expected to change to a large extent in places. However, as much of this development has still yet to come forward, it is not possible to accurately predict what specific changes there would be to the townscape character and views (outside of the cumulative assessment), and so for the purposes of this assessment the current day baseline has been used.

Potential Effects and Mitigation Measures

Potential Effects

15.115 This section presents an assessment of the potential effects of the NLE on townscape and views, during the construction and operational phases.

Construction Phase

15.116 Construction is likely to commence in late 2014/early 2015 and last approximately 5 years at some of the worksites. However, construction activities would be phased to minimise the duration and intensity of adverse impacts on townscape and views. Furthermore, the restoration of sites following construction would also be phased as sections of work were completed. A detailed description of the construction operations and development programme is provided in *Chapter 4: Description of the NLE*. The potential effects from Construction Option A and B are considered to be the same apart from where stated.

Townscape Effects

15.117 This section deals with the likely effects of the construction on townscape character and the setting of CAs and Listed Buildings within the study area. A range of operations would be carried out, with the potential to result in direct and indirect impacts on townscape including:

- Site clearance operations, including the removal of existing buildings, surfaces, materials, trees and other vegetation from the site;

- Temporary road and footpath closures and diversions;
- Establishment of temporary site compounds and hoarding;
- Construction of temporary access points into the sites;
- Temporary working areas and tree protection areas within and adjacent to the sites;
- Erection of temporary batching plants and tower cranes;
- Excavation, removal and stockpiling of materials and soils;
- Construction of permanent hard-standings;
- Underground and over-ground service creation and diversion;
- Temporary traffic management signs and signals on local roads; and
- Movements of heavy construction traffic and other vehicles.

15.118 Please note that the construction of new cross-passages at the listed Kennington station will not affect the townscape and are not considered in this assessment.

Townscape Impacts during Construction

Harmsworth Street - Temporary Grouting Shaft

15.119 Under Construction Option A there would be direct, localised impacts on TCA 10: South Newington. The establishment of the worksite which would require the temporary closure of the part of Harmsworth Street between De Laune Street and Sharsted Street. As a result, road traffic would be diverted although the pavement to the north of the street would be retained for pedestrian access. The erection of a 2.4m high hoarding around the perimeter of the site would form an enclosure, with the southern edge formed by the walls of 90 De Laune Street. The worksite would be accessed from De Laune Street and would remain in place for 25 months. The impacts on the townscape of TCA 10: South Newington would be focussed within a confined area between buildings. The low magnitude of impact would result in adverse effects of minor / moderate significance. There would be no effect under Construction Option B.

15.120 There would also be indirect impacts on the setting of the Kennington Park Road CA as a result of construction activities and vehicles passing through the area. These impacts would be of low magnitude, resulting in adverse effects of moderate significance.

Radcot Street – Temporary Grouting Shaft

15.121 Under Construction Option A there would be direct, localised effects on TCA 09: Kennington and the Kennington CA. Radcot Street would be closed to traffic for the duration of the works although pedestrian access would be maintained along the eastern side of the street. The temporary worksite would be enclosed by a 2.4m high hoarding and would be contained between the houses fronting Radcot Street and the ends of buildings fronting Ravensdon Street and Methley Street. The works would result in the loss of two trees and pruning of a further one. Overall, the magnitude of impact on the TCA 09 and the Kennington CA would be negligible, resulting in adverse effects on the townscape of minor / moderate significance. There would be no effect under Construction Option B.

Kennington Park – Ventilation and Intervention Shaft

15.122 There would be direct, albeit localised impacts within the northern parts of TCA 08: Kennington Park, the Grade II registered Kennington Park and the St. Mark's CA. These impacts would result from the removal of up to 22 trees and an area of ornamental vegetation within Kennington Park and the gardens of Kennington Park Lodge, which would also be demolished. The worksite would be enclosed by 2.4m hoarding which would remain in place throughout the construction period. A temporary community facility comprising a building and a separate secure store would be located to the west of the worksite. As a result, approximately 250m^2 of public open space within Kennington Park would be temporarily unavailable for recreation. Overall, the magnitude of impact on TCA 08, the registered Kennington Park and the St. Mark's CA during construction would be medium, resulting in adverse townscape effects of moderate / major significance.

15.123 There would also be temporary, indirect impacts on the setting of the southern edge of the Kennington Park Road CA and the following listed buildings:

- The Bishops House and associated gate piers and walls, Kennington Park Place – Grade II;
- Nos. 10, 11 and 12 Kennington Park Place – Grade II; and
- Nos. 1-7 St. Agnes Place – Grade II.

15.124 These impacts would result from the proximity of the active and enclosed worksite in place of the existing open and tranquil parkland setting. The impacts on these receptors during construction would be high, resulting in adverse townscape effects of major significance. The effect of Option A and B would be similar, except construction activities would be slightly more intense under Option A.

Kennington Green – Ventilation and Intervention Shaft

15.125 The establishment of the worksite would result in the temporary loss of all public open space at the Green, replaced with construction plant and buildings. The 2.4m high hoarding established around the perimeter of the site would form an enclosure. In total, eight trees located within the green would be removed. Three trees located on the edges of the green would be retained and protected during construction. Temporary road closures and parking restrictions would temporarily effect circulation around the green and Kennington Road. As a result, there would be localised impacts of medium magnitude within TCA 09: Kennington and the Kennington CA. This would result in adverse townscape effects of moderate significance within TCA 09 and moderate / major significance within the Kennington CA. The effect of Option A and B would be similar, except construction activities would be slightly more intense under Option A.

15.126 Construction activities, including vehicles accessing the site, would also indirectly affect the setting of a small part of TCA 07: The Oval, fronting Kennington Park Road. The magnitude of these impacts would be low resulting in adverse townscape effects of minor / moderate significance.

15.127 In addition, there would also be temporary, indirect effects on several listed buildings where Kennington Green provides their setting:

- 346, 348, 354, 356, 362, 364 and 366 Kennington Road – Grade II;
- 350 and 352 Kennington Road – Grade II*; and

- Vauxhall Manor School Annexe, Kennington Road – Grade II.

15.128 These impacts would result from the proximity of the active and enclosed worksite in place of the existing public open space. The impacts on these receptors during construction would be high, resulting in adverse townscape effects of major significance.

Nine Elms Station

15.129 The construction of the new station would necessitate the demolition of three large industrial buildings and two structures at the western end of Pascal Street, increasing openness locally. Part of an existing Sainsbury's supermarket car park would also be removed and the existing petrol station adjacent to Wandsworth Road would be demolished. As a result, seven trees would be removed and one would require protection during the construction period. The worksite would be enclosed by a 2.4m high hoarding. This would require the temporary closure of pavements on the western side of Wandsworth Road and the northern side of Pascal Street. Construction vehicles accessing the site would also temporarily affect traffic flows on these roads. The impacts on the townscape of TCA 06: South Lambeth would be concentrated within a localised area. The medium magnitude of impact would result in adverse effects of moderate significance.

15.130 Ancillary works at this site include the relocation of the existing CGMA boiler house and stack. The exact location of this will be detailed at a later stage, but it is assured that the replacement structure will be of the same scale, height and appearance and that the townscape effect will be negligible.

15.131 Works will also include the creation of a pedestrian walkway beneath the existing railway lines to the north. This is anticipated to have a negligible effect on townscape.

15.132 There would also be indirect impacts on the neighbouring TCA 05: Nine Elms Industry and Commerce as a result of the increased openness in the eastern part of the area. These localised impacts would be low, leading to adverse effects on the townscape of minor significance.

