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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDICES 5.1 TO 5.10

AD06 .02

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.1  
ECOLOGY ASSESSMENT  
METHODOLOGY

AD06 .02

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North London Waste Authority  
**North London Heat and Power  
Project**  
Environmental Statement  
Volume 2 Appendix 5.1 Ecology  
Assessment Methodology

AD06.02

The Planning Act 2008 The Infrastructure Planning  
(Applications: Prescribed Forms and Procedure)  
Regulations 2009 Regulation 5 (2)(a)

FINAL

September 2015

Arup

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

**ARUP**

**nlwa**  
north london waste authority

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# 1 Ecology Assessment Methodology

## 1.1 Introduction

- 1.1.1 This appendix sets out the methodology for assessing the likely significant effects of the Project on ecology.
- 1.1.2 This appendix is divided into the following parts:
- engagement – describing a summary of comments included in the Scoping Opinion and received on the Preliminary Environmental Information Report (PEIR) and through further stakeholder engagement and how these comments have been addressed;
  - legislation and guidance – detailing requirements of the relevant National Policy Statements (NPS), how these have been addressed and additional guidance relevant to the assessment;
  - methodology for establishing baseline conditions; and
  - methodology for the assessment of construction, operation decommissioning and cumulative effects.

## 1.2 Engagement

- 1.2.1 The Scoping Report recommended that ecology be scoped out from the assessment. The results of extensive ecological surveys at the Application Site indicate that there is limited potential for significant adverse effects arising from the Project. However, in response to comments received during the scoping process, this topic has been scoped back in to the assessment.
- 1.2.2 There are European sites near to the Application Site and therefore screening for Habitats Regulations Assessment (HRA) has been undertaken. The criteria used in the Ecological Impact Assessment (EclA) and HRA processes are different, whereby EclA considers the evaluation of all ecological features and the likely significance of effects upon these and HRA focuses on the effects of the proposals on the specific qualifying features and conservation objectives of the designated site. Where a project subject to Environmental Impact Assessment (EIA) would also be likely to have significant effects on a European site, the appropriate assessment under the Habitats Regulations must be carried out as well as undertaking the EIA. The No Significant Effects Report (NSER) is included at Vol 2 Appendix 5.2.

Vol 2 Appendix 5.1 Table 1 provides a summary of the main differences between the approach of HRA and EIA assessments and why both are relevant.

Vol 2 Appendix 5.1 Table 1: Main differences between EIA and HRA processes

EIA Regulations	Habitats Regulations
Apply only to projects listed in Schedules to the EIA	Apply to all projects

EIA Regulations	Habitats Regulations
Promoter must submit an environmental impact statement	Promoter must submit information for the appropriate assessment as may reasonably be required by the competent authority
The EIS must address all likely significant effects on the environment	The appropriate assessment is confined to likely significant effects on the features of the European site(s)
The Project is subject to wide publicity to ensure the public are able to comment	Public consultation is discretionary
The EIS is intended to inform the decision	The outcome of the assessment can direct the decision that should be made
The competent authority must take account of all significant environmental effects and apply the precautionary principle as a matter of judgement and policy. The competent authority must record in the decision notice and public registers that it has taken account of the environmental information	The competent authority must ascertain that the Project will not have an adverse effect on the integrity of a European site, applying an equivalent to the precautionary principle as a matter of law. There is no statutory requirement to record or register the outcome of HRAs, but it is highly advisable to do so

### 1.2.3 Comments and responses relating to ecology are provided in full in Vol 2 Appendix 5.1 Table 2 below.

Vol 2 Appendix 5.1 Table 2: Ecology engagement – comments and responses

No.	Organisation and date	Comment	Response
1.	Natural England (June 2014)	<i>“The approach and methodology of the surveys is in line with advance that would be offered by Natural England. However it is advised that due to the length of time for schemes to be submitted and a decision reached that ongoing monitoring of the site for species is maintained to ensure the baseline evidence remains sound.”</i>	An ecological walkover survey was undertaken on 8 September 2014 to update the results of previous surveys.
2.		<i>“consider appropriate and relevant legislation including the National planning Policy Framework and the Habitats Regulations 2010 and Wildlife and Countryside Act 1981 (as amended) [WCA].”</i>	The assessment takes account of planning guidance and legislation relevant to biodiversity.
3.		<i>“The site is close to Natura 2000 sites and therefore will require screening for Likely Significant Effect (LSE) on the interest features of the Walthamstow Reservoirs Ramsar and Epping Forest Special Area of Conservation, alone and in combination with other plans and projects.”</i>	Screening for HRA is required for the Project and is reported separately. The NSER is included at Vol 2 Appendix 5.2.
4.		<i>“Chingford Reservoirs are also in close proximity to the proposed site which includes numbers of overwintering Gadwall and Grebe. These species are</i>	Chingford Reservoirs Site of Special Scientific Interest (SSSI) has been considered in the Environmental Statement

No.	Organisation and date	Comment	Response
		<i>susceptible to noise and air pollution disturbance, especially during the period December to February, when they are likely to be at their weakest.”</i>	(ES) and NSER (see Vol 2 Appendix 5.2).
5.	Scoping response: Natural England (November 2014)	<i>“The EIA scoping report recognises the need for a Habitat Regulation Assessment for the scheme that will consider relevant European sites such as the Lee Valley SPA [Special Protection Area] and Ramsar site and Epping Forest SAC [Special Area of Conservation]. The HRA will also consider the potential impacts associated with noise, light, air pollution (dust) and discharges.”</i>	A NSER has been produced (see Vol 2 Appendix 5.2), which considers potential impacts of noise, light, air pollution and discharges on all relevant European sites.
6.	Scoping response: Environment Agency (November 2014)	<i>“We advocate the use of green roofs in the development”, which can improve biodiversity. We also support improvements to Enfield Ditch.” “Any design will need to support the requirements of the Water Framework Directive, including no overall deterioration in water quality or the ecological status of any waterbody. As such, the scheme should aim to restore or rehabilitate the channel back to more natural conditions e.g. natural banks and bed shape and material.”</i>	Green and brown roofs would be included on the proposed Energy Recovery Facility building, as well as a green or brown roof on EcoPark House. Landscape proposals include marginal native planting along Enfield Ditch and removal of scrub to increase light levels and improve floristic diversity. These works support the requirements of the Water Framework Directive.
7.	Scoping response: Secretary of State, LB Enfield, NHS Property Services Ltd and Environment Agency (November 2014)	<i>“The Secretary of State considers that the Scoping Report does not provide sufficient evidence to justify scoping out the other potential aspects identified. The reasons for this are as follows:[...]</i> <ul style="list-style-type: none"> <li><i>• the justification to scope out potential ecological impacts relies on a summary of the ecological survey work undertaken and proposed mitigation/enhancement measures to be included within the Code of Construction Practice, the design of the development and through the Habitats Regulations screening assessment. The reliability/validity of the survey summary information is not demonstrated in the Scoping Report and insufficient detail regarding the design of the development or the proposed mitigation measures is provided to prove that effects would not be significant. The proximity of national/European designated sites, the presence of some protected species (e.g. bats and breeding birds) and the adjacent/nearby watercourses as potential impact pathways to these and</i></li> </ul>	Ecology has been included in the EIA in response to this comment. A summary of the survey results is provided in the Scoping Report, with full details contained in Appendix 7 of the Scoping Report. Survey results are also contained in Vol 2 Appendices 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9 and 5.10 of the ES. It is considered that these surveys have informed a reliable assessment of the baseline conditions at the Application Site. The scope of survey work was agreed with Natural England at a meeting on 16 June 2014, as outlined in the scoping response associated with the Discretionary Advice Service dated 28 November 2014. The survey work was updated as agreed, with bat survey work also undertaken.

No.	Organisation and date	Comment	Response
		<p><i>other sensitive receptors indicates the potential for significant effects (e.g. through loss or disturbance)."</i> (para 3.11 bullet i)</p> <p><i>Ecology should be scoped in (Appendix 2).</i></p>	<p>Potential significant effects on European sites are assessed in the NSER (see Vol 2 Appendix 5.2). Natural England states in their scoping and Phase 2 Consultation responses associated with the Discretionary Advice Service that they are satisfied that there are no likely significant effects on European sites either individually or in combination with other plans or projects.</p> <p>The Application Site supports foraging bats and breeding birds, but there is no potential for significant effects. The implementation of the Landscape Strategy and Code of Construction Practice (CoCP) would ensure compliance with legislation, and mitigate for effects associated with disturbance and habitat loss, in accordance with planning policy. With respect to potential impacts on other designated sites, specifically Lee Valley Site of Metropolitan Importance for Nature Conservation and Chingford Reservoirs SSSI, specific ecological requirements are contained within the CoCP and design of the Project.</p>
8.		<p><i>"The Scoping Report acknowledges that the proposed development is located near to a number of local, national and international designated sites for nature conservation as well as other sensitive ecological habitats. The potential impact on these habitats and designations due to any predicted increase in airborne pollutant emissions during construction and operational phases should be considered in the EIA. Section 4 of this Opinion provides specific advice on considering and assessing impacts on designated sites and protected species."</i> (para 3.20)</p>	<p>European designated sites are considered in the NSER, specifically Lee Valley SPA and Ramsar and Epping Forest SAC. This includes Walthamstow Reservoirs SSSI, which forms part of Lee Valley SPA, as well as Chingford Reservoirs SSSI, with respect to indirect impacts on the European site. Where required, the design of the Project has been altered (through design input by the ecology team) to avoid impacts, including those associated with changes in polluted emissions during the operation of the Project, for</p>

No.	Organisation and date	Comment	Response
			<p>example through treatment of acid gas.</p> <p>Additionally, Vol 2 Section 2 (Air Quality and Odour) includes an assessment of airborne pollutant emissions on ecological receptors.</p>
9.		<p><i>“Paragraph 7.1.4 explains that the term ‘impact’ is used in Section 7 in place of ‘effect’ as used in the EIA Regulations. It states that this is to accord with the CIEEM [Chartered Institute of Ecology and Environmental Management] EIA Guidelines, however the terms are considered to have the same meaning with respect to the Regulations. The Secretary of State does not advocate one approach over another. However, the Secretary of State does note that consistency of terms is helpful to improve understanding and interpretation of information within the ES.” (para 3.29)</i></p>	<p>‘Effect’ is used instead of ‘impact’ to maintain consistency.</p>
10.		<p><i>“The Secretary of State notes the use in Appendix A2.2 of the Scoping Report of a 2km buffer to identify relevant environmental designations. The reasons for such a buffer are not explained. The Applicant should discuss and agree with relevant consultees (including Natural England) the receptors that could be affected by the proposals and whether/how the potential impacts of the proposed development on these receptors should be assessed.” (para 3.30)</i></p>	<p>European designated sites located within 10km of the Application Site boundary are included in the NSER (see Vol 2 Appendix 5.2). This was agreed with Natural England during the meeting on 16 June 2014. Chingford Reservoirs SSSI was also considered in the NSER due to its proximity to the Application Site and potential for disturbance to bird species associated with Lee Valley SPA and Ramsar. A 2km buffer for other designated sites was considered appropriate on account of the scale and nature of the Project, as well as the urban location of the Application Site.</p>
11.		<p><i>“The Scoping Report relies on the preparation of a Code of Construction Practice to prevent or reduce potential impacts on ecological receptors. The Applicant should liaise closely with Natural England and other relevant consultees regarding the preparation of this document and the likely effectiveness of its measures to mitigate potentially significant adverse effects. The ES should include a draft copy of this document and provide a full</i></p>	<p>The CoCP has been developed alongside the ongoing design of the Project. The CoCP is included in Vol 1 Appendix 3.1 and Vol 2 Section 5 (Ecology) describes the measures incorporated into the CoCP that would be implemented to avoid adverse ecological effects.</p>

No.	Organisation and date	Comment	Response
		<i>explanation of how potentially significant adverse effects will be addressed.” (para 3.31)</i>	
12.		<i>The potential impacts on international and nationally designated sites should be assessed. The Secretary of State notes the possible need for an Appropriate Assessment in view of the development site’s location in relation to the Lee Valley SPA and Ramsar site as well as the Epping Forest SAC (see Section 4 of this Opinion for more detail regarding the information requirements for this).” (para 3.32)</i>	A NSER has been produced considering the proximity of the Application Site to Epping Forest SAC and Lee Valley SPA and Ramsar site (Vol 2 Appendix 5.2). The scope of this assessment has been informed by discussions with Natural England.
13.		<i>“It is noted that the proposals involve the discharge of cooling water into Salmon’s Brook. There is also the potential for other surface or ground water contaminants to leach or flow into nearby watercourses. The potential impacts on aquatic flora and fauna resulting from changes to water quality therefore need to be considered as part of the EIA.” (para 3.33)</i>	As set out in para 2.2.4 of the Scoping Report, the existing energy from waste facility currently discharges to Salmon’s Brook as well as Enfield Ditch and foul sewer. The energy from waste facility would continue to discharge surface water to Enfield Ditch and there would be no change to the quality of discharge, meaning that water quality would be no worse and likely to be better than that currently discharged as a consequence of the sustainable drainage scheme that would be implemented. As such, there would be no adverse impacts on aquatic ecology.  The standards for water to be discharged to the Brook would be agreed with the Environment Agency via the permit to discharge.
14.		<i>“The assessment should take account of the inter-relationships between impacts from changes in noise, vibration and air quality (including dust) on ecological receptors, and appropriate cross reference should be made to these topic chapters when considering magnitude and significance of potential effects.” (para 3.34).</i>	Information on interrelationships between topics are provided within each topic assessment with appropriate cross-references provided. Interactive effects are also presented in Vol 2 Section 12, which includes consideration of multiple Project effects on receptors.
15.		<i>Environment Agency - “We recommend that through this development proposal, the Applicant seeks all opportunity to protect and enhance the local ecological environment.” (Appendix 2)</i>	Ecological enhancements have been incorporated into the Project. This includes bird and bat boxes, tree and shrub planting, wildflower meadows and habitat enhancements