Battersea Station

15.133 The existing hoarding and brick walls which line the southern and eastern boundaries of the site would be retained. These would be supplemented by new hoarding along the western and northern boundaries, enclosing the currently open and empty site. An entrance to the site would be formed on Battersea Park Road, opposite the block formed by Thessaly Street and Savona Street. An elevated conveyor route would extend north across an open area within the former BPS site to wharves at the River Thames. The impacts on the townscape of TCA 03: Battersea Power Station would be high, leading to adverse effects on the townscape of moderate significance.

15.134 There would also be direct impacts on TCA 04: River Thames, where the conveyor route would terminate and barges would be loaded with spoil. The listed cranes (Grade II*) would also be temporarily removed during construction (see *Chapter 8: Archaeology and Built Heritage*). Overall, this would result in a low impact on TCA 04, leading to an adverse effect of moderate significance.

15.135 Indirect impacts on the northern part of TCA 02: Battersea would result from the proximity of the extensive worksite. Construction vehicles accessing the site would temporarily and indirectly affect traffic flows on Battersea Park Road. The magnitude of impact would be low, resulting in adverse effects of minor / moderate significance.

15.136 The setting of the Grade II* listed BPS and the neighbouring Grade II listed Water Pumping Station on Cringle Street would also be temporarily affected by the proximity of the conveyor route. This impact would be of medium magnitude, resulting in an adverse townscape effect of moderate / major significance.

Summary of Townscape Effects during Construction

15.137 The construction of the NLE would result in localised, temporary adverse effects on townscape. The effectiveness of the mitigation proposed would vary and this cannot be determined in more detail until the detailed design phase. The timing and intensity of operations would vary throughout the programme and the significance of effects summarised below represents the worst-case scenario, i.e. the effects of those construction operations which are most likely to lead to adverse impacts. The significance of effects could therefore be lower in some areas than assessed at certain points in the construction programme, for example during the commissioning stage.

15.138 As a result of construction, direct impacts would occur within six of the TCAs identified within the study area:

- TCA 03: Battersea Power Station – moderate adverse;
- TCA 04: River Thames – moderate adverse;
- TCA 06: South Lambeth – moderate adverse;
- TCA 08: Kennington Park – moderate / major adverse;
- TCA 09: Kennington – moderate / minor and moderate adverse; and
- TCA 10: South Newington – minor / moderate adverse.

15.139 There would also be indirect effects within the following TCAs, as a result of their proximity to worksites and activities:

- TCA 02: Battersea – minor / moderate adverse
- TCA 07: The Oval – minor / moderate adverse; and
- TCA 05: Nine Elms Industry and Commerce – minor adverse.

15.140 There would be no discernible effect resulting in neutral effects within TCA 01: Battersea Park.

15.141 The setting of the following CAs would also be affected by the construction of the NLE:

- St. Mark's CA, LBS – moderate / major adverse;
- Kennington CA, LBL – moderate / major adverse; and
- Kennington Park Road CA, LBS – moderate adverse.

15.142 The worksites and activities would also result in indirect impacts on the setting number of listed buildings:

- The Bishops House and associated gate piers and walls, Kennington Park Place, Grade II – major adverse;
- Nos. 10, 11 and 12 Kennington Park Place, Grade II – major adverse;

- Nos. 1-7 St. Agnes Place, Grade II – major adverse;
- 346, 348, 354, 356, 362, 364 and 366 Kennington Road, Grade II – major adverse;
- 350 and 352 Kennington Road, Grade II* - major adverse;
- Vauxhall Manor School Annexe, Kennington Road, Grade II – major adverse;
- Battersea Power Station, Battersea Park Road, Grade II* - moderate / major adverse ; and
- Water Pumping Station, Battersea Park Road, Grade II - moderate / major adverse.

Summary of Visual Effects During Construction

15.143 A detailed description of the likely impacts of construction on the visual receptors identified within the study area is given in *Appendix K2 Volume II* of this ES. Reference should also be made to the VVRs presented in this chapter. A summary of the likely effects on views is given below.

Harmsworth Street – Temporary Grouting Shaft

15.144 Under Construction Option A, residents of De Laune Street would experience direct or oblique views of the worksite, which would temporarily replace views of the existing street. Views along the section of Harmsworth Street between De Laune Street and the just west of the junction with Sharstead Street would be blocked by hoarding. There would also be oblique views along the length of Harmsworth Street and its side streets and from the rear of isolated properties on Kennington Park Place. As a result, there would be adverse effects on views within the ZVI of moderate / major significance. There would be no effects under Construction Option B.

Radcot Street – Temporary Grouting Shaft

15.145 Under Construction Option A, views of the narrow residential street lined by trees would be replaced by views of a construction compound enclosed by hoarding. Residents of Radcot Street would experience direct or oblique, close distance views of the compound and construction plant above. Vehicles accessing the site from Ravensdon Street would result in indirect effects on views in the wider area. Overall, there would be an adverse effect on views within the ZVI of moderate / **major** significance. There would be no effects under Construction Option B.

Kennington Park – Ventilation and Intervention Shaft

15.146 There would be a range of views of the worksite and temporary community buildings along the length of Kennington Park Place to the north of the worksite and to a lesser extent from St. Agnes Place. Vegetation within Kennington Park would partially screen views of construction activities from the south. In close proximity, the demolition of Kennington Park Lodge and the removal of trees and vegetation would open up views, particularly from the listed buildings facing the north-eastern corner of the site. As a result, there would be adverse effects on views within the ZVI of moderate / major significance.

Kennington Green – Ventilation and Intervention Shaft

15.147 Residents and workers would experience close-distance views of the worksite within Kennington Green and the Beefeater Gin Distillery. The hoarding forming the perimeter of the site would screen views at ground level but construction plant would be visible above. There would be longer views, directed along Kennington Road, Montford Place and Milverton Street. Overall, there would be adverse effects on views within the ZVI of moderate significance.

Nine Elms Station

15.148 Residents of Pascal Street and Wandsworth Road would experience close-distance views of construction activities within the site. The demolition of the existing industrial buildings at the western end would open up views across the site. The hoarding around the perimeter of the site would restrict views of construction operations at ground level although plant would be visible above. Overall, there would be adverse effects on views of moderate significance.

15.149 As mentioned previously, it is assumed that the relocated boiler house and stack will be of the same appearance and therefore the only thing that would change will be the visual receptors affected. Some will have marginally better visual amenity and some will have marginally worse. Overall, this would result in negligible effects on views. Pedestrian walkway also negligible.

Battersea Station

15.150 The hoarding which would enclosure the worksite would largely screen construction activities at ground level. Plant, including tower cranes and the bentonite farms would be visible above the hoarding, particularly from the residential properties facing Battersea Park Road. There would an overall adverse effect on views within the ZVI of moderate / minor significance.

Operational Phase

15.151 The following documents have been used to determine the likely effects on townscape and views during operation. These documents describe the forms and appearance of the permanent structures and associated public realm at each site. The operational phase has been assessed at year one of operation (2020) and in 2031.

Year 1 of Operation - Townscape Effects

Harmsworth Street– Temporary Grouting Shaft

15.152 Under Construction Option A, the worksite would be removed, the temporary grouting shaft would be backfilled and the road and footpath surfacing reinstated to match the original materials and finish. The section of Harmsworth Street between De Laune Street and Sharsted Street would be reopened to traffic. There would be no perceptible change within TCA 10: South Newington on completion of construction, leading to neutral effects.