No.	Organisation and date	Comment	Response
			(through additional planting and improvements to Enfield Ditch) along the section of the Lee Park Way.
16.		<i>NHS Property Services Ltd "What is going to be done to ensure that the habitat, especially for the birds as detailed in the EIA, is going to be maintained, or improved to ensure that the environment is not lost?" (Appendix 2)</i>	Habitat lost to facilitate the Project would be replaced through the implementation of the Landscape Strategy, including green and brown roofs, bird boxes for nesting birds and vegetated buffers along the watercourses.
17.	Phase 2 Consultation response: Lee Valley Regional Park Authority (June 2015)	<i>"Planting should seek a balance between the more formal 'business park' style and the ecologically friendly that is needed to establish a substantial wildlife corridor along the waterways consistent with its designation as a SMINC."(Landscape and Lea Valley SMINC, para 1, page 3).  "Although only a small section of the SMINC is included within the application site there is still potential for the proposed development to disrupt the connectivity of this wildlife corridor to the detriment of the wider SMINC area." (Landscape and Lea Valley SMINC, para 3, page 4)</i>	Ecological enhancements are proposed along Lee Park Way, including native scrub and tree planting, retention of selected mature trees, removal of some scrub to increase light levels to improve ground flora and inclusions of log and stone piles. Bat and bird boxes are also proposed to mitigate for the loss of nesting habitat for starling and provide additional roosting opportunities for bats.
18.		<i>"The plans are unclear over the future of the 'cleared' site of the existing Energy from Waste plant. This is an extensive area and needs to be included in a landscape scheme to replace some of the features which will be lost through the proposed development e.g. pond." (Site of the Existing Energy from Waste plant, para 1, page 3)</i>	The area occupied by the existing EfW facility would be covered with hardstanding, which could include gravel, following demolition of that facility as it is being safeguarded for future other waste related development.
19.		<i>"Lighting obviously has a role to play in the appearance of the various structures and how the public engage with the buildings. Care should be taken however not to add to light pollution in the area and to consider the Lea Valley SMINC and the role of the Lee Navigation and Lea Park Way as a wildlife and 'dark' corridor." (Design – Appearance and Materials, para 4, page 2)</i>	Lighting across the Application Site would be minimised, in accordance with guidelines set out by the Bat Conservation Trust <sup>1</sup> . Lighting would be designed to avoid light spill within Chingford Reservoirs SSSI and the River Lee Navigation.
20.		<i>"All the plans and diagrams show a green area adjacent to the existing energy from waste facility (see page 21</i>	It is proposed that this area is retained post-construction and landscaped. A meadow is

<sup>1</sup> Bats and Lighting. [http://www.bats.org.uk/pages/bats\\_and\\_lighting.html](http://www.bats.org.uk/pages/bats_and_lighting.html) (Accessed July 2015)

No.	Organisation and date	Comment	Response
		<i>of the Design Statement where it is marked up as No.4). ... It would be helpful if further detail could be provided as to whether this area will be retained post construction, and if it will provide space for additional planting, habitat creation and informal open space...</i> (Landscape and Lea Valley SMINC, para 2, page 3)	proposed, with trees along the eastern edge, adjacent to the proposed access road, and further tree planting is proposed to the north.
21.	Phase 2 Consultation response: LB Enfield (June 2015)	<i>"The commitment to create habitat enhancements especially as it is noted the Lee Valley SMINC overlaps with part of the site (on the eastern boundary) makes it even more significant the need to ensure that the application that it takes sufficient account of the need to protect and enhance biodiversity interests. The DCO proposals seek to address this although further detail will be required."</i> (Ecology page 17)	The importance of enhancing biodiversity and taking account of impacts associated with works within the Lea Valley SMINC has been recognised in the project design. The EIA provides details concerning the proposed landscape strategy (detailed in the Design and Access Statement) and the ecology chapter assesses the impacts of the Project considering implementation of this strategy.
22.	Phase 2 Consultation response: Greater London Authority (June 2015)	<i>"A green roof is proposed on the tipping hall and a brown roof on the waste bunker to create and enhance biodiversity at the site. These will be visible on the eastern side of the site with a view to blend into the skyline, these measures are supported."</i> (para 52)  <i>"These mitigation measures are supported and should be secured by appropriate conditions as the proposals advances in the planning process."</i> (para 53)	The GLA's support for these measures is noted. A green or brown roof is also proposed on the roof of EcoPark House.
23.		<i>"A visual buffer along the canal and landscaping is proposed and this is supported. The applicant has also proposed that the canal area will be a dark corridor with no light to prevent impact to nocturnal species."</i> (para 51)	The GLA's support for this approach is noted. Lighting is proposed along Lee Park Way, although sensitive lighting design and dense planting between the proposed access road and the river would prevent light spill along the River Lee Navigation. Commitments on lighting design are set out in the CoCP and Design Code Principles.
24.	Phase 2 Consultation response: Environment Agency (June 2015)	<i>"A development of this size should be seeking to improve the waterbody where possible as potential mitigation from the disturbance caused from construction and operation. A [Water Framework Directive] action highlighted</i>	Landscape proposals include marginal native planting along Enfield Ditch and removal of scrub to increase light levels and improve floristic diversity. These works support the

No.	Organisation and date	Comment	Response
		<i>for the waterbody in this area is the 'Replacement of hard bank protection with soft engineering solutions within the Salmons Brook and reduce flood risk to riparian land'. As part of the [Water Framework Directive] assessment you should investigate the potential to 'naturalise' banks or consider other environmental enhancements." (Water Framework Directive page 2)</i>	requirements of the Water Framework Directive.
25.	Phase 2 Consultation response: Natural England - on Interim Screening Statement to Inform a Habitats Regulations Assessment (June 2015)	<p><i>"Natural England is satisfied that in principle, on the basis of the objective information provided, it can be excluded that the proposed plan or project will have a likely significant effect on the Lee Valley Special Protection Area (SPA) and Ramsar which is also designated as Lee Valley Wetland of International Importance under the Ramsar Convention (Ramsar site), or upon Epping Forest Special Area of Conservation (SAC), either individually or in combination with other plans or projects.</i></p> <p><i>Furthermore, Natural England is satisfied that the proposed operations are not likely to damage any of the interest features of the Chingford Reservoirs Site of Special Scientific Interest (SSSI), the Walthamstow Reservoirs SSSI or the Epping Forest SSSI." (page 1, point 1)</i></p>	The NSER has been finalised based on this advice, also considering Phase 2 Consultation comments received by the Secretary of State (see No. 30 below).
26.	Phase 2 Consultation response: Natural England (June 2015)	<p><i>"Natural England is satisfied that the project is unlikely to have a significant impact on the nearby Chingford reservoir SSSI, nor the Walthamstow Reservoir and Lee Valley SPA/Ramsar as we are satisfied with the survey and impact methodology as detailed in the submitted. This is further reinforced by the Codes of Construction Practice which includes the use of a suitably qualified Ecologist to assess and supervise works at this site." (page 2)</i></p> <p><i>"The North London Waste Authority have also been engaged in discussions with Natural England to agree and adopt a suitable and appropriate approach to the undertaking of surveys which has been agreed by both parties." (page 2)</i></p> <p><i>"Natural England welcomes the developers approach to considering and including replacement and enhanced habitat creation as part of the</i></p>	The ES, CoCP and NSER have been finalised based on this advice, also considering Phase 2 Consultation comments received by the Secretary of State (see No. 30 below).

No.	Organisation and date	Comment	Response
		<p><i>project, green/brown roofs, new habitat creation and increased use of native species, increased provision of bird and bat boxes as part of the scheme will have a positive effect on the natural environment and are to be supported.” (page 2)</i></p> <p><i>Natural England is satisfied that all necessary work has been done at the current time.”(page 2)</i></p>	
27.		<p><i>“The presence of suitably qualified Ecologists is acknowledged as part of the submission of information and is welcomed, where possible and feasible works should be undertaken outside of breeding times for wildlife and contact with Natural England’s Licensing Unit is strongly advised.” (page 2)</i></p>	<p>Work would be undertaken outside the breeding bird season where possible and, as outlined in the CoCP, <i>“The Contractor will consult with NE, EA, LB Enfield and any local wildlife trusts, as appropriate, prior to and during construction.”</i></p>
28.		<p><i>“Ongoing monitoring of works and impacts during construction are to be undertaken by the selected Ecologist, particularly with reference to the Chingford Reservoir.” (page 2)</i></p>	<p>Given the lack of adverse effects or licensing that would require monitoring, it is not considered to be appropriate for an ecologist to undertake monitoring during construction. The Contractor would undertake monitoring to enable the effectiveness of construction methods and mitigation measures to be identified, as outlined in the CoCP.</p>
29.	<p>Phase 2 Consultation response: The Canal and River Trust (July 2015)</p>	<p><i>“The Trust would like to see the following matters incorporated into the design of the scheme:</i></p> <ul style="list-style-type: none"> <li><i>- Landscaping to the towpath opposite the entrance along the length of the development...” (Design, landscaping and other requirements, page 3)</i></li> </ul>	<p>Enhancements are proposed along Lee Park Way, including removal of some scrub to increase light levels to improve ground flora, enhancement planting of native species and installation of log and stone piles and bird and bat boxes.</p>
30.	<p>Phase 2 Consultation response: Secretary of State - on Interim Screening Statement to Inform a Habitats Regulations Assessment (July 2015)</p>	<p><i>“Paragraph 2.3.1 explains that other designated sites within 2km of the site have been considered in the assessment. This appears to be an arbitrary selection. The final HRA report should clearly define the study area based on the various potential impacts, pathways, interactions and receptors including those acting in-combination with impacts from other plans and projects.” (Information relevant to informing the assessment para 1)</i></p>	<p>The NSER considers European sites within 10km of the Application Site, as well as Chingford Reservoirs SSSI due to its proximity to the Application Site and potential for disturbance to bird species associated with Lee Valley SPA and Ramsar site. This study area was agreed during consultation with Natural England. The NSER has been updated to reflect consideration of Chingford</p>

No.	Organisation and date	Comment	Response
			Reservoirs SSSI on these grounds.
		<i>“Sections 2.4 and 2.5 describe the ecology surveys and air quality modelling work that has been undertaken to inform the assessment. It is not clear whether the suitability, scope and timing of this work has been agreed with Natural England or the Environment Agency.” (Information relevant to informing the assessment para 2)</i>	The scope of the NSER has been agreed with Natural England through the Discretionary Advice Service and Natural England supports the conclusions of the Interim Screening Statement to Inform a Habitats Regulations Assessment (see No. 25). Relevant consultation with Natural England has been appended to the NSER.
		<i>“... the modelling should consider the rates of deposition when/if both the existing and proposed facilities are operational at the same time.” (Information relevant to informing the assessment para 3)</i>	The NSER has been amended to consider rates of deposition when both facilities are running concurrently (Stage 2 of the Project).
		<i>“The final HRA report should provide clear references to support statements on the predicted impacts of the proposed development and should explain how requirements in the DCO ensure that the impacts of the development will not exceed those assessed in the report. (Information relevant to informing the assessment para 4)</i>	The NSER has been amended to provide additional clarification to address these concerns.
		<i>“Paragraph 5.2.1 explains that the closest area used by shoveler is approximately 240m from the application site. It would be helpful if this and other similar references in the screening report refer to the application documents that provide the relevant survey information to support such statements.” (Information relevant to informing the assessment para 5)</i>	Chingford Reservoirs SSSI is located approximately 300m from the Application Site boundary, which supports shoveler <i>Anas clypeata</i> . Further clarification is provided in the NSER.
		<i>“Information relied upon to inform the assessment and which is not easily accessible should be provided in order to support the validity of the assessment” (Information relevant to informing the assessment para 6)</i>	Relevant consultation responses and references that are not easily accessible have been appended to the NSER.

No.	Organisation and date	Comment	Response
	Regulations Assessment (July 2015)		
		<i>“Paragraph 6.1.1 explains that the absence of adverse effects on European sites from the Project means that it is not necessary to consider in-combination effects with other projects. This is not correct.” (Information relevant to informing the assessment para 7)</i>	Air quality modelling indicates that there would be an increase in the rates of sulphur deposition as a result of the Project, although this would not cause acidity critical loads to be exceeded. The in-combination assessment has therefore been updated to consider any in-combination effects of sulphur deposition on European sites.
	Secretary of State Phase 2 Consultation Comments on Interim Screening Statement to Inform a Habitats Regulations Assessment (July 2015)	<i>“There is only one reference to PINS Advice Note 10 on HRA, in footnote 7. This is to the version published in 2012 therefore attention should be drawn to the revised version published in June 2015.” (Revised Advice Note 10 and approach to the matrices para 1)</i>	The NSER has been updated to consider the 2015 Advice Note.
31.	Phase 2 Consultation response: Secretary of State (July 2015)	The Planning Inspectorate considers that the cooling systems associated with the ERF have the potential to impact on ecological receptors which could result from changes in emissions.	Cooling towers do not emit any harmful pollutants and therefore no assessment is required with regard to ecology.

## 1.3 Legislation and guidance

1.3.1 The principal legislation relating to ecology and nature conservation are as follows:

- a. WCA 1981<sup>2</sup> (as amended) - comprises the primary means of protecting wildlife in the UK, including all wild birds and their nests, certain animals and plants;
- b. The Conservation of Habitats and Species Regulations 2010<sup>3</sup> (as amended) (Habitats and Species Regulations) – provides protection for European Protected Species and their habitats;
- c. Countryside and Rights of Way Act 2000 - strengthens the WCA in relation to threatened species and requires the publication of a list of living organisms and habitat types considered to be of principal importance in conserving biodiversity (the UK Biodiversity Action Plan) and that government departments have regard for the conservation of biodiversity; and

<sup>2</sup> Her Majesty's Stationery Office (HMSO) (1981) Wildlife and Countryside Act 1981.