15.153 There would be no perceptible change in the setting of the Kennington Park Road CA following completion of construction, leading to neutral effects.

Radcot Street – Temporary Grouting Shaft

15.154 Under Construction Option A, the worksite would be removed, the temporary grouting shaft would be backfilled and the road and footpath surfacing reinstated to match the original materials and finish. Radcot Street would be reopened to traffic and pedestrian access would be reinstated to the western side of the street. The two trees lost as a result of construction works would be replaced with heavy standards of appropriate species and maintained throughout establishment. There

would be direct, localised impacts on TCA 09: Kennington and the Kennington CA. Overall, the impact on these receptors would be negligible, resulting in adverse effects of minor / moderate significance.

Kennington Park – Ventilation and Intervention Shaft

15.155 On completion of the construction phase, the part of Kennington Park occupied by the temporary worksite and the temporary community facility would be returned to grass. This would be managed to create a consistent and high quality sward of amenity grass within the dog walking area. There would also be an area of species-rich meadow grass along the northern edge to provide habitat and seasonal interest and variety. This would restore the open parkland setting of the listed Bishops House, gate pillars and walls. The poor quality trees removed during construction would be replaced with London Plane trees (*Platanus × hispanica*), forming an avenue along the length of Kennington Park Place at the northern edge of the park.

15.156 The proposed head house and community buildings would form a pair, located at the corner of Kennington Park Place and St. Agnes Place. They would occupy a slightly larger footprint than the existing Kennington Park Lodge and timber community building. The western side of the head house would be similar in height to the ridge of the lodge. However, the rest of the head house and community building would be lower than the existing building. The buildings would be linked by a timber pergola structure. Whereas the existing lodge is positioned diagonally at the corner of Kennington Park Place and St. Agnes Place, the new buildings would be perpendicular to the road layout and closer to the eastern boundary at St. Agnes Place. A new pedestrian access to the community building would be formed from the south, within Kennington Park, increasing permeability and connection with the park.

15.157 The two buildings would be architecturally distinctive and complimentary in design. They would be completed to a high standard, constructed in a stock brick with a textured finished to provide architectural interest. Both buildings would incorporate distinctive and complex steeply pitched green roofs. As in the case of the existing lodge, these roofs would slope away from Kennington Park Place, reducing the impact of the building on the street. The garden setting of the existing buildings would be restored with a high quality scheme of paving and planting. However, the latter would not yet be fully mature and as a consequence the buildings would occupy a more open setting than the existing buildings. A low wall, railings and gates would line the northern and western edges and would be in a similar colour and style to the existing, restoring this boundary. The functional requirements of the head house structure would require a substantial louvered grille to the west facing façade, overlooking Kennington Park. This would be partially screened by young shrubs and trees. The close-boarded fence, which currently forms the boundary of the Kennington Park Lodge would be replaced with railings, improving the visual connection of the buildings and gardens with the park. Gates on the southern boundary would provide a new physical link between Kennington Park and the new community facility. These measures would increase visibility and views to and through the site which are currently screened by dense vegetation. Furthermore, the space between the two pavilions would frame views of the park from Kennington Park Place and views of the southern part of the garden and the park beyond would also be available from St. Agnes Place.

15.158 Overall, the completed development would result in impacts of low magnitude within TCA 08: Kennington Park, the Grade II registered Kennington Park and the St. Mark's CA during the first year of operation, resulting in adverse effects of moderate significance. However, this would gradually improve over time as the tree and ornamental planting matures (see Residual Effects section later).

15.159 There would also be indirect impacts of negligible magnitude on the setting of a small part of the Kennington Park Road CA resulting in adverse effects of minor / moderate significance (although this gradually improve as the planting matures). There would also be indirect impacts on the following listed buildings within it:

- The Bishops House and associated gate piers and walls, Kennington Park Place – Grade II;
- Nos. 10, 11 and 12 Kennington Park Place – Grade II; and
- Nos. 1-7 St. Agnes Place – Grade II.

15.160 The impacts on the Grade II listed Bishops House and associated gate piers and walls, Kennington Park Place would be of negligible magnitude. They would result from the improvements to the northern boundary of the park following re-instatement of grass, trees and railings with high quality replacements. These beneficial effects would be of minor / moderate significance.

15.161 The impacts on the setting of the Grade II listed Nos. 10, 11 and 12 Kennington Park Place would result from the proximity of new head house and community facilities. In combination, these buildings would present a longer façade to Kennington Park Place than the existing building, slightly increasing the enclosure of the street. The new buildings would be within an open setting as the planting surrounding the buildings would have yet to mature. The magnitude of impact would be low, resulting in adverse effects of moderate significance; however this would gradually improve with maturation.

15.162 The proximity of the new community building would also affect the setting of the Grade II listed Nos. 1-7 St. Agnes Place. In contrast to the existing building, the new building would present an active frontage to St. Agnes Place, albeit behind railings. The new buildings would be within an open setting as the planting surrounding the buildings would have yet to mature. The magnitude of impact would be low, resulting in adverse effects of moderate significance; however this would gradually improve with maturation.

15.163 The Grade II* Prince Consort Lodge in the western edge of the park is too distant to be affected.

Kennington Green – Ventilation and Intervention Shaft

15.164 Following the completion of the construction phase, Kennington Green would be restored to public open space, set within and raised slightly above an enhanced public realm. This would represent an improvement over the existing layout and its potential for active use. Vehicular and pedestrian access to Montford Place and around the rear of the green would also be re-established.

15.165 A new head house building would be located at the corner of Montford Place and Kennington Road, to the rear of Kennington Green. Although there would be no active frontages to this building, its mass would be broken down by vertical detailing and variations in the height of the parapet, making reference to the surrounding Georgian terraces. Similarly, the brick colour would be chosen to

blend in with the neighbouring buildings. Making reference to the massing of the surrounding Georgian terraces, the proposed head house would restore the roofline and enclosure at the apex of green.

15.166 The resulting direct impacts on TCA 09: Kennington and the Kennington CA would be of negligible magnitude. This would lead to beneficial effects of minor/moderate significance.

15.167 There would also be localised indirect impacts on the setting of a small part of TCA 07: The Oval, fronting Kennington Park Road. The magnitude of these impacts would be negligible resulting in beneficial townscape effects of minor significance.

15.168 In addition, there would also be indirect effects on several listed buildings where Kennington Green provides their setting:

- 346, 348, 354, 356, 362, 364 and 366 Kennington Road – Grade II;
- 350 and 352 Kennington Road – Grade II*; and
- Vauxhall Manor School Annexe, Kennington Road – Grade II.

15.169 The improvements to the quality of the green and its immediate surrounds would enhance the setting of these buildings. Their setting would also be enhanced by the new head house building which would contribute to re-establishing the enclosure of the Georgian planned space and redefining the entrance to Montford Place. Overall, the magnitude of impact on these receptors would be low, resulting in a beneficial effect of moderate significance.

Nine Elms Station

15.170 The new station development would comprise two above-ground elements; the main station core including entrances and a ticket hall at the eastern end of the site, adjacent to Wandsworth Road and the western core located at the western end of Pascal Street. The new station would replace the three large industrial buildings, the two structures at the western end of Pascal Street, the Sainsbury's supermarket car park and the petrol station adjacent to Wandsworth Road.

15.171 The ticket hall would enhance the junction of Wandsworth Road and Pascal Street, forming a node and gateway, enlivening the street. It would also form a focal point in linear views. The building would be in proportion with the width of the street and in scale with the surrounding buildings. It would be set back from the street corner with active frontages to Wandsworth Road and Pascal Street. The broad public realm would be finished with high quality materials, incorporating cycle stands, wayfinding, in-ground lighting and art work to the north of the building. This would complement the architectural detailing of the building. An avenue of trees would line Pascal Street, emphasising the upgraded status of the thoroughfare leading north-west towards the River Thames, with a new connection being made beneath the adjacent railway viaduct into the main CGMA site.

15.172 Whilst the direct impacts on TCA 06: South Lambeth would be concentrated within a localised area, there would be wider impacts due to increased pedestrian activity on the surrounding streets. Overall the magnitude of impact would be medium resulting in beneficial effects of moderate significance.

15.173 There would also be indirect impacts on the neighbouring TCA 05: Nine Elms Industry and Commerce as a result of the proposed pedestrian connection beneath the railway viaduct. This would reduce severance and increase permeability, resulting in beneficial impact upon the immediate and surrounding areas. The magnitude of impact would be low resulting in beneficial effects of minor significance.

15.174 There would be no significant impacts associated with the relocation of the boiler house and stack, and the pedestrian walkway, beyond that described in the construction section.

Battersea Station

15.175 The removal of the site hoarding following the completion of the construction works would reveal a wide, open public space adjacent to Battersea Park Road. This would form the forecourt and approach to the Battersea station entrance pavilion which would be located at the centre, setback from the street. The surrounding high quality public realm would be further enhanced by tree planting along Battersea Park Road. Planting would also be structured to direct pedestrian movement towards and away from the entrance pavilion. It is anticipated that semi-mature planting stock would be used to gain immediate effect.

15.176 The slightly elevated position of the entrance pavilion would highlight its status as a new gateway and it would be a focus of pedestrian activity locally and within the surrounding area. The industrial style and bold proportions of the entrance structure would complement the neighbouring former BPS building. The portal would be flanked by two 'totems', which would act as wayfinders at street level. Intervention points for emergency access would be located at either end of the station box. When phase 3 of the BPS development is completed, the entrance portal would be framed by two large mixed use blocks, with retail units on the lower floors. The space would form an external mall leading through to the former power station building. The station entrance pavilion would mark the entrance to this mall.

15.177 The impacts on TCA 04: River Thames would be reversed following the reinstatement of the listed cranes. The magnitude of impact and significance of effect would be neutral.

15.178 There would be indirect impacts on the northern part of TCA 02: Battersea as a result of the increased openness, the proximity of the prominent new entrance portal and increased levels of pedestrian activity along Battersea Park Road. The magnitude of impact would be low, resulting in beneficial effects of minor / moderate significance.

15.179 The setting of the Grade II* listed BPS and the neighbouring Grade II listed Water Pumping Station would also be enhanced by the increased openness to Battersea Park Road and the high quality public realm. This impact would be of low magnitude, resulting in beneficial townscape effects of moderate significance.

Summary of Townscape Effects

15.180 At the point of opening there would be a range of localised impacts on townscape character and the setting of heritage assets. During this period, the proposed mitigation planting would be becoming established and as a result, adverse impacts would gradually reduce over time. The attention to detail in the design of the finished structures and stations would largely result in beneficial effects. The effects would be further enhanced where high quality public realm is created, surrounding new gateways which would enliven the local streets.

15.181 Direct impacts would occur within four of the TCAs identified within the study area:

- TCA 03: Battersea Power Station – minor / moderate beneficial;

- TCA 06: South Lambeth – moderate beneficial;
- TCA 08: Kennington Park – moderate adverse; and
- TCA 09: Kennington – minor / moderate beneficial and minor / moderate adverse.

15.182 There would also be indirect effects within the following TCAs, as a result of their proximity to operational development:

- TCA 02: Battersea – minor / moderate beneficial;
- TCA 07: The Oval – minor beneficial; and
- TCA 05: Nine Elms Industry and Commerce – minor beneficial.

15.183 There would be no discernible effect resulting in neutral effects within:

- TCA 01: Battersea Park;
- TCA 04: River Thames; and
- TCA 10: South Newington

15.184 The setting of the following CAs would also be affected by the operation of the NLE:

- St. Mark's CA, LBS – moderate adverse;
- Kennington CA, LBL – minor / moderate beneficial; and
- Kennington Park Road CA, LBS – minor / moderate adverse.

15.185 The operational development would also result in indirect impacts on the setting number of listed buildings:

- The Bishops House and associated gate piers and walls, Kennington Park Place, Grade II – minor / moderate beneficial;
- Nos. 10, 11 and 12 Kennington Park Place, Grade II – moderate adverse; and
- Nos. 1-7 St. Agnes Place, Grade II – moderate adverse.
- 346, 348, 354, 356, 362, 364 and 366 Kennington Road, Grade II –moderate beneficial;
- 350 and 352 Kennington Road, Grade II* - moderate beneficial;
- Vauxhall Manor School Annexe, Kennington Road, Grade II – moderate beneficial;
- Battersea Power Station, Battersea Park Road, Grade II* - moderate beneficial; and
- Water Pumping Station, Battersea Park Road, Grade II – moderate beneficial.

Summary of Visual Effects

15.186 The analysis of representative views along with VVMs of the NLE's above ground structures is provided in *Appendix K3 of ES Volume II*.

Harmsworth Street– Temporary Grouting Shaft

15.187 Views of De Laune Street within the ZVI would be restored on completion of the construction phase. The reinstatement of the road and pavements would result in neutral effects on views.

Radcot Street – Temporary Grouting Shaft

15.188 Views of Radcot Street within the ZVI would be restored on completion of the construction phase. Replacement trees would not yet be sufficiently mature to restore the quality of the existing view of the streetscape. The overall effect on views would be adverse but of negligible significance.

Kennington Park – Ventilation and Intervention Shaft

15.189 The openness of views across the northern part of Kennington Park would be restored once the construction phase is complete. The head house and community building would be prominent in views along Kennington Park Place and St. Agnes Place. The massing and industrial features of the buildings would detract from views of the park. Planting would not be sufficiently mature to screen or soften the appearance of the buildings at this stage. Overall, the effect on views within the ZVI would be adverse, albeit of minor significance and would gradually improve with maturation.

Kennington Green – Ventilation and Intervention Shaft

15.190 On completion of the construction phase, views across Kennington Green would be restored. Views would be enhanced by the high quality public realm scheme although planting would have yet to mature. The head house would enclose views to the east of Kennington Road, screening views of the Beefeater Gin Distillery industrial complex from some locations. Overall, the completed scheme would result in beneficial effects of moderate / minor significance within the ZVI.

Nine Elms Station

15.191 Residents of Pascal Street and Wandsworth Road would experience close-distance views of Nine Elms station. The station ticket hall would form a strong focal point in views along Wandsworth Road. An avenue of trees running the length of Pascal Street would assist in directing views along Pascal Street. Views would in most cases be improved, resulting in an overall beneficial effect of minor to moderate significance.

15.192 There would be no operational impacts associated with the relocation of the boiler house and stack, and the pedestrian walkway, beyond that described in the construction section.

Battersea Station

15.193 The station entrance pavilion would form a focal point in a number of views within the ZVI. The removal of the existing hoarding which surrounds the site would also increase the openness and extent of views, including views of the Grade II* listed BPS. Planting surrounding the station would not have matured at this point. There would generally be a beneficial effect on views within the study area of minor to moderat**e** significance.