<sup>3</sup> HMSO (2010) The Conservation of Habitats and Species Regulations 2010.

- d. Natural Environment and Rural Communities (NERC) Act 2006<sup>4</sup> - requires the publication of a list of organisms and habitat types considered to be of principal importance in conserving biodiversity in consultation with Natural England (the Section 41 list) and extended the requirement to have regard for conserving biodiversity to all public authorities.
- 1.3.2 The Wild Mammals (Protection) Act 1996<sup>5</sup> is also relevant to the Project. This legislation makes it an offence to intentionally cause wild mammals' any unnecessary suffering by certain methods, including crushing and asphyxiation.
- 1.3.3 Relevant guidance documents are summarised below:
- a. Enfield's Local Development Framework Section 106 Supplementary Planning Document<sup>6</sup> (adopted in November 2011) includes Policy 36 which 'seeks to protect, enhance, restore and add to biodiversity interests within the borough';
- b. HRA screening is being undertaken for the Application Site (see Vol 2 Appendix 5.2) and this assessment complies with the Planning Inspectorate's Advice Note 10<sup>7</sup>, which sets out guidelines for the assessment of nationally important infrastructure projects;
- c. Although the UK Post-2010 Biodiversity Framework and UK<sup>8</sup> superseded the UK Biodiversity Action Plan<sup>9</sup> (BAP) in July 2012, the lists of priority species and habitats continue to provide valuable reference sources with respect to priorities for conservation while a National Biodiversity Strategy and/or Action Plan is being produced. The former UK BAP is relevant in the context of Section 40 of the NERC Act 2006, meaning that priority species and habitats are material considerations in planning;
- d. The Bat Conservation Trust Guidelines<sup>10</sup> have been developed by the Bat Conservation Trust and partner organisations (including CIEEM) to describe best practice methodology for undertaking all types of bat survey work. The guidelines include all necessary information to ensure surveys are conducted in a thorough and standardised way and that the results produced are robust.
- e. The population status of birds regularly found in the UK, Channel Islands and the Isle of Man is reviewed every five years to provide an up-to-date assessment of conservation priorities. The 2009 Birds of Conservation Concern review has assessed a total of 246 bird species against a set of objective criteria to place each on one of three lists indicating an

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<sup>4</sup> HMSO (2006) Natural Environment and Rural Communities Act.

<sup>5</sup> HMSO (1996) Wild Mammals (Protection) Act 1996.

<sup>6</sup> Enfield Council (2011) Enfield's Local Development Framework. Section 106 Supplementary Planning Document. Available at: [http://www.enfield.gov.uk/downloads/file/4850/s106\\_spd\\_adopted\\_november\\_2011](http://www.enfield.gov.uk/downloads/file/4850/s106_spd_adopted_november_2011)

<sup>7</sup> The Planning Inspectorate (2015) Habitats Regulations Assessment. Advice note ten: Habitat Regulation Assessment relevant to nationally significant infrastructure projects. Available at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/06/Advice-note-10v4.pdf>

<sup>8</sup> JNCC and Department for Environment, Food and Rural Affairs (on behalf of the Four Countries' Biodiversity Group) (2012) UK Post-2010 Biodiversity Framework.

<sup>9</sup> UK Biodiversity Partnership (2011) UK Biodiversity Action Plan. Available at: <http://jncc.defra.gov.uk/page-5705>.

<sup>10</sup> Bat Conservation Trust (2012) Bat Surveys; Good Practice Guidelines. Second Edition

increasing level of conservation concern – from green to red<sup>8</sup>. In the UK, there are 52 species on the red list, 126 on the amber list and 68 on the green list.

- 1.3.4 Vol 2 Appendix 5.1 Table 3 provides the requirements of the Overarching National Policy Statement (NPS) for Energy (EN-1)<sup>11</sup> and outlines how these requirements have been addressed in the assessment. Vol 2 Appendix 5.1 Table 4 provides the same information relating to the NPS for Renewable Energy Infrastructure (EN-3)<sup>12</sup>.

Vol 2 Appendix 5.1 Table 3: Ecology NPS EN-1 requirements

Requirements of NPS EN-1	How the requirement is addressed	Location of where to find further detail
Para 5.3.2 – <i>“The wide range of legislative provision at the international and national level that can impact on planning decisions affecting biodiversity and geological conservation issues are set out in Government Circular: Biodiversity and Geological Conservations – Statutory Obligations and their Impact with the Planning System. A separate guide (Planning for Biodiversity and Geological Conservation: A Guide to Good Practice March 2006) sets out good practice in England in relation to planning for biodiversity and geological conservation.”</i>	This document has been reviewed and the content has been taken into account during this assessment to ensure good practice guidance is adhered to as appropriate.	Vol 2 Section 5 (Ecology)
Para 5.3.3 – <i>“Where the development is subject to EIA the Applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principle importance for the conservation of biodiversity. The Applicant should provide environmental information proportionate to the infrastructure where EIA is not required.”</i>	Effects on internationally and nationally and locally designated sites and protected species or other species of principal importance for the conservation of biodiversity are assessed in the Vol 2 Section 5 Ecology. HRA screening is also being undertaken and this will comply with guidance set out in The Planning Inspectorate Advice Note 10.	Vol. 2 Section 5.3 and 5.6. Vol 2 Appendix 5.2 (NSER)

<sup>11</sup> Department of Energy and Climate Change, (2011); ‘Overarching National Policy Statement for Energy (EN-1).’

<sup>12</sup> Department of Energy and Climate Change, (2011); ‘National Policy Statement for Renewable Energy Infrastructure (EN-3).’

Vol 2 Appendix 5.1 Table 4: Ecology NPS EN-3 requirements

Requirements of NPS EN-3	How the requirement is addressed	Location of where to find further detail
Para 2.5.33 – <i>“In sites with nationally recognised designations (Sites of Special Scientific Interest, National Nature Reserves, National Parks, the Broads, Areas of Outstanding Natural Beauty and Registered Parks and Gardens), consent for renewable energy projects should only be granted where it can be demonstrated that the objectives of designation of the area will not be compromised by the development, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits.”</i>	The Application Site is not part of a nationally recognised designated area. However, this assessment does include consideration of potential effects on nearby designated sites during the construction and operation of the Project.	Vol 2 Sections 5.6 and 5.7.

## 1.4 Baseline conditions

### Current baseline

- 1.4.1 Baseline ecological information has been derived from a suite of ecological surveys conducted between 2012 and 2015, as well as the data search which was undertaken in 2013. A summary of surveys undertaken at the Application Site is included in Vol 2 Appendix 5.1 Table 5.

Vol 2 Appendix 5.1 Table 5: Ecology surveys summary table

Survey type	Dates
Reptile surveys	September 2012 (main site) and April to May 2015 (Temporary Laydown Area)
Extended Phase 1 habitat surveys (including invasive species)	April 2013, September 2014 and February, April and July 2015
Bat Emergence/activity and automated surveys	August 2012, June 2013 to September 2013, September 2014, June to July 2015 (Lee Park Way)
Bat scoping survey	September 2014
Otter and water vole surveys	April 2012, followed by checks during 2013, 2014 and 2015
Badger survey	May 2012, followed by checks during 2013, 2014 and 2015
Breeding bird surveys	March to June 2013
Great crested newt Habitat Suitability Indices Survey	September 2014

## Receptor identification and sensitivity

1.4.2 Ecological features are described and those that have a potential to be impacted by the Project are valued. The criteria for determining the value of ecological features is provided in Vol 2 Appendix 5.1 Table 6, using valuation categories provided by Institute of Ecology and Environmental Management (IEEM)<sup>13</sup> (now CIEEM).

Vol 2 Appendix 5.1 Table 6: Ecological features evaluation table

Importance	Ecological feature
International	<p>A habitat or species cited as a reason for the designation or proposed designation of a World Heritage Site, Biosphere Reserve, Biogenetic Reserve, Ramsar site, Special Protection Area (SPA) or Special Area of Conservation (SAC).</p> <p>A large extent of Priority Habitat listed in Annex 1 of the EC Habitats Directive that is in good condition with typical species diversity.</p> <p>A large and viable population of a regularly occurring species that is rare within an international context.</p>
National	<p>A habitat or species cited as a reason for the designation or proposed designation of a National Nature Reserve, National Park or Site of Special Scientific Interest (SSSI).</p> <p>Any area of priority habitat listed in Annex 1 of the EC Habitats Directive that has potential to support typical species diversity.</p> <p>A viable population of a regularly occurring species that occurs in 15 or fewer 10km squares of the Ordnance Survey national grid (e.g. a Nationally Rare species or one that is listed in a Red Data Book).</p> <p>A bird species with a British breeding or wintering population of &lt;200 individuals.</p>
Regional	<p>A viable population of a regularly occurring species that occurs in 16 to 100 10km squares of the Ordnance Survey national grid (e.g. a Nationally Scarce species or a Nationally Notable Na and Nb Insect Species).</p> <p>A priority habitat listed in the former UK BAP that is stable, viable and in favourable condition with typical species diversity.</p> <p>A bird species with a British breeding or wintering population of 200 to 999 individuals.</p>
County	<p>A site designated or proposed for designation as a Local Wildlife Site, Biological Notification Site, a Local Nature Reserve or Ancient Woodland Inventory site in a favourable condition.</p> <p>A stable and viable extent of habitat listed in the local BAP (LBAP) that is in favourable condition that supports typical species diversity.</p> <p>A viable population of a regularly occurring species found in less than 10 per cent of the 1km squares of the Ordnance Survey national grid within the county (e.g. a County Rare species or a species listed in a County Red Data Book).</p> <p>Invertebrate species which, whilst fairly common and not qualifying as Nationally Notable, have been recorded from over one hundred, but less than three hundred, ten-kilometre squares of the UK National Grid (e.g. a Nationally Local species).</p> <p>A stable and large population of a species of conservation concern as indicated by legal provisions designed to prevent population decline, listing in the NERC Act 2006 as a species of principal importance, or an active management plan within the former UK BAP.</p>

<sup>13</sup> Institute of Ecology and Environmental Management (2006) Guidelines for Ecological Impact Assessment.

Importance	Ecological feature
	A bird species with a British breeding or wintering population of 1,000 to 24,999 individuals.
District	<p>A Local Wildlife Site, Biological Notification Site, a Local Nature Reserve or Ancient Woodland Inventory site in an unfavourable condition, or a small area of favourable habitat that meets the criteria for designation as one of these sites.</p> <p>A habitat listed in the LBAP that is either small in extent or is in unfavourable condition that supports or has potential to support typical species diversity.</p> <p>A bird species with a British breeding or wintering population of 25,000 to 49,999 individuals.</p> <p>A small population of a species of conservation concern as indicated by legal provisions designed to prevent population decline, listing in NERC Act 2006 as a species of principal importance, or an active management plan within the former UK BAP.</p> <p>A stable and large population of a species of conservation concern as indicated by an active management plan within the LBAP.</p>
Parish	<p>A small population of a species of conservation concern as indicated by an active management plan within the LBAP.</p> <p>A bird species with a British breeding or wintering population of 50,000 to 4 million individuals.</p> <p>Any extent or condition of semi-natural habitat listed in the former UK BAP or LBAP.</p>
Site	<p>A regularly occurring native species or habitat which may or may not be listed in the former UK BAP or LBAP but is widespread and common throughout the UK.</p> <p>A bird species with a British breeding or wintering population of &gt;4 million individuals.</p>
Negligible	An invasive species (including all species listed as non-native invasive species within Schedule 9 of the WCA), affecting an ecological merit e.g. the removal Japanese knotweed to enable a localised area of native plants to flourish.

1.4.3 As features of less than parish importance would not be a material consideration for the Project, only features of parish or higher importance have been considered in the assessment.

### Future baseline

1.4.4 The future baseline schemes have been reviewed to identify whether these have a potential to affect the baseline conditions recorded through completion of the desk study and surveys.

## 1.5 Construction effects

### Assessment of Project stages

1.5.1 The same assessment methodology applies to all stages of the Project. The effects of construction and demolition are assessed separately to the operation of the Project and the decommissioning of the Energy Recovery Facility, Resource Recovery Facility and EcoPark House.

### **Assessment area**

- 1.5.2 The assessment area comprises the Application Site and extends 10km from the Application Site.

### **Assessment method**

- 1.5.3 The standard approach applied in the UK to EclA is that developed by IEEM<sup>13</sup>. This method has been used to evaluate existing features and to assess the significance of the ecological impacts on these features that may arise as a result of the construction and operation of the Project.

### **Significance criteria**

- 1.5.4 Potentially significant ecological effects, both beneficial and adverse, are characterised with reference to the following factors:
- a. magnitude and extent;
  - b. duration;
  - c. reversibility; and
  - d. timing and frequency.
- 1.5.5 An effect is considered to be significant if it is: 'An impact (either adverse or beneficial) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area.'
- 1.5.6 Site integrity is defined as: 'The coherence of a site's ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or levels of populations of the species for which it was classified.'
- 1.5.7 Conservation status is defined as: 'The habitats' long-term distribution, structure and functions.' 'The long-term distribution and abundance of the species' populations.'
- 1.5.8 Wherever possible, maintaining favourable conservation status has been determined by reference to literature, including the former UK BAP and LBAP objectives and targets, and by professional judgement in the absence of clear guidance. An effect is considered 'beneficial' if it helps to deliver conservation policy, or 'adverse' if it is contrary to conservation policy.
- 1.5.9 The scale at which the significant effect matters is determined according to the value of the feature. Thus a significant effect at a national scale would be a material consideration for a nationally important scheme, and a significant effect at a local scale should be a material consideration for a Development Consent Order application considered within a parish or district setting. As features of less than parish importance would not be a material consideration for the Project, only features of parish or higher importance have been considered in this assessment.