Mitigation Measures

15.194 The scheme design, including the incorporation of mitigation measures, has been an iterative process involving dialogue and discussion with project engineers and

architects from an early stage. It has been possible to influence the design of the scheme in a number of ways in order to reduce the potential impact of the development on townscape and views, as discussed in more detail below.

15.195 This section focuses on the key features and mitigation measures which determine the predicted townscape and visual impacts of the NLE during operation. Reference should be made to *Chapter 4: Description of NLE* and the Design and Access Statement (see *Appendix M of ES Volume II*) for a full description of the scheme. The design has been developed to avoid, minimise or mitigate the effects on townscape character and visual amenity through consideration of the following:

- Site access;
- The physical extent of worksites;
- Sustainable soil movement / volumes;
- Proximity to properties;
- Other existing features (e.g. heritage assets and trees);
- Ecological constraints;
- Visual amenity;
- Townscape character;
- Architectural quality; and
- Landscape and urban design.

In-built Design Measures - Construction Mitigation

15.196 The following measures would be undertaken during the construction phase, as described in the Code of Construction Practice (CoCP – see *Appendix N of ES Volume II*). These measures would minimise and manage potential landscape and visual impacts:

- Erection and maintenance of 2.4m high hoarding to the perimeter of worksites;
- Agreement of temporary land-take and implementation of appropriate reinstatement;
- Agreement of trees to be felled or pruned with the relevant Borough Tree Officer and use of specialist subcontractors for tree surgery operations, where applicable;
- Consideration of visual issues in deciding upon the need for temporary lighting and use of high-pressure sodium lamps with flat-glass lanterns around the proposed compounds (in order to minimise light spillage);
- Use of cut-off beams to lights in order to minimise visual intrusion of operations during hours of darkness;
- Protection of sensitive areas adjacent to the construction works;
- Measures to remove mud from vehicles to prevent materials contaminating local roads;
- Weed control;
- Handling of soils in accordance with British Standard (BS):3882: 2007 – Topsoil; and
- Implementing advanced planting in the construction programme where possible in order to enable plants to become established.

In-built Design Measures - Operational Development

15.197 The following specific mitigation measures have been incorporated into the design of each site:

Harmsworth Street – Temporary Grouting Shaft

15.198 Harmsworth Street would be made good with materials of equal quality to those replaced. Road and pathway surfacing would be reinstated to match the original surfacing prior to construction activities.

Radcot Street – Temporary Grouting Shaft

15.199 Radcot Street would be made good with materials of equal quality to those replaced. Road and pathway surfacing would be reinstated to match the original surfacing prior to construction activities. Trees removed during construction would be replaced, although on completion these would be substantially smaller than the mature trees which they would replace.

Kennington Park – Ventilation and Intervention Shaft

15.200 The size of the head house accommodation has been defined by the engineering requirements including ventilation, plant and access to the underground structure. The community building would also provide an replacement of the current community provision which occupies the existing Kennington Park Lodge and the bee keeping facilities in its garden. The buildings and their garden setting have been designed to minimise their impact on the area to better integrate with the park to the south.

15.201 The buildings have been designed to a high architectural standard, to respect and enhance the setting of Kennington Park. They are small in scale, varying between one and two storeys high. They would form two separate pavilions in order to break up the overall mass of the built form and to frame views into Kennington Park from Kennington Park Place. The mass has been further reduced by the introduction of the peaked roof form. On the head house this roof form allows a large surface area on the facade to be given over to louvres whilst keeping the bulk of the building to a minimum. Furthermore, the peaked roof form would allow views across the building into the park from Kennington Park Place and St. Agnes Place. The garden setting of the existing lodge would also be substantially enhanced by a high quality planting scheme of trees, shrubs and climbing plants. Furthermore, a new pedestrian connection would be formed from Kennington Park, finished with a high quality and distinctive paving scheme and leading into a courtyard between the two buildings.

15.202 Following consultation with English Heritage, the roof has been swept back from Kennington Park Place and the corner of Kennington Park Place and St Agnes Place to reduce the impact of the building on the view of the surrounding listed buildings.

Kennington Green – Ventilation and Intervention Shaft

15.203 The proportion and massing of the proposed head house reflects that of the surrounding houses. The width of the head house has been divided in two, which would enhance the verticality of the building. The central part has been designed as a recessed secondary structure, similar to other buildings around the Green.

Following consultation with English Heritage, the proportions of the facade to the Green have been amended to enhance its verticality further.

15.204 The ventilation requirements of the head house demand large areas of louvres. The largest has been set back into a roof structure which would free up the elevation to the Green for decorative treatment. The mansard roof structure would echo the roofs of the nearby houses.

15.205 The head house would be built from London stock brick as the surrounding buildings and the mansard louvres would be coloured to match the neighbouring slate roofs.

15.206 A detailed planting scheme has been designed to replace and enhance the cottage garden character of the existing Kennington Park Lodge. The planting scheme includes a range of ornamental tree and shrub species which will restore the landscape structure, softening and enlivening the appearance of the building.

Nine Elms Station

15.207 A high quality paved area would be provided around the station, including Pascal Street and would be integrated with the internal street of the Sainsbury's scheme to the north. Colour, in the form of lighting, seating and art is proposed for this 'street' to provide interest and animation. Feature paving would be provided at the station entrance area and selected trees could be provided at the western end of the street to create seasonal interest.

15.208 Pascal Street is a strategic green link and a key pedestrian and cycle route to the River Thames. Avenue trees are proposed on either side of the street with high quality paving to reinforce the importance of this connection.

15.209 Wayfinding signage would be provided at the corner of Pascal Street and Wandsworth Road, at the western end of Pascal Street and on the pedestrianised street. Cycle parking would also be provided at the western end of the station box with cycle hire stands on Pascal Street opposite the station entrance.

Battersea Station

15.210 A permanent forecourt and station approach would integrate the station entrance structure with the neighbouring Battersea Park Road. The tree and ornamental planting would be provided in front of the station entrance. This, together with raised planters and high quality street furniture would guide users to the station entrance. The station entrance forecourt would include high quality feature paving and wayfinding signage combined with louvres and vent ducts in 'totems' based on Legible London principles.

Residual Effects and Conclusion

Construction Phase

15.211 The measures described above would be implemented as an inherent part of the construction process. A range of additional mitigation measures would be considered for each site at the detailed design stage including:

- The timing and phasing of construction operations including the phased reduction in worksite area as works progress;
- The location of plant and equipment within the worksite;
- The location and height of temporary spoil storage mounds;
- Advanced planting of trees and shrubs; and
- The choice of an appropriate colour or the incorporation of artwork applied to site hoardings.

15.212 The implementation of these measures would reduce the overall impact on each townscape and visual receptor during construction by one order of magnitude, in accordance with table 15-1 above. Potential residual impacts would result where views of machinery operating within the site or plant accessing the site for example could not be sufficiently screened and would cause visual disturbance in the local area.

Operational Phase

15.213 Residual effects as a result of the operation are considered at 2031, when the NLE would have been in operation for eleven years. By this time, planting carried out as part of the scheme mitigation would have begun to mature. This would enhance the setting of the permanent buildings and structures and the public realm. It would also reduce the visual impact on certain views.

Townscape Effects

Harmsworth Street– Temporary Grouting Shaft

15.214 There would be no perceptible change within TCA 10: South Newington or the setting of the Kennington Park Road CA on completion of construction, leading to **neutral** residual effects.

Radcot Street – Temporary Grouting Shaft

15.215 The trees planted to replace those removed during construction would have begun to mature, restoring the character of TCA 09: Kennington and the setting of the Kennington CA, resulting in residual effects of **neutral** significance.

Kennington Park – Ventilation and Intervention Shaft

15.216 The tree planting carried out along the northern boundary of Kennington Park and tree and ornamental planting within the garden of the community building and head house would have begun to mature. This would enhance the setting of the new buildings and restore the setting of the listed buildings facing the park.

15.217 Overall, the completed development would result in impacts of negligible magnitude within TCA 08: Kennington Park, the Grade II registered Kennington Park and the St. Mark's CA by 2031, resulting in residual **beneficial** effects of **minor** / **moderate** significance.

15.218 The magnitude of impacts on the Grade II listed Bishops House and associated gate piers and walls at Kennington Park Place would continue to be negligible, resulting in beneficial effects of minor / moderate significance. Impacts on the setting of the Grade II listed Nos. 10, 11 and 12 Kennington Park Place and the Grade II listed Nos. 1-7 St. Agnes Place and the Kennington Park Road CA would result from the proximity of new head house and community facilities. This would be balanced by enhancements to the garden setting and increased visual connections with Kennington Park. There would be a balance of beneficial and adverse townscape impacts resulting in **neutral** residual effects on the setting of these assets.

Kennington Green – Ventilation and Intervention Shaft

15.219 By 2031, the trees and shrubs planted within and surrounding Kennington Green would have begun to mature, further enhancing the open space and the setting of the buildings surrounding it. Trees planted to the south and west of the buildings would form a backdrop to the buildings. Ornamental shrub planting would extend along the northern edge of the park boundary, restoring the cottage garden character of the existing buildings. Climbing plants would further enhancing the western façade.

15.220 The resulting direct impacts on TCA 09: Kennington and the Kennington CA would be of low magnitude. This would lead to **beneficial** residual effects of **moderate** significance.

15.221 There would also be localised indirect impacts on TCA 07: The Oval would remain negligible, resulting in **beneficial** townscape effects of **minor** significance.

15.222 The setting of the following listed buildings which front Kennington Green would also be further enhanced:

- 346, 348, 354, 356, 362, 364 and 366 Kennington Road – Grade II;
- 350 and 352 Kennington Road – Grade II*; and
- Vauxhall Manor School Annexe, Kennington Road – Grade II.

15.223 Overall, the magnitude of impact on these receptors would be medium, resulting in a **beneficial** residual effect of **moderate** / **major** significance.

Nine Elms Station

15.224 The tree planting within the public realm surrounding the station and lining Pascal Street would have begun to mature enriching the space between buildings and the street. In the case of Pascal Street, the avenue of trees would heighten the status of the green link and the node at Wandsworth Road. Without an OSD however, the centre of the worksite would remain open. Overall the magnitude of impact on TCA 06: South Lambeth would remain medium resulting in beneficial residual effects of moderate significance.

15.225 The magnitude of impacts on the neighbouring TCA 05: Nine Elms Industry and Commerce remain low resulting in **beneficial** effects of **minor** significance.

Battersea Station

15.226 The tree and ornamental planting within the public realm surrounding the station entrance pavilion and lining Battersea Park Road would have begun to mature. This would further enhance the streetscape and movement around the station. The magnitude of impacts on TCA 03: Battersea Power Station would be high, resulting beneficial residual effects of moderate significance. The impacts on TCA 04: River Thames would remain neutral. The magnitude of impact on TCA 02: Battersea would remain low, resulting in **beneficial** residual effects of **minor** / **moderate** significance.

15.227 The setting of the Grade II* listed BPS would be further enhanced by proximity of the maturing trees lining Battersea Park Road. This impact would be of medium magnitude, resulting in beneficial townscape effects of moderate / major significance. The magnitude of impact on the Grade II listed Water Pumping Station would continue to be low, resulting in **beneficial** effects of **moderate** significance.

Summary of Residual Townscape Effects

15.228 By 2031, the planting carried out as part of the mitigation provided for the NLE would have begun to mature, further enhancing the setting of the permanent above ground buildings and structures.

15.229 Direct impacts would occur within four of the TCAs identified within the study area:

- TCA 03: Battersea Power Station – moderate beneficial;
- TCA 06: South Lambeth – moderate beneficial;
- TCA 08: Kennington Park – minor / moderate beneficial; and
- TCA 09: Kennington – moderate beneficial and neutral.

15.230 There would also be indirect residual effects within the following TCAs, as a result of their proximity to operational development:

- TCA 02: Battersea – minor / moderate beneficial
- TCA 07: The Oval – minor beneficial; and
- TCA 05: Nine Elms Industry and Commerce – minor beneficial.

15.231 There would be no discernible change resulting in neutral residual effects within:

- TCA 01: Battersea Park
- TCA 04: River Thames; and
- TCA 10: South Newington

15.232 The setting of the following CAs would also be affected by the operation of the NLE:

- St. Mark's CA, LBS – minor / moderate beneficial;
- Kennington CA, LBL – moderate beneficial; and
- Kennington Park Road CA, LBS – neutral.

15.233 The operational development would also result in indirect impacts on the setting number of listed buildings:

- The Bishops House and associated gate piers and walls, Kennington Park Place, Grade II – minor / moderate beneficial
- Nos. 10, 11 and 12 Kennington Park Place, Grade II – neutral;
- Nos. 1-7 St. Agnes Place, Grade II – neutral;
- 346, 348, 354, 356, 362, 364 and 366 Kennington Road, Grade II –moderate / major beneficial;
- 350 and 352 Kennington Road, Grade II* - moderate / major beneficial;
- Vauxhall Manor School Annexe, Kennington Road, Grade II – moderate / major beneficial;
- Battersea Power Station, Battersea Park Road, Grade II* - moderate / major beneficial; and
- Water Pumping Station, Battersea Park Road, Grade II – moderate beneficial.

Summary of Residual Visual Effects

Harmsworth Street– Temporary Grouting Shaft

15.234 There would be no discernible residual effects on views related to this worksite as a result of operation. The significance of effect would therefore be neutral.

Radcot Street – Temporary Grouting Shaft

15.235 There would be no discernible residual effects on views related to this worksite as a result of operation. The significance of effect would therefore be neutral.

Kennington Park – Ventilation and Intervention Shaft

15.236 The appearance of the contemporary head house and community buildings would enhanced by the maturing, ornamental vegetation in the garden and within Kennington Park to the west and south. As a result, views across the northern boundary of Kennington Park and from within the park would be improved. Overall, the residual effects on views would be beneficial.

Kennington Green – Ventilation and Intervention Shaft

15.237 Whilst there would continue to be adverse effects on the views of a small number of receptors, in the majority of cases effects would be beneficial. Maturing vegetation would soften the appearance of the new head house and further enhance the quality and setting on Kennington Green in views locally. Overall, the residual effect on views would be beneficial.

Nine Elms Station

15.238 The residual effect on views would be largely beneficial as a result of the maturing trees which would further enhance the local streetscape. In the absence of an OSD, a small number of receptors would continue to be adversely affected where views would be focussed on the empty central part of the site. Overall, the residual effect on views would be beneficial.

Battersea Station

15.239 The maturing trees and ornamental vegetation which would line Battersea Park Road and form the setting of the station entrance pavilion would further enhance views of the structures and streetscape. Residual effects on views would be beneficial.

Cumulative Effects Assessment

15.240 Table 2-5 of *Chapter 2: EIA Methodology* provides details of 24 schemes which are expected to be complete by 2020. The assessment of cumulative effects also assumes that any other transport schemes and improvements (including works on the London Underground network) programmed for completion by 2020 will also be in place. The cumulative assessment has been carried out for the design year of 2031.