## **1.6 Operational effects**

- 1.6.1 The assessment of operational effects of the Project has been undertaken using the same methodology as for construction effects as described in Section 1.5.

## **1.7 Decommissioning effects**

- 1.7.1 These have been assessed using the same methodology as described in Section 1.5 with respect to the construction and operation of the Project.
- 1.7.2 It has been assumed that this would comprise the decommissioning of the Energy Recovery Facility, Resource Recovery Facility and EcoPark House and therefore that landscaping associated with the Project would remain.

## **1.8 Cumulative effects**

- 1.8.1 A cumulative assessment has also been undertaken, which considers whether any of the cumulative schemes have a potential to alter the significance of residual effects as a result of the Project. A qualitative assessment has been undertaken to identify any cumulative effects on ecological features associated with the Project. Where sufficient information regarding the cumulative schemes is provided, the significance of residual effects are defined.

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.2  
NO SIGNIFICANT EFFECTS REPORT

AD06 .02

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REFER TO APPLICATION DOCUMENT AD05.17 NO SIGNIFICANT  
EFFECTS REPORT

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.3 2015  
PHASE 1 AND BAT SURVEY REPORT

AD06 .02

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North London Waste Authority  
**North London Heat and Power  
Project**  
Phase 1 and Bat Survey Report

AD06.02

The Planning Act 2008 The Infrastructure Planning  
(Applications: Prescribed Forms and Procedure)  
Regulations 2009 Regulation 5 (2)(a)

Issue

October 2015

Arup

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**Ove Arup & Partners Ltd**  
13 Fitzroy Street  
London W1T 5BQ

**nlwa**  
north london waste authority

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# 1 Introduction

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- 1.1.1 Ove Arup & Partners Ltd. (Arup) undertook a series of ecology surveys and a desk-based assessment in 2012 and 2013 to inform the planning application for the Application Site. An updated ecological walkover was undertaken in 2014. In 2015, two additional areas of land were identified for inclusion in the Application Site boundary and these were subject to an extended Phase 1 habitat survey on 17<sup>th</sup> February 2015 and 1<sup>st</sup> April 2015. A further update survey was undertaken on 6<sup>th</sup> July 2015. This report presents the methodology and results of these assessments and provides recommendations for mitigation where appropriate.
- 1.1.2 The objectives of the 2014 and 2015 surveys were to verify that the results of the previous surveys undertaken in 2012 and 2013 remain accurate and make any updates as required, as well as survey additional areas of land that were incorporated into the Application Site, as follows:
- a. 2014 - Lee Park Way; and
  - b. 2015 – The proposed Temporary Laydown Area to the east of the River Lee Navigation, land associated with a proposed access route along Ardra Road into the Edmonton EcoPark from the north and land south of the Temporary Laydown Area.
- 1.1.3 Land used by Edmonton Sea Cadets was also surveyed in 2014, which was not previously accessible. This work was followed by bat surveys on buildings in this area.
- 1.1.4 The key objectives of this work are outlined below:
- a. Update the Phase Habitat 1 Map;
  - b. Review the potential of the Application Site to support notable and protected species, including an assessment of the potential of buildings and trees on the Application Site to support roosting bats;
  - c. Assess the presence or likely absence of roosting bats within buildings at the Application Site;
  - d. Undertake continued monitoring for the potential presence of otter *Lutra lutra*, water vole *Arvicola amphibius* and badger *Meles meles*; and
  - e. Review opportunities for ecological enhancement along both sides of Lee Park Way and within the Temporary Laydown Area.

## 2 Methodology

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### 2.1 Ecological walkover survey 2014

2.1.1 An ecological walkover survey was undertaken across the Application Site on 8 September 2014 to update the results of previous surveys. The habitats were classified according to the Phase 1 Habitat survey methodology<sup>1</sup>. Within the Lee Park Way, higher plant species were recorded and their relative abundance was assessed using the DAFOR scale:

- D Dominant;
- A Abundant;
- F Frequent;
- O Occasional; and
- R Rare (meaning 'rarely encountered in the survey' rather than inherently uncommon as a species).

2.1.2 Invasive plant species were recorded and mapped and the habitats were reassessed for the potential to support notable and protected species. This included an external inspection of the trees, buildings and other structures on site to assess their potential to support roosting bats, in accordance with the criteria derived from the Bat Conservation Trust (BCT) guidelines<sup>2</sup>. The category classifications relate to trees and levels of potential to the buildings and structures:

- a. Negligible potential/Category 3 - No features that could be used by bats (for roosting, foraging or commuting);
- b. Low potential/Category 2 – A small number of potential roosting features, isolated habitat that could be used by foraging bats, e.g. a lone tree or patch of scrub but not parkland and an isolated site not connected by prominent linear features (but if suitable foraging habitat is adjacent it may be valuable if it is all that is available);
- c. Moderate potential/Category 1 - Several potential roosting features, habitat could be used by foraging bats, e.g. trees, shrub, grassland or water and the Application Site is connected with the wider landscape by linear features that could be used by commuting bats, e.g. lines of trees and scrub or linked back gardens;
- d. High potential/Category 1\* – Features of particular significance for roosting bats, habitat of high quality for foraging bats, e.g. broadleaved woodland, tree-lined watercourses and grazed parkland and the Application Site is connected with the wider landscape by strong linear features that would be used by commuting bats, e.g. river/stream valleys or hedgerows, site is close to known roosts; and

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<sup>1</sup> Joint Nature Conservation Committee (JNCC), (1993); 'Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit, revised reprint 2003.' JNCC. Peterborough.

<sup>2</sup> Bat Conservation Trust (BCT), (2012); 'Bat Surveys; Good Practice Guidelines. Second Edition'

- e. Confirmed roosting - Evidence indicates that roosting bats are present, e.g. bats seen roosting or observed flying from a roost or freely in the habitat; droppings, carcasses, feeding remains, etc. found; and/or bats heard 'chattering' inside on a warm day or at dusk and bats recorded/observed using an area for foraging or commuting.

2.1.3 The Application Site was surveyed for field signs of otter<sup>3</sup>, water vole<sup>4</sup> and badger<sup>5</sup>. In the case of otter and water vole, all areas of accessible bankside vegetation along watercourses were checked. This involved searching the areas adjacent to Salmon's Brook, Deephams Sewage Treatment Works (STW) outflow channel and the section of the Lee Navigation along the Lee Park Way. In the case of badgers, all boundary fences, banks and areas of grassland, scrub and woodland were surveyed.

2.1.4 A Habitat Suitability Index (HSI) survey was undertaken on the pond at the Application Site in accordance with Oldham *et al.* (2000)<sup>6</sup>. This methodology considers several ecological parameters such as location, desiccation, water quality, and pond area. These parameters each have a bearing on the suitability of a waterbody to support great crested newt (*Triturus cristatus*). A value is recorded for each parameter and these are combined to determine an index of breeding suitability for great crested newts. The HSI is represented by a value from 0 to 1, the higher the value the more likely it is that the pond may support breeding great crested newts.

## 2.2 Bat survey 2014

2.2.1 The ecological walkover survey identified buildings within the area of land leased to the Edmonton Sea Cadets to have a low potential to support roosting bats. These buildings were therefore subject to internal inspections and an emergence and return survey in accordance with the BCT guidelines<sup>2</sup>.

2.2.2 Buildings B3 and B4 (see Figure 1) were inspected internally on 22<sup>nd</sup> September 2014 by an Arup ecologist experienced in conducting internal inspections, with the aid of a ladder and high powered torch. This included an inspection of a loft space within building B3. The aims of this work were to identify any potential access locations, roosting opportunities and field signs to indicate the presence of roosting bats, such as feeding remains, droppings and urine staining.

2.2.3 These buildings were then subject to an emergence and return survey on 22<sup>nd</sup> and 23<sup>rd</sup> September 2014. The surveyors were positioned adjacent to the buildings, observing potential access/egress points for bats that had been identified during the ecological walkover survey. The surveyors recorded any bats emerging from or returning to the buildings, as well as

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<sup>3</sup> Natural England, (2013); 'Standing Advice Species Sheet: Eurasian Otter.' Available at: [http://www.naturalengland.org.uk/Images/Otters\\_tcm6-21615.pdf](http://www.naturalengland.org.uk/Images/Otters_tcm6-21615.pdf).

<sup>4</sup> Rob Strachan and Tom Moorhouse, (2006); 'Water Vole Conservation Handbook. Second Edition.' The Wildlife Conservation Research Unit.

<sup>5</sup> Harris, S., Cresswell, P. and Jefferies, D. (1989); 'Surveying Badgers.'

<sup>6</sup> Oldham, R.S., Keeble, J., Swan, M.J.S. & Jeffcote, M. (2000); 'Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*).' Herpetological Journal 10 (4), pp 143 – 155.

any other commuting or foraging activity. Details regarding the conditions and timing of these surveys are provided in Vol 2 Appendix 5.3 Table 1.

Vol 2 Appendix 5.3 Table 1: Conditions during the bat emergence and return surveys

Date	Survey Type	Sunset/ Sunrise Time	Start and End Times	Weather Conditions
22/09/2014	Emergence	18:59	18:44 – 20:30	Dry, minimum temperature 14°C, 0/8 cloud, still
23/09/2014	Return	06:47	05:17 – 06:47	Dry, minimum temperature 9.5°C, 1/8 cloud, still

2.2.4 The surveyors were equipped with a Batbox Duet and Anabat SD1 or SD2 bat detector. The Anabat data was analysed using Analook, with reference to current guidelines<sup>7</sup>. This software was used to analyse the recorded bat passes to identify species (where possible), type of bat call and the time of calls.

## 2.3 Extended Phase 1 habitat surveys 2015

2.3.1 The additional parcels of land were subject to an extended Phase 1 habitat survey on 17<sup>th</sup> February and 1<sup>st</sup> April 2015, with a further survey undertaken on 6<sup>th</sup> July. Higher plant species were recorded and their relative abundance assessed according to the DAFOR scale. Invasive plant species were recorded and the habitats were assessed for their potential to support protected and notable species, as outlined in Section 2.1. These areas were also surveyed for field signs of otter, water vole and badger.

## 2.4 Limitations

2.4.1 No account can be made for the presence or absence of species on any one survey occasion, since they may travel over wide areas and/or have large home ranges.

2.4.2 During the 2014 ecological walkover survey, contractors were seen removing Himalayan balsam *Impatiens glandulifera* from Deephams STW outflow channel and Enfield Ditch. This will have had an impact upon the locations and extent of invasive species recorded at the Application Site, as it is likely that plants will have been under-recorded and may re-establish in the same or different locations than those indicated on Figure 2 of this report. The removal of invasive plant species has had an impact on the bankside vegetation in the areas described above and this may have resulted in field signs of otter and/or water vole being destroyed. However, this is considered to be unlikely in view of the lack of field signs of these species during previous site surveys.

<sup>7</sup> Jon Russ, (2012); 'British Bat Calls. A Guide to Species Identification.' Pelagic Publishing.

- 2.4.3 The area of woodland in the north-east corner of the Application Site was inaccessible due to being enclosed by a high metal fence (shown on Figure 1). Consequently, this area could not be assessed for the potential for notable and protected species, particularly the potential of trees to support roosting bats. This is unlikely to pose a significant limitation, as the trees appeared to be too young to provide roosting habitat for bats.
- 2.4.4 Most of the area between Lee Park Way and the main site could not be accessed due to the presence of dense scrub, meaning that invasive species could occur in other areas other than those identified in Figure 2 of this report.
- 2.4.5 The weather conditions during the bat surveys were considered to be suitable for recording bat activity, although the survey was conducted at the end of the suitable survey window (May to September inclusive) when bats are most active. However, this was not considered to pose a significant constraint, on account of the low level of bat potential attributed to the surveyed buildings and low level of bat activity recorded during previous surveys.
- 2.4.6 It is likely that floodlighting on Building B3 (see Figure 1) deters bats from foraging in this area of the Application Site. Since this lighting was turned off for the purpose of the survey, it is likely that this affected the results, potentially indicating higher levels of activity than would normally be recorded when the lights are on.
- 2.4.7 None of the above limitations are considered to be significant enough to have had a detrimental effect on the overall results. The data collected provides a robust assessment of the ecological baseline of the Application Site.

## 3 Results

### 3.1 Habitats

3.1.1 The habitats were largely unchanged since the initial extended Phase 1 Habitat survey was undertaken on 23<sup>rd</sup> April 2013.

3.1.2 The Sea Cadet training area was dominated by ephemeral, short perennial vegetation, as shown on Figure 1. The plant species were growing on a stony substrate with some bare patches of ground. Species recorded included common mugwort *Artemisia vulgaris*, yarrow *Achillea millefolium*, ribwort plantain *Plantago lanceolata*, common fleabane *Pulicaria dysenterica*, rough hawkbit *Leontodon hispidus*, and red clover *Trifolium pratense*. Three buildings were also recorded (buildings B3, B4 and B5), which are described in Table 2.

3.1.3 Invasive plants listed on Schedule 9 of the Wildlife and Countryside Act 1981<sup>8</sup> (as amended) that were recorded at the Application Site are shown on Figure 2. These comprised Himalayan balsam, Japanese knotweed *Fallopia japonica* and giant hogweed *Heracleum mantegazzianum*, which have all been recorded during previous surveys.

#### Lee Park Way

3.1.4 The section of land along Lee Park Way consisted of a tarmac track with scattered trees and dense scrub on either side, interspersed with patches of tall ruderal vegetation. The species noted in this area are listed in Vol 2 Appendix 5.3 Table 2 below.