Cumulative Effects

Harmsworth Street– Temporary Grouting Shaft

15.241 There would be no cumulative effects associated with this worksite.

Radcot Street – Temporary Grouting Shaft

15.242 There would be no cumulative effects associated with this worksite.

Kennington Park – Ventilation and Intervention Shaft

15.243 There would be no cumulative effects associated with this worksite.

Kennington Green – Ventilation and Intervention Shaft

15.244 There would be no cumulative effects associated with this worksite.

Nine Elms Station

15.245 The redevelopment of the Sainsbury's supermarket site (Site 15: Table 2-5) would result in a substantial change in the townscape character and views of the area to the north of the NLE site. The openness of the existing car park and low-rise buildings would be replaced with a series of seven mixed-use blocks, including towers of 19. 28, and 37-storeys. This dense development would form an active frontage to Wandsworth Road with a strong vertical emphasis. This would link visually with the cluster of tall buildings at Vauxhall.

15.246 As shown in Figure 15-14 of *Appendix K3 of ES Volume II*, the proposed Over Site Development (OSD) would comprise a series of residential towers above a double-height building running the length of Pascal Street. The towers would step up in height away from Pascal Street, preventing the residential buildings opposite from being over-shadowed. The ground floor would contain retail and commercial units facing onto the wide public realm. The station entrance and concourse would also be incorporated into the building at the eastern end of the building, as in the NLE proposal.

15.247 Detailed proposals were not available at the time of writing for Site 14: New Covent Garden Market or Site 11: Vauxhall Sky Gardens. It is understood that Site 11 would include the development of a 36-storey building close to the railway bridge across Wandsworth Road.

15.248 In combination the proposed schemes described above would substantially change character of the immediate area surrounding the proposed NLE site. The cumulative direct impact on TCA 06: South Lambeth would be high, resulting in beneficial cumulative effects of moderate / major significance. There would also be indirect cumulative impacts on the neighbouring TCA 05: Nine Elms Industry and Commerce of low magnitude, resulting in **beneficial** cumulative effects of **minor** significance.

15.249 It is assumed that in combination, the overall impact on views within the ZVI of the cumulative schemes would result in a one grade increase in the magnitude and significance of effect, where the magnitude of impact of the NLE is not assessed as high.

Battersea Station

15.250 This NLE site lies within the Vauxhall Nine Elms Battersea Opportunity Area (VNEB OA), a major area for regeneration. The majority of the area between Nine Elms Lane and the railway viaduct and the area will be redeveloped or is in the process of being redeveloped. This also applies to the area between Nine Elms Lane and the River Thames, to the east of Kirtling Street. The result of this redevelopment will be the transformation of the character of the area from predominantly industrial and commercial to mixed-use, including 16,000 new

homes. Those sites which would be most likely to result in cumulative impacts and effects on townscape character and views are Site 1: Battersea Power Station, Site 12 Thames Tunnel, Kirtling Street Worksite, Site 14: New Covent Garden Market and Site 22: Battersea Plant.

15.251 The above ground elements of the completed Battersea station would form a small part of this overall redevelopment. The western and eastern cores would be encapsulated within substantial new buildings forming part of Site 1: Battersea Power Station. The station entrance pavilion would remain in an open setting but enclosed between these buildings. Additional improvements to the public realm including further tree planting would further enhance the streetscape. Tall buildings fronting Battersea Park Road would enclose the street on the northern side and prevent views towards the London skyline beyond. Views of the listed landmark building of the former BPS would also be obscured at street level.

15.252 The magnitude of the cumulative impacts of the NLE and the sites within the VNEB OA would be high. This would result in **moderate** / **major** cumulative **beneficial** effects in TCA 02: Battersea and **moderate** cumulative **beneficial** effects in TCA 02: Battersea Power Station.

15.253 It is assumed that in combination, the overall impact on views within the ZVI of the cumulative schemes would result in a one grade increase in the magnitude and significance of effect, where the magnitude of impact of the NLE is not assessed as high.

References

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Ref. 15-3 Greater London Authority (2011); *The London Plan*.

Ref. 15-4 Greater London Authority (2012); *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework.*

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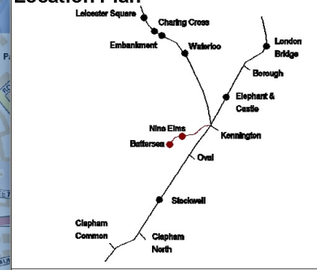
Ref. 15-25 Wandsworth Council (2006); *Battersea Park Conservation Area Appraisal and Management Strategy.*

Ref. 15-26 Wandsworth Council (2010); *Park Town Conservation Area Appraisal and Management Strategy.*

Location Plan



Key:

- Track Alignment
- Study Area
- Borough Boundary
- Indicative Construction Sites

Topography

mAOD

- 0 - 2
- 2 - 4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 12
- 12 - 14
- 14 - 16
- 16 - 18
- 18 - 20