Vol 2 Appendix 5.3 Table 2: Indicative plant species list for Lee Park Way

Common Name	Scientific Name	Notes
Ash	<i>Fraxinus excelsior</i>	Occasional
Bramble	<i>Rubus fruticosus</i>	Abundant
Common comfrey	<i>Symphytum officinale</i>	Abundant, dominant in places.
Common hop	<i>Humulus lupulus</i>	Occasional
Dog rose	<i>Rosa canina</i> agg	Occasional
Elder	<i>Sambucus nigra</i>	Occasional
English oak	<i>Quercus robur</i>	Occasional
Field maple	<i>Acer campestre</i>	Occasional
Goat willow	<i>Salix caprea</i>	Occasional
Hawthorn	<i>Crataegus monogyna</i>	Occasional

<sup>8</sup> Her Majesty's Stationary Office (HMSO), (1981); 'Wildlife and Countryside Act 1981.'

Common Name	Scientific Name	Notes
Hedge bindweed	<i>Calystegia sepium</i>	Frequent
Himalayan balsam	<i>Impatiens glandulifera</i>	As shown on Figure 2
Japanese knotweed	<i>Fallopia japonica</i>	As shown on Figure 2
Reedmace	<i>Typha latifolia</i>	Frequent in Enfield Ditch, some places dominant.
Stinging nettle	<i>Urtica dioica</i>	Abundant
Sycamore	<i>Acer pseudoplatanus</i> ,	Occasional
Crack willow	<i>Salix fragilis</i>	Two mature specimens on the east side of the Lee Park Way (Target Note 2 on Figure 1)

### Proposed northern access road

- 3.1.5 The first section of the proposed northern access road (from the northwest site access gate to where it joins Ardra Road) was dominated by tall ruderal vegetation with several semi-mature willow (*Salix* sp.) trees growing alongside Salmon's Brook. Species recorded in this area included cow parsley *Anthriscus sylvestris*, perennial sow thistle *Sonchus arvensis*, bristly oxtongue *Picris echioides*, hoary mustard *Hirschfeldia incana*, hedge mustard *Sisymbrium officinale*, common mallow *Malva sylvestris*, groundsel *Senecio vulgaris*, common nettle *Urtica dioica*, common ragwort *Senecio jacobaea* and bramble *Rubus fruticosus* agg.
- 3.1.6 Where the proposed northern access road meets Ardra Road and further north, the vegetation became a mosaic of thick scrub and patches of tall ruderal vegetation with some semi-improved grassland in the central and peripheral sections. This detail is shown on Figure 1. Two buildings were also recorded within this area, and are described in Table 2. Species noted here included elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, common comfrey *Symphytum officinale*, mugwort *Artemisia vulgaris*, yarrow *Achillea millefolium*, ribwort plantain *Plantago lanceolata*, and several common grass species.
- 3.1.7 Giant hogweed is an invasive plant listed on Schedule 9 of the Wildlife and Countryside Act 1981<sup>9</sup> (as amended). Several stands of this species were noted at the northernmost end of the proposed northern access road. The locations are shown on Figures 1 and 2, Target Note 2 (TQ 35736 93225, TQ 35723 93236 and TQ 35727 93257). Butterfly bush *Buddleja davidii* was

<sup>9</sup> Her Majesty's Stationary Office (HMSO), (1981); 'Wildlife and Countryside Act 1981.'

also present in several places and is a species of high impact/concern in London<sup>10</sup>.

### 3.1.8 Vol 2 Appendix 5.3 Table 3 below gives a list of indicative plant species found in the northern access road area.

Vol 2 Appendix 5.3 Table 3: Indicative plant species list in proposed northern access road area

Common Name	Scientific Name	Notes
Bramble	<i>Rubus fruticosus</i> agg	Abundant
Butterfly bush	<i>Buddleia davidii</i>	Frequent
Cherry	<i>Prunus</i> sp.	Occasional
Cleavers	<i>Galium aparine</i>	Frequent
Common bent	<i>Agrostis capillaris</i>	Frequent
Common chickweed	<i>Stellaria media</i>	Occasional
Common comfrey	<i>Symphytum officinale</i>	Frequent
Common mallow	<i>Malva sylvestris</i>	Frequent
Common nettle	<i>Urtica dioica</i>	Abundant
Common ragwort	<i>Senecio jacobaea</i>	Occasional
Common vetch	<i>Vicia sativa</i>	Occasional
Couch grass	<i>Elymus repens</i>	Frequent
Crane's-bill	<i>Geranium</i> sp.	Occasional
Creeping buttercup	<i>Ranunculus repens</i>	Occasional
Creeping cinquefoil	<i>Potentilla reptans</i>	Occasional
Dandelion	<i>Taraxacum officinale</i>	Frequent
Dog rose	<i>Rosa canina</i> agg	Occasional
Dogwood	<i>Cornus sanguinea</i>	Occasional
Elder	<i>Sambucus nigra</i>	Abundant
Fat hen	<i>Chenopodium album</i>	Occasional
Germander speedwell	<i>Veronica chamaedrys</i>	Occasional
Giant hogweed	<i>Heracleum mantegazzianum</i>	Occasional

<sup>10</sup> London Biodiversity Partnership, (2007); 'London's BAP Priority Species.' Available at: <http://www.lbp.org.uk/londonpriority.html>. Accessed on 10.09.14.

Common Name	Scientific Name	Notes
Greater burdock	<i>Arctium lappa</i>	Occasional
Groundsel	<i>Senecio vulgaris</i>	Occasional
Hairy bitter-cress	<i>Cardamine hirsuta</i>	Occasional
Hawthorn	<i>Crataegus monogyna</i>	Frequent
Hazel	<i>Corylus avellana</i>	Occasional
Hedge bindweed	<i>Calystegia sepium</i>	Frequent
Hedge mustard	<i>Sisymbrium officinale</i>	Frequent
Mugwort	<i>Artemisia vulgaris</i>	Occasional
Perennial sow-thistle	<i>Sonchus arvensis</i>	Occasional
Petty spurge	<i>Euphorbia peplus</i>	Occasional
Ribwort plantain	<i>Plantago lanceolata</i>	Occasional
Snowberry	<i>Symphoricarpos albus</i>	Frequent
White dead-nettle	<i>Lamium album</i>	Frequent
Wild carrot	<i>Daucus carota</i>	Frequent
Yarrow	<i>Achillea millefolium</i>	Frequent
Yorkshire fog	<i>Holcus lanatus</i>	Occasional

### Proposed Temporary Laydown Area

- 3.1.9 This area consisted of scattered scrub (predominantly hawthorn, blackthorn *Prunus spinosa* and bramble), tall ruderal vegetation and semi-improved grassland. There was a species-poor hedgerow present along the western edge by the River Lee and a strip of plantation woodland on the southern boundary.
- 3.1.10 The semi-improved grassland was located mostly in the central eastern part of the Temporary Laydown Area. Plant species associated with this habitat included several common grass species (common bent *Agrostis capillaris*, couch grass *Elymus repens*, Yorkshire fog *Holcus lanatus*) with other plants such as black horehound *Ballota nigra*, hoary mustard *Hirschfeldia incana*, common comfrey *Symphytum officinale* and creeping thistle *Cirsium arvense*.
- 3.1.11 An area of plantation woodland was present along the southern boundary of the Temporary Laydown Area and the south-eastern corner of the Application Site. Woody species here included elder, dogwood, oak, hawthorn, hazel, goat willow, ash, hornbeam (*Carpinus betulus*), privet

(*Ligustrum vulgare*) and holly (*Ilex aquifolium*). The understory was relatively sparse due to a lack of light but species included cow parsley *Anthriscus sylvestris*, dandelion, germander speedwell, sweet violet *Viola odorata* and red dead nettle *Lamium purpureum*.

- 3.1.12 The species noted in the Temporary Laydown Area are listed in Vol 2 Appendix 5.3 Table 4 below.

Vol 2 Appendix 5.3 Table 4: Indicative plant species list for proposed Temporary Laydown Area

Common Name	Scientific Name	Notes
Ash	<i>Fraxinus excelsior</i>	Frequent
Black horehound	<i>Ballota nigra</i>	Occasional
Blackthorn	<i>Prunus spinosa</i>	Frequent
Bramble	<i>Rubus fruticosus agg</i>	Abundant
Bristly oxtongue	<i>Picris echioides</i>	Frequent
Broad-leaved dock	<i>Rumex obtusifolius</i>	Abundant
Butterfly bush	<i>Buddleia davidii</i>	Occasional
Cleavers	<i>Galium aparine</i>	Frequent
Common bent	<i>Agrostis capillaris</i>	Frequent
Common comfrey	<i>Symphytum officinale</i>	Abundant
Common mallow	<i>Malva sylvestris</i>	Frequent
Common nettle	<i>Urtica dioica</i>	Abundant
Common privet	<i>Ligustrum vulgare</i>	Occasional
Couch grass	<i>Elymus repens</i>	Frequent
Cow parsley	<i>Anthriscus sylvestris</i>	Frequent
Creeping cinquefoil	<i>Potentilla reptans</i>	Occasional
Creeping thistle	<i>Cirsium arvense</i>	Frequent
Dog rose	<i>Rosa canina agg.</i>	Occasional
Elder	<i>Sambucus nigra</i>	Frequent
Germander speedwell	<i>Veronica chamaedrys</i>	Frequent
Goat willow	<i>Salix caprea</i>	Frequent
Greater burdock	<i>Arctium lappa</i>	Occasional
Hawthorn	<i>Crataegus monogyna</i>	Abundant
Hazel	<i>Corylus avellana</i>	Frequent
Hedge mustard	<i>Sisymbrium officinale</i>	Abundant
Hoary mustard	<i>Hirschfeldia incana</i>	Abundant, dominant in some areas.

Common Name	Scientific Name	Notes
Holly	<i>Ilex aquifolium</i>	Occasional
Hornbeam	<i>Carpinus betulus</i>	Frequent
Ivy	<i>Hedera helix</i>	Frequent
Mugwort	<i>Artemisia vulgaris</i>	Occasional
Oak	<i>Quercus robur</i>	Occasional
Red dead nettle	<i>Lamium purpureum</i>	Frequent
Ribwort plantain	<i>Plantago lanceolata</i>	Occasional
Scot's Pine	<i>Pinus sylvestris</i>	Rare
Sweet violet	<i>Viola odorata</i>	Occasional
Wild teasel	<i>Dipsacus fullonum</i>	Occasional
Yorkshire fog	<i>Holcus lanatus</i>	Occasional

## 3.2 Protected and notable species

### Bats

- 3.2.1 All trees on the Application Site were listed under Category 3, due to the lack of roosting opportunities, such as splits, holes and cavities. Several bird boxes were recorded on the trees.
- 3.2.2 Two Category 1 trees were recorded on the eastern side of Lee Park Way, (Target Note 2 on Figure 1).
- 3.2.3 The buildings at the Application Site are described in Vol 2 Appendix 5.3 Table 5, which also identifies their potential to support roosting bats. Building numbers are shown on Figure 1. Four buildings (B3, B4, B5 and B26) were found to have potential to support roosting bats, in addition to the concrete ramp at Target Note 1 on Figure 1. All other buildings were found to have negligible potential for roosting bats.

Vol 2 Appendix 5.3 Table 5: Potential of buildings and structures to support roosting bats

Building Number	Description	Bat Potential
1	Energy from waste facility. Large, flat-roofed metal building and collection of smaller metal structures. Concrete chimney, smooth-sided, no visible crevices. High levels of noise and lighting.	Negligible
2	Fuel storage shelter with metal frame and plastic sheeting.	Negligible

Building Number	Description	Bat Potential
3	Pitched roof, metal-framed building. Further investigation is required to determine whether a roof void is present.	Low
4	Single storey brick building with wooden boards and felt roof. Gaps under felt and in between wooden boards. Gaps also present under bricks and under metal overhang on roof. Gaps at top of wall and between cement and wooden frame. No access possible on one side.	Low
4a	Single storey building.	Negligible
5	Weighbridge building, single storey, concrete cast bricks in wall attached to wooden frame with plastic barge boards. Some boards missing and gaps present beneath boards. Crevice with 10cm void and crevices present between concrete slabs.	Low
6	Metal-framed warehouse.	Negligible
7	Portacabins	Negligible
8	Metal-framed warehouse.	Negligible
9	Metal shed.	Negligible
10	Single storey brick building with concrete flat roof.	Negligible
11	Brick building, flat roof.	Negligible
12	Metal building.	Negligible
13	Metal warehouse.	Negligible
14	Single storey brick building with flat roof.	Negligible
15	Collection of metal and flat roofed brick buildings.	Negligible
16	Metal warehouse.	Negligible
17	Weighbridge building, single storey, metal barge boards overhanging secure tiled walls.	Negligible
18	Metal framed building.	Negligible
19	Pitched roof, concrete walls. No visible gaps.	Negligible
20	Metal framed building.	Negligible
21	Metal building with brick reception/office area.	Negligible
22	Portacabin.	Negligible
23	Single storey brick building with a flat roof covered with roofing felt. The brickwork was in a good condition, but the	Negligible

Building Number	Description	Bat Potential
	roofing felt was lifted in places, although not creating any suitable roosting opportunities for bats.	
24	Single storey brick building with a flat roof, in a good condition.	Negligible
25	Small brick structure in a good condition.	Negligible
26	Concrete bridge over the River Lee leading to Lee Park Way. Slatted concrete strips with gaps on the underside of the bridge. Signs of roosting and/or nesting birds.	Moderate

### Water vole, otter and badger

3.2.4 No field signs or sightings of water vole, badger or otter were recorded, which is consistent with the results of previous surveys. The results therefore support the conclusion that these species do not occur at the Application Site.

### Reptiles

3.2.5 The habitats within the Temporary Laydown Area provide suitable hibernacula, basking and foraging opportunities for common reptile species, specifically common lizard *Zootoca vivipara*, slow worm *Anguis fragilis* and grass snake *Natrix natrix*. These species have been recorded approximately 600m to the south of the lay down area, which is bounded by the Lee Navigation to the west and the River Lee to the east<sup>11</sup>. While these watercourses would provide barriers to the movement of reptiles from the east and west, they are also associated with green corridors that could facilitate movement from the north and south. As such, there is connectivity to other suitable reptile habitat nearby.

### Amphibians

3.2.6 As shown in Vol 2 Appendix 5.3 Table 6 below, the HSI score for the onsite pond was 0.39, indicating that this waterbody is of poor suitability for great crested newt. However, this pond has a potential to support common amphibians, such as smooth newt *Triturus vulgaris*.

Vol 2 Appendix 5.3 Table 6: HSI calculation table

HSI Parameter	Field Score	SI
SI1 Location	A	1
SI2 Pond Area (m <sup>2</sup> )	400	0.8
SI3 Pond Drying	Never	0.9
SI4 Water Quality	Poor	0.33

<sup>11</sup> GiGL, (2013); 'An Ecological Data Search for London Waste EcoPark Edmonton'

HSI Parameter	Field Score	SI
SI5 Shade	20 per cent	1
SI6 Fowl Count	Minor	0.67
SI7 Fish Population	Major	0.01
SI8 Pond Count	1	0.37
SI9 Terrestrial Habitat	Poor	0.33
SI10 Macrophyte Cover	10 per cent	0.4
SI Scores Multiplied	-	7.77494
Tenth Root of SI Scores	-	0.39

## Birds

3.2.7 Vol 2 Appendix 5.3 Table 7 provides a list of bird species recorded at the Application Site, which is broadly consistent with the results of the breeding bird survey carried out in 2013. This table does not include bird species recorded within the Temporary Laydown Area, which will be summarised upon completion of the recommended reptile survey.

Vol 2 Appendix 5.3 Table 7: Incidental bird records

Common Name	Scientific Name
Canada goose	<i>Branta canadensis</i>
Mallard	<i>Anas platyrhynchos</i>
Grey heron	<i>Ardea cinerea</i>
Moorhen	<i>Gallinula chloropus</i>
Coot	<i>Fulica atra</i>
Common gull	<i>Larus canus</i>
Lesser black-backed gull	<i>Larus fuscus</i>
Herring gull	<i>Larus argentatus</i>
Great black-backed gull	<i>Larus marinus</i>
Feral pigeon	<i>Columba livia domesticus</i>
Woodpigeon	<i>Columba palumbus</i>
Collared dove	<i>Streptopelia decaocto</i>
Magpie	<i>Pica pica</i>
Carrion crow	<i>Corvus corone</i>

Common Name	Scientific Name
Blue Tit	<i>Cyanistes caeruleus</i>
Long-tailed tit	<i>Aegithalos caudatus</i>
Wren	<i>Troglodytes troglodytes</i>
Starling	<i>Sturnus vulgaris</i>
Blackbird	<i>Turdus merula</i>
Robin	<i>Erithacus rubecula</i>
Dunnock	<i>Prunella modularis</i>
House sparrow	<i>Passer domesticus</i>
Pied wagtail	<i>Motacilla alba</i>
Chaffinch	<i>Fringilla coelebs</i>

### 3.3 Bat survey 2014

- 3.3.1 The internal inspection of building B3 (see Figure 1) revealed that there is a loft in the northern part of the building. The building has a shallow roof void, with wooden rafters, which were covered in cobwebs. The roof is lined with wooden boards, with plywood attached to the rafters in some areas. Gaps were noted between the wall and the roof, where bats could potentially gain access into the roof void. However, no signs to indicate the presence of roosting bats were recorded. Brown rat *Rattus norvegicus* droppings were noted.
- 3.3.2 The eastern part of building B4 was accessible to bats internally via holes in the wall. A ceiling void was also noted above the western part of the building, which was accessible from the east. No bat droppings or signs of any other mammals were recorded.
- 3.3.3 Low levels of bat activity were recorded during the dusk and dawn surveys, with no bats recorded emerging from or returning to the buildings. High light levels were recorded, which are mainly attributed to two floodlights at the northern end of building B3, which illuminated both buildings, as well as the Lee Navigation. One of the lights facing east was turned off during the dusk survey.
- 3.3.4 During the dusk survey on 22<sup>nd</sup> September, no bat activity was recorded until 19:47, when a noctule that was heard but not seen. It was likely to have been commuting over the Application Site. Nathusius' pipistrelle was later recorded occasionally between 19:50 and 20:27. Some passes were observed to the east of building B3, over the area of ephemeral/short perennial vegetation. This activity was recorded when the floodlight facing east was turned off. No bat activity was recorded during the dawn survey on 23<sup>rd</sup> September.

## **4 Summary**

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### **4.1 Ecological walkover survey 2014**

- 4.1.1 No significant changes to habitats at the Application Site were recorded. Additional areas within and adjacent to the Application Site were assessed and habitats recorded were commensurate with existing habitats onsite. The distribution of invasive species was updated. The survey also updated the results of potential presence of protected and/or notable species, identifying buildings considered to have a potential to support roosting bats that were subject to further survey work (refer to Section 4.2). In addition to buildings B3 and B4, the concrete ramp and weighbridge reception building (B5) were considered to have a low potential to support roosting bats. These features were previously surveyed in 2013. The pond on site was found to be of poor suitability for great crested newt; consequently presence/absence surveys are not required.
- 4.1.2 Two Category 1 trees were recorded on the eastern side of Lee Park Way. Due to their proximity to the road, should bats roost in these trees, there would be a potential for disturbance associated with the construction and operation of the proposed access road, particularly resulting from permanent lighting and headlights. It is therefore recommended that two emergence/return surveys are undertaken to assess the presence or likely absence of roosting bats. Irrespective of the results, these trees should be retained and protected as part of the project.

### **4.2 Bat survey 2014**

- 4.2.1 No evidence of roosting bats was recorded during the bat survey. Noctule and Nathusius' pipistrelle bats were not recorded until 48 and 51 minutes after sunset respectively, indicating that bats were not roosting on the Application Site or nearby. This result is in line with the results of bat surveys undertaken in 2013.

### **4.3 Extended Phase 1 habitat surveys 2015**

#### **Proposed northern access road**

- 4.3.1 This area consists of scrub and small patches of semi-improved grassland. The current landscaping proposals do not include specific plans for this area. Given that this area is to be developed as an access road, it is recommended that some scrub is retained where possible as this habitat provides a valuable foraging and nesting resource for many birds and other wildlife.

#### **Proposed Temporary Laydown Area**

- 4.3.2 This area consists of scattered scrub, tall ruderal and semi-improved tussocky grassland vegetation, with a small area of plantation woodland along the southern edge and southeaster corner. There is also a species-poor hedgerow along the western edge by the River Lee.

- 4.3.3 Considering that the proposed Temporary Laydown Area has a potential to support common reptile species, it is recommended that a reptile survey is carried out to assess the presence or likely absence of reptiles within this area. This work should be undertaken when reptiles are active, between March and October and ideally during April, May and/or September, in accordance with current guidelines<sup>12</sup>.

#### **Lee Park Way**

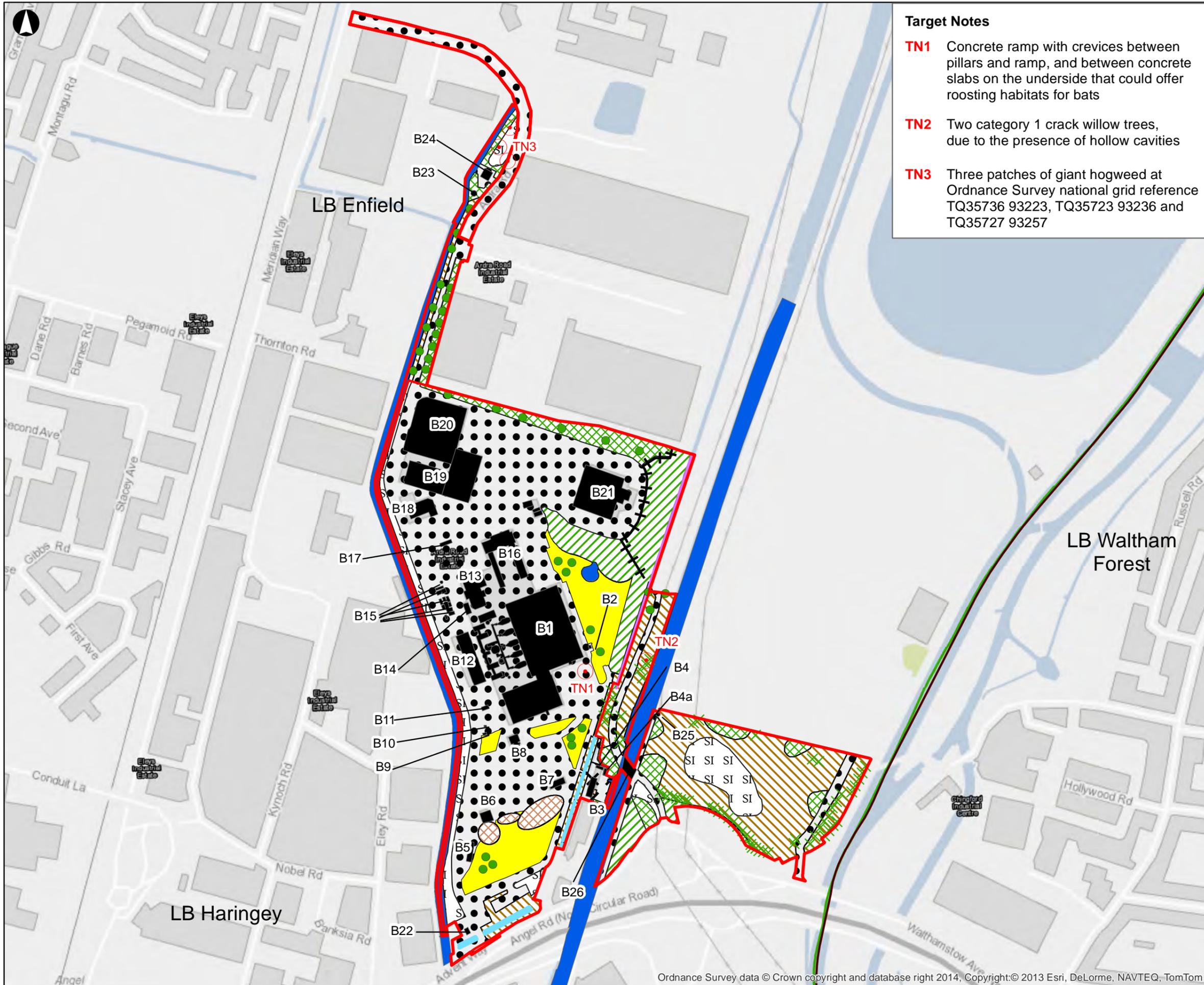
- 4.3.4 The concrete bridge over the River Lee leading to Lee Park Way was found to have a moderate potential to support roosting bats. Should bats roost within the bridge, there would be a potential for disturbance associated with construction and operation of the proposed access road. The movement of vehicles over the bridge would create noise and vibration that could disturb roosting bats. Furthermore, permanent lighting along Lee Park Way and headlights could cause further disturbance.
- 4.3.5 Two emergence/return surveys are recommended on the bridge to assess the presence or likely absence of roosting bats. These surveys should consider any foraging and commuting activity along the River Lee Navigation, considering the potential for disturbance associated with lighting along Lee Park Way.

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<sup>12</sup> Froglife, (1999); 'Froglife Advice Sheet 10; Reptile Survey. An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation.'

## **Figures**

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**Target Notes**

**TN1** Concrete ramp with crevices between pillars and ramp, and between concrete slabs on the underside that could offer roosting habitats for bats

**TN2** Two category 1 crack willow trees, due to the presence of hollow cavities

**TN3** Three patches of giant hogweed at Ordnance Survey national grid reference TQ35736 93223, TQ35723 93236 and TQ35727 93257

- Legend**
- Site Boundary
  - ▭ London Borough Boundary
  - Building
  - Scattered broadleaved trees
  - ✕ Scattered scrub
  - Target note
  - Dry ditch
  - ⊥ Fence
  - Wet ditch
  - ▨ Introduced shrub
  - Amenity grassland
  - SI Poor semi-improved grassland
  - ▨ Tall ruderal
  - ▨ Broadleaved plantation woodland
  - ▨ Dense scrub
  - ▨ Ephemeral/short perennial
  - Standing open water
  - Bare ground