Client: **Transport for London**

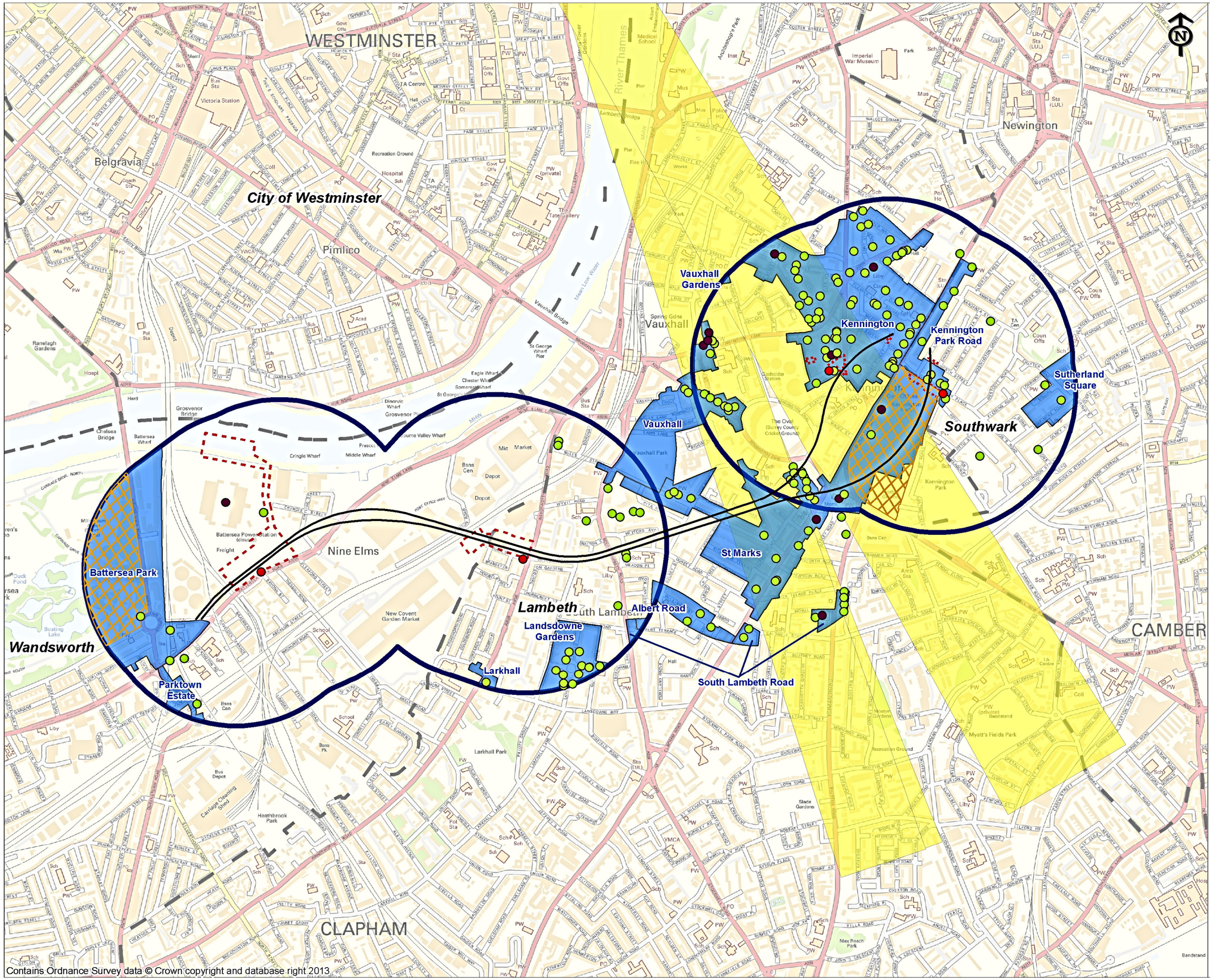
URS

Project: NORTHERN LINE EXTENSION TO BATTERSEA

Drawing: TOWNSCAPE AND VISUAL IMPACT ASSESSMENT TOPOGRAPHY

Suitability: S4 FORMAL ISSUE TO CLIENT

Drawn by:	DT	Date:	13/03/2013
Checked by:	TW	Date:	13/03/2013
Approved by:	JR	Date:	13/03/2013
Drawing Scale:	1:12,500 @ A3		
Drawing No:	Figure 15-1	Revision:	01



Location Plan

Key:

- Track Alignment
- Study Area
- Borough Boundary
- Indicative Construction Sites
- Permanent Structure
- Conservation Areas
- Registered Parks and Gardens

Listed Buildings

Grade
- II*
- II

LVMF Strategic Views
- Viewing Corridor
- Consultation Area

Client: **Transport for London**

URS

Project: NORTHERN LINE EXTENSION TO BATTERSEA

Drawing: TOWNSCAPE AND VISUAL IMPACT ASSESSMENT CONSTRAINTS

Suitability: S4 FORMAL ISSUE TO CLIENT

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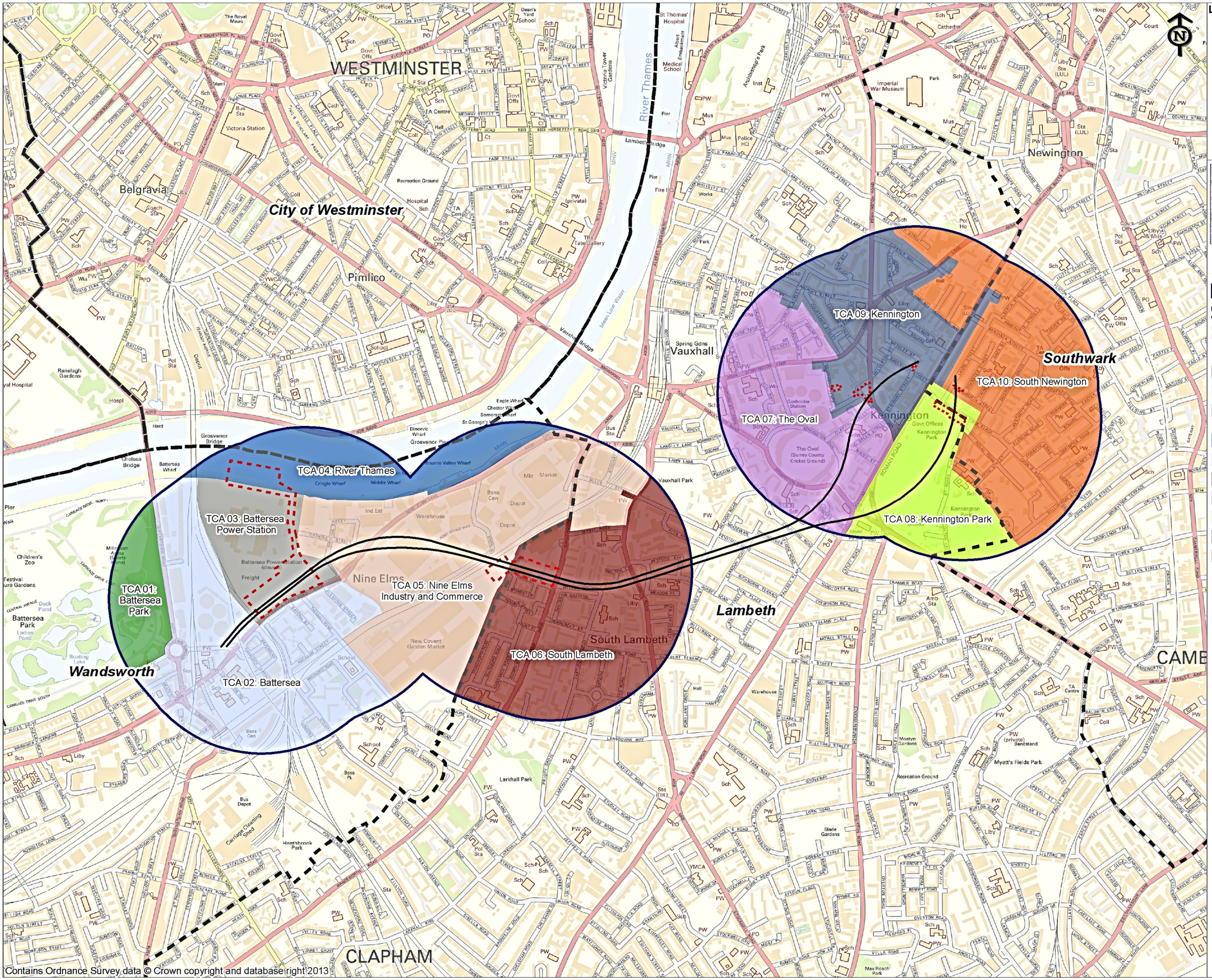
Checked by:	TW	Date:	13/03/2013
Approved by:	JR	Date:	13/03/2013
Drawing Scale:	1:12,500 @ A3		
Drawing No:	Figure 15-2	Revision:	01



Location Plan

Key:

- Track Alignment
- Study Area
- Borough Boundary
- Indicative Construction Sites

Area Name

- TCA 01: Battersea Park
- TCA 02: Battersea
- TCA 03: Battersea Power Station
- TCA 04: River Thames
- TCA 05: Nine Elms
- TCA 06: South Lambeth
- TCA 07: The Oval
- TCA 08: Kennington Park
- TCA 09: Kennington
- TCA 10: South Newington

Client:

Transport for London

URS

Project:

NORTHERN LINE EXTENSION TO BATTERSEA

Drawing:

TOWNSCAPE AND VISUAL IMPACT ASSESSMENT TOWNSCAPE CHARACTER AREAS

Suitability: S4 FORMAL ISSUE TO CLIENT

Drawn by:	DT	Date:	13/03/2013
Checked by:	TW	Date:	13/03/2013
Approved by:	JR	Date:	13/03/2013

Drawing Scale: 1:12,500 @ A3

Drawing No: Figure 15-3

Revision: 01