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**ARUP**

13 Fitzroy Street  
London W1T 4BQ  
Tel +44 20 7636 1531 Fax +44 20 7580 3924  
www.arup.com

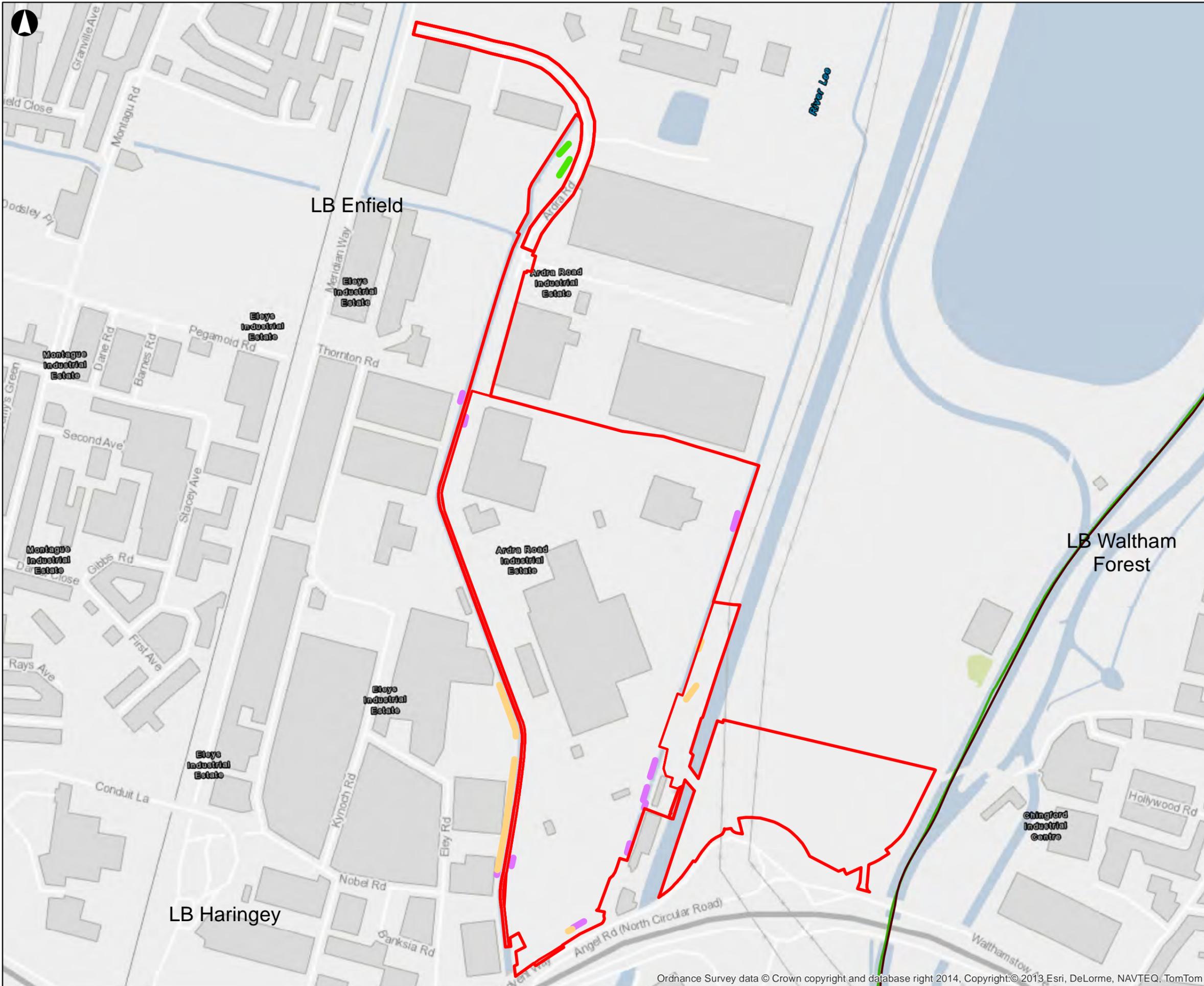
Client  
**North London Waste Authority**

Job Title  
**North London Heat and Power Project**

Drawing Title  
**Figure 1:  
Phase 1 Habitat Map**

Scale at A3  
**1:4,500**

Job No <b>235271-00</b>	Drawing Status <b>For Issue</b>
Drawing No <b>001</b>	Revision <b>P1</b>

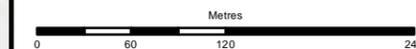


**Legend**

- Site Boundary
- London Borough Boundary
- Japanese knotweed
- Himalayan balsam
- Giant hogweed

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**ARUP**

13 Fitzroy Street  
London W1T 4BQ  
Tel +44 20 7636 1531 Fax +44 20 7580 3924  
www.arup.com

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**1:4,500**

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Drawing Status  
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Drawing No  
**001**

Revision  
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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.4  
PROTECTED SPECIES REPORT 2012 -  
2013

AD06 .02

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North London Waste Authority  
**North London Heat and Power  
Project**  
Protected Species Report 2012-  
2013

The Planning Act 2008 The Infrastructure Planning  
(Applications: Prescribed Forms and Procedure)  
Regulations 2009 Regulation 5 (2)(a)

Issue

October 2015

Arup

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## 1 Introduction

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- 1.1.1 Ove Arup and Partners Ltd (Arup) was commissioned by the North London Waste Authority (the 'Applicant') to undertake protected species surveys within the Edmonton EcoPark.
- 1.1.2 The Applicant is proposing the redevelopment of the Edmonton EcoPark. The North London Heat and Power Project (the 'Project') proposes the decommissioning of the current Energy from Waste (EfW) facility at Edmonton EcoPark and the construction of a new Energy Recovery Facility (ERF).
- 1.1.3 An extended Phase 1 habitat survey was undertaken within the Edmonton EcoPark in April 2012. The habitats present were considered suitable for protected species and the following surveys were recommended: reptile, badger *Meles meles*, bat activity, otter *Lutra lutra*, water vole *Arvicola amphibius* and breeding bird surveys, as well as a great crested newt *Triturus cristatus* Habitat Suitability Index (HSI) assessment.
- 1.1.4 To date, reptile, badger, otter and water vole surveys have been completed at the Edmonton EcoPark and the results are outlined in this report. Reporting relating to the remaining surveys (breeding bird and bat activity surveys and great crested newt survey and HSI assessment) are covered in a separate report.

## 1.2 Scope of work and objectives

- 1.2.1 The aims and objectives of the suite of surveys detailed in this report are as follows:
- establish the presence or likely absence, and where appropriate, the distribution of protected species across the Edmonton EcoPark;
  - provide an estimate of the population sizes and status of any protected species identified on the Edmonton EcoPark;
  - identify any specific features or areas on the Edmonton EcoPark of particular importance to protected species;
  - assess the implications of the findings of this study for the Project and provide recommendations to inform detailed designs and any appropriate mitigation that may be required; and
  - define any requirements for further work as necessary to ensure legal compliance.

## 1.3 Legislation, policy and guidance

### Legislation

- 1.3.1 Common reptiles, specifically common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, adder *Viper berus* and grass snake *Natrix natrix*, are listed

on Schedule 5 of the Wildlife and Countryside Act 1981(as amended)<sup>1</sup>. This makes it an offence to kill or injure these species.

- 1.3.2 Otter is fully protected under the Wildlife and Countryside Act 1981 (as amended) and Habitats and Species Regulations 2010<sup>2</sup>, which make it an offence to intentionally or deliberately capture, kill or injure or disturb otters and intentionally or recklessly damage, destroy or obstruct access to their holts.
- 1.3.3 Water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to deliberately, capture, injure or kill water voles or to damage, destroy or obstruct places of shelter or protection (i.e., burrow systems) and to disturb water voles whilst they are using such a place. The Protection of Badgers Act 1992<sup>3</sup> makes it an offence to wilfully kill, take, possess or cruelly ill-treat a badger, or attempt to do so; interfere with a sett by damaging or destroying it; obstruct access to, or any entrance of, a badger sett; or disturb a badger when it is occupying a sett.
- 1.3.4 The Countryside and Rights of Way Act 2000<sup>4</sup> strengthens the Wildlife and Countryside Act 1981 (as amended) and requires Government Departments to have regard for the conservation of biodiversity, in accordance to the Convention on Biological Diversity 1992<sup>5</sup>.
- 1.3.5 The Natural Environmental and Rural Communities Act 2006<sup>6</sup> requires the publication of a list of organisms and habitat types considered to be of principal importance in conserving biodiversity in consultation with Natural England (the Section 41 list) and extended the requirement to have regard for conserving biodiversity to all public authorities. Section 41 also states that the Secretary of State must take such steps as appear to be reasonably practicable to further the conservation of the living organisms and types of habitat included in the list, or promote the taking by others of such steps.

## **Biodiversity Action Plans**

### ***UK BAP and the Section 41 List***

- 1.3.6 All species of reptile, otter and water vole are listed as Priority Species under the former UK Biodiversity Action Plan (BAP) and Section 41 list. The former UK BAP identifies the priorities for conservation as required under the Convention on Biological Diversity (CBD) in 1992<sup>7</sup>. The UK Post-2010 Biodiversity Framework<sup>8</sup> has now succeeded the UK BAP. However, the

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<sup>1</sup> Her Majesty's Stationary Office (HMSO) (1981) Wildlife and Countryside Act 1981'. [online] Available at <http://www.legislation.gov.uk/ukpga/1981/69/contents>.

<sup>2</sup> HMSO (2010) The Conservation of Habitats and Species Regulations 2010.'

<sup>3</sup> HMSO (1992) Protection of Badgers Act 1992 (c. 51).

<sup>4</sup> Her Majesty's Stationary Office (2000) Countryside and Rights of Way Act 2000', Available at: <http://www.legislation.gov.uk/ukpga/2000/37/contents>.

<sup>5</sup> United Nations (UN) (1992) Convention on Biological Diversity.'

<sup>6</sup> Her Majesty's Stationary Office (2006) Natural Environment and Rural Communities Act 2006', Available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

<sup>7</sup> United Nations (UN) (1992) Convention on Biological Diversity' [online]. Available at <http://www.cbd.int/convention/> [Accessed 19 July 2014]

<sup>8</sup> JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012) UK Post-2010 Biodiversity Framework.

UK BAP list of priority species and habitats remain as a reference source. The former UK BAP is relevant in the context of Section 40 of the Natural Environmental and Rural Communities Act 2006, meaning that priority habitats and species on this list are of material consideration in planning.

***London Biodiversity Action Plan***

- 1.3.7 The London Biodiversity Partnership has identified a total of 214 priority species that are under particular threat in London. Planning decisions must take these species into account. Reptiles, otter and water vole are all identified as needing targeted action to secure their future in London and each have their own Species Action Plan<sup>9</sup>.

***Enfield Biodiversity Action Plan***

- 1.3.8 All UK native species of reptile are also included within the London Borough (LB) of Enfield's 'Amphibians and Reptiles' Species Action Plan<sup>10</sup>.

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<sup>9</sup> London Biodiversity Partnership (2007) London's Action Plan. Available at: <http://www.lbp.org.uk/londonpriority.html>

<sup>10</sup> Enfield Council (2011) Nature for People. A Biodiversity Action Plan for Enfield. Available at: [http://www.enfield.gov.uk/downloads/file/5182/enfield\\_bap](http://www.enfield.gov.uk/downloads/file/5182/enfield_bap)

## 2 Methodology

### 2.1 Reptiles

2.1.1 A total of 25 artificial refugia, consisting of pieces of bituminous roofing felt measuring approximately 0.5m by 1m, were distributed in suitable areas of habitat within the Edmonton EcoPark during August 2012. Suitable habitat consisted of areas of rough grassland and the edges of scrub and trees largely limited to the boundaries of the Edmonton EcoPark. Roofing felt heats up quicker than the surrounding environment, providing warm refuges for reptiles that are preferential to the surrounding environment. The artificial refugia were left in situ for two weeks, before the first survey was undertaken.

2.1.2 Seven survey visits were undertaken between 10 September 2012 and 25 September 2012, in accordance with current best practice guidelines<sup>11, 12</sup>. At least one survey round was conducted on each visit to determine the presence or likely absence of reptiles. Dates of each visit and weather conditions during each survey are detailed in Vol 2 Appendix 5.4 Table 1.

Vol 2 Appendix 5.4 Table 1: Reptile survey visits

Survey Number	Date	Weather Conditions	
		Round 1	Round 2
1	10 September 2012	17°C, 6/8 cloud cover, light breeze, dry.	19°C, 4/8 cloud cover, light breeze, dry.
2	14 September 2012	18°C, 8/8 cloud cover, light breeze, dry.	17°C, 6/8 cloud cover, light breeze, light rain.
3	17 September 2012	15°C, 2/8 cloud cover, light breeze, dry.	16°C, 7/8 cloud cover, light breeze, light shower.
4	19 September 2012	11°C, 2/8 cloud cover, light breeze, dry.	
5	21 September 2012	15°C, 6/8 cloud cover, still, dry.	
6	24 September 2012	15°C, 4/8 cloud cover, light breeze, light shower. Round 2:	16°C, 4/8 cloud cover, light breeze, dry.
7	25 September 2012	Round 1: 13°C, 4/8 cloud cover, light breeze, dry.	

<sup>11</sup> Gent, A.H., & Gibson, S. D., eds. 1998. *Herpetofauna workers' manual*. Peterborough. Joint Nature Conservation Committee.

<sup>12</sup> FROGLIFE 1999. Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10.

## 2.2 Badgers

- 2.2.1 A walkover survey was conducted in May 2012 in accordance with Harris *et al.* (1989)<sup>13</sup>. This involved walking the entire Edmonton EcoPark, particularly focusing on any suitable habitat and features that may be used by badgers. The following indicators of badger presence were recorded if seen during the survey:
- a. badger setts;
  - b. badger pathways;
  - c. dung pits / latrines; and
  - d. footprints or hairs (along paths, sett entrances, vegetation or fencing close to areas of badger activity).

## 2.3 Otters

- 2.3.1 An otter survey was conducted in April 2012 using standard methodology (Chanin, 2003<sup>14</sup>). This involved a visual inspection of Salmon's Brook and its banks. Close-focusing binoculars were used to examine any sections of bank where access was not possible. The following indicators of otter presence were recorded if seen during the survey:
- a. holts/lying up places;
  - b. spraints (droppings);
  - c. footprints;
  - d. hauling-out points and slides;
  - e. runways in vegetation; and
  - f. feeding remains.

## 2.4 Water Voles

- 2.4.1 A water vole survey was conducted using standard methodology as described in the Water Vole Conservation Handbook (Strachan, Moorhouse & Gelling, 2011<sup>15</sup>). A visual inspection of Salmon's Brook and Enfield Ditch and associated banks was carried out, allowing a thorough examination of the habitat. Close-focusing binoculars were again used to examine sections of bank where access was restricted. The following indicators of water vole presence were recorded if seen during the survey:
- a. pathways close to the water;
  - b. latrines;
  - c. feeding platforms/food remains; and

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<sup>13</sup> Harris S., Cresswell P. and Jefferies D. (1989) *Surveying Badgers*. Mammal Society

<sup>14</sup> Chanin P. (2003) *Monitoring the Otter *Lutra lutra**. Conserving Natura 2000 Rivers. Monitoring Series No.10 English Nature, Peterborough.

<sup>15</sup> Strachan, R., Moorhouse, T. & Gelling, M. (2011) *Water Vole Conservation Handbook* (third edition). WildCRU: Oxford.

d. burrows.

## **2.5 Limitations**

- 2.5.1 The area of woodland in the north-east corner of the Edmonton EcoPark was inaccessible due to being enclosed by a high metal fence. Consequently, this area could not be assessed for presence of badger signs. This is unlikely to pose a significant limitation, given the lack of badger signs elsewhere within the Edmonton EcoPark (refer to Section 3.2).
- 2.5.2 The surveys were based on appropriate current best practice guidance and the judgement of experienced surveyors to provide an assessment of likely presence/absence of protected species. The surveys were undertaken during suitable weather conditions and at an appropriate time of year. The results are therefore considered to provide a reliable assessment of the likely presence/absence of these species at the Edmonton EcoPark.
- 2.5.3 No account can be made for the presence or absence of species during the survey periods, since fauna may change their spatial distribution at various scales over time. Species may also return to, or colonise new areas at any future time, particularly if there is a change in the habitat structure.

## **3 Results**

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### **3.1 Reptiles**

3.1.1 No reptiles were recorded. As such, it is considered that reptiles are likely to be absent from the Edmonton EcoPark.

### **3.2 Badger**

3.2.1 No badgers, or signs thereof, were recorded. As such, it is considered that badgers are likely to be absent from the Edmonton EcoPark.

### **3.3 Otter**

3.3.1 No otters, or signs thereof, were recorded. As such, it is considered that otters are likely to be absent from the Edmonton EcoPark.

### **3.4 Water Vole**

3.4.1 No water voles, or signs thereof, were recorded. As such, it is considered that water voles are likely to be absent from the Edmonton EcoPark.

## **4 Discussion**

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- 4.1.1 The Edmonton EcoPark provides suboptimal habitat for reptiles, water vole, otter and badger. These species were not recorded at the Edmonton EcoPark, likely on account of the suboptimal nature of the habitats, the urban location of the Edmonton EcoPark and lack of connectivity to other suitable habitat, particularly within Lea Valley Site of Metropolitan Importance for Nature Conservation (SMINC).

## **5 Conclusions**

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### **5.1 Mitigation measures**

- 5.1.1 As no reptiles, badgers, otters or water voles have been found at the Edmonton EcoPark, it will not be necessary to implement any mitigation measures.

### **5.2 Further surveys**

- 5.2.1 Ongoing monitoring for badger, otter and water vole has since been undertaken at the Edmonton EcoPark to update the results prior to the commencement of construction work.
- 5.2.2 No further reptile surveys have been conducted within the Edmonton EcoPark, given that the habitats are suboptimal for this species and the lack of connectivity to suitable habitat within the surrounding area, including Lea Valley SMINC.
- 5.2.3 However, pre-construction surveys would be undertaken by an ecologist to determine the current status and distribution of protected and notable species and to inform requirements for any mitigation, including badger scoping survey within the fenced off area in the north-eastern part of the Edmonton EcoPark.

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.5 2013  
PHASE 1 HABITAT SURVEY REPORT

AD06 .02

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North London Waste Authority

**Edmonton EcoPark**

Phase 1 Habitat Survey Report

Issue | 29th May 2013



This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 224552

**Ove Arup & Partners Ltd**  
13 Fitzroy Street  
London  
W1T 4BQ  
United Kingdom [www.arup.com](http://www.arup.com)

**ARUP**

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## Appendices

### Appendix A

Edmonton: Phase 1 Habitat Survey Figure

# 1 Introduction

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## 1.1 Background

Ove Arup & Partners Ltd (Arup) has been commissioned by North London Waste Authority (NLWA) Ltd to conduct a Phase 1 Habitat Survey at a site in Edmonton.

## 1.2 The site

The site is known as Edmonton EcoPark, London Waste Ltd, Advent Way, London, N18 3AG. UK grid reference: TQ 35767 92649. It lies adjacent to the A406 at its southern end, and is bound by watercourses to the east and west. A water treatment works represents the northern boundary of the site.

## 1.3 Legislative and policy context

The principal legislation relating to ecological resources, that are relevant this appraisal, are as follows:

- a. Wildlife and Countryside Act 1981 (as amended);
- b. Conservation of Habitats and Species Regulations 2010 (which consolidates all the various amendments made to the Conservation [Natural Habitats, &c.] Regulations, 1994)
- c. Countryside and Rights of Way (CROW) Act 2000;
- d. Natural Environment and Rural Communities (NERC) Act 2006; and
- e. The Protection of Badgers Act 1992.

Species-specific legislation relating to this site is described in further detail in the following sub-sections.

### 1.3.1 Bats

All species of bat are strictly protected in Europe and in the UK by the Wildlife & Countryside Act 1981 and the Conservation (Natural Habitats &c) Regulations 1994. This protection makes it illegal to intentionally kill, injure, capture or disturb bats, and to damage, destroy or prevent access to roost sites.

### 1.3.2 Birds

Under the Wildlife and Countryside Act 1981 (as amended), all birds, their nests and eggs are protected by law and it is thus an offence, with certain exceptions, to intentionally kill, injure or take any wild bird; intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built; and intentionally take or destroy the egg of any wild bird. Additional protection is afforded to those scarce species listed on Schedule 1 of the Act such that it is an offence to intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is

nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

### 1.3.3 Reptiles

All British native reptile species are afforded at least some level of protection under the Wildlife & Countryside Act 1981 (as amended). Common lizards, grass snakes, adders and slow worms are protected from killing and injury only. Protection is not extended to their habitats. Therefore, construction activities should not result in the death of individual reptiles where they are known to occur.

### 1.3.4 Badgers

Badgers are protected under The Protection of Badgers Act, 1992. Consequently, it is an offence to:

- a. kill, injure or take a badger, or to attempt to do so; and
- b. interfere with a badger sett by (a) damaging a sett or any part of one; (b) destroying a sett; (c) obstructing access to any entrance of a sett; (d) causing a dog to enter a sett; or (e) disturbing a badger when it is occupying a sett.

### 1.3.5 Otters

Otters are protected by the Wildlife and Countryside Act 1981 (as amended) and by the EC Habitats Directive, transposed into domestic law through the Conservation of Habitats and Species Regulations 2010 (as amended). Under the Habitats Regulations otters are classed as a European protected species and therefore given the highest level of protection. This legislation makes it an offence to kill, injure or disturb an otter or to destroy any place used for rest or shelter by an otter. Additional protection is also provided by the Countryside and Rights of Way (CRoW) Act (2000). Otters are also listed as a priority species on the UK Biodiversity Action Plan (BAP).

### 1.3.6 Water voles

Water voles receive legislative protection which was further strengthened from April 2008, under the Wildlife and Countryside Act 1981 (as amended) under Section 9 which makes it a criminal offence to:

- a. intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection;
- b. intentionally or recklessly disturb water voles whilst occupying a structure or place used for that purpose;
- c. intentionally kill, injure or take water voles;
- d. possess or control live or dead water voles or derivatives;
- e. sell water voles or offer or expose for sale or transport for sale; and

- f. publish or cause to be published any advertisement which conveys the buying or selling of water voles.

Natural Environment and Rural Communities Act 2006 (NERC) also lists water vole as a species of principle importance under Section 41 and Section 40 requires every public body in the exercising of its functions (in relation Section 41 species) 'have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'; therefore making the water vole a material consideration in the planning process and requiring a detailed ecological survey before planning permission can be granted.

## 1.4 Policies and guidance

### 1.4.1 Biodiversity Action Plans

As a result of new drivers and requirements, the 'UK Post-2010 Biodiversity Framework', published in July 2012, has now succeeded the UK BAP. In particular, due to devolution and the creation of country-level biodiversity strategies, much of the work previously carried out under the UK BAP is now focussed at a country level. Additionally, international priorities have changed: the framework particularly sets out the priorities for UK-level work to support the Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020 and its five strategic goals and 20 'Aichi Targets', agreed at the CBD meeting in Nagoya, Japan, in October 2010; and the new EU Biodiversity Strategy (EUBS) in May 2011. The UK BAP lists of priority species and habitats remain, however, important and valuable reference sources (see below)<sup>1</sup>.

The UK Biodiversity Action Plan (BAP) was produced in accordance with the 1992 UN Convention on Biological Diversity. It describes the UK's biological resources and commits a detailed plan for the protection of these resources, focusing on key habitats and species considered to be of particular significance to nature conservation within a UK context.

The London BAP promotes the protection and enhancement of the area's most important and distinctive animals, plants and habitats, as well as its regional-level contribution to the UK Action Plan.

Priority species and priority habitats listed under the UK BAP and London BAP are addressed at all levels of UK planning policy, the aim of this being that development contributes to halting further losses and encouraging population enhancement. Under the Natural Environment and Rural Communities (NERC) Act 2006, it is now the duty of all governmental departments to take BAP species into account as a material consideration in the determination of planning applications.

BAP species have been taken into account when assessing the value of ecological resources at the site.

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<sup>1</sup> <http://jncc.defra.gov.uk/page-5705-theme=textonly>

## 1.4.2 The National Planning Policy Framework

The National Planning Policy Framework (NPPF), published in April 2012 replaces all Planning Policy Statements and Guidance (PPSs and PPGs) to set out the government's planning policy in a less complex and more accessible manner.

The stipulations for conservation and enhancement of the natural environment state that the planning system should minimise the impacts on biodiversity and where possible restore degraded or depleted habitats.

The overall aim is to contribute to the government objective to halt the overall decline in biodiversity through the establishment of coherent ecological networks, that are more resilient to current and future environmental pressures. There has also been a range of conservation and enhancement principles established to guide planning processes and decisions.

Local planning authorities have been given responsibility to set the strategic approach for the creation, protection, enhancement and management of biodiversity networks through planning at the landscape-scale, often across local authority boundaries.

The NPPF emphasises the importance of local green space and states that Local Planning Authorities should plan positively for the creation, protection, enhancement and management of biodiversity networks and green infrastructure.

## 1.4.3 The England 2020 Biodiversity Strategy

The England Biodiversity Strategy 2020 (August 2011) was published by Defra in response to the National Environment White Paper. It sets the Government's objectives for halting the net loss of biodiversity by 2020 and promotes the recognition of the intrinsic value of the benefits of biodiversity to society.

It emphasises the landscape-scale and ecosystems approach for the demonstration of the benefits obtained from ecosystem services, their interactions and feedbacks rather than a species approach in order to establish more coherent and resilient ecological networks.

## 1.4.4 London Plan

The London Plan (2011) is the overall strategic plan for London, and it sets out a fully integrated economic, environmental, transport and social framework for the development of the capital to 2031. It forms part of the development plan for Greater London. London boroughs' local plans need to be in general conformity with the London Plan, and its policies guide decisions on planning applications by councils and the Mayor.

## 1.4.5 Local Development Frameworks

Local Development Frameworks are a folder of documents prepared by the local planning authority, usually the borough council. These documents outline the spatial planning strategy for the area. All Local Development Frameworks must

be in general conformity with the Mayor's London Plan. In the case of Edmonton, Haringey Council is the relevant body.

The LDF, together with The London Plan, will determine how the planning system helps to shape your community. The London Plan provides London-wide policies to help achieve the Mayor's vision for London. Whilst the LDFs provide more focused and localised policies to shape development within the borough to achieve the council's vision.

## 1.5 Aims and objectives

The aims and objectives of this Phase 1 Habitat Survey are to:

- a. Provide information on the nature, location, extent and distribution of habitat types present at the site;
- b. Provide an evaluation of the likely ecological interest of the site, its ability to support protected species, and the scope of further survey work required in relation to these resources; and,
- c. Inform the development proposals in order to avoid and mitigate any detrimental ecological impacts associated with the proposals.

## 1.6 Report structure

Following on from this introductory section, Section 2 provides details of the methodologies of the desk-based and field surveys and assessment, including any limitations of the exercise. Section 3 details the results and an appraisal of the desk study and field survey. Section 4 provides conclusions and recommendations.

## 2 Methodology

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Information about the ecological features present on (and in the immediate environs of) the site have been gathered through a combination of desk study and field survey. The methodology for both the desk study and field survey are provided in this section, together with any limitations identified during the course of the study.

### 2.1 Desk study

Ecological records were obtained from the Greenspace Information for Greater London (GiGL) database. The UK Biodiversity Action Plan (UKBAP) and the London BAP (Local Biodiversity Action Plan - LBAP) were also consulted for details of notable species that could be expected to occur in the area. The area covered by these data searches extended up to 2km from the main Edmonton site.

This contextual information can assist in determining which species are likely to be affected by the proposed development, and this has helped to focus the field survey in identifying signs of notable species that could be expected to occur in the vicinity.

### 2.2 Field survey

A Phase 1 Habitat Survey was undertaken on April 23<sup>rd</sup> 2013. The survey was undertaken in accordance with standard guidance (JNCC, 2007<sup>1</sup>). Habitat types were mapped in the field, with notes taken relating to the dominant plant and vegetation communities present. Evidence of protected species, or the potential for the site to support protected species, was also noted.

Searches for protected species included the presence of any identifiable field signs such as the paths, tracks and scats of mammal species, for example badger (*Meles meles*), plus areas of shelter, such as potential bat roost sites within trees or built structures. Any man-made or natural refugia were inspected and lifted where possible, to search for sheltering wildlife such as reptiles and/or amphibians.

Based on an understanding of the habitat types present and consideration of the site's position within the wider landscape, an assessment was made of the site's potential to support protected species and species of high individual nature conservation value, which may be impacted upon by the proposed works.

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<sup>1</sup> Joint Nature Conservation Committee's Handbook for Phase 1 habitat survey: *A technique for environmental audit* (2007).

## 2.3 Limitations

The findings presented in this study represent those at the time of survey and reporting. Variations in these conditions will take place as a result of seasonal factors, and with the general passage of time.

It should also be noted that fauna may travel over wide areas and can have large home ranges and so can be overlooked during surveys. Species which are absent at the time of survey may also return to or colonise a site anew at any future time.

## 3 Results and appraisal

### 3.1 Desk study

#### 3.1.1 Designated Sites

A desk study was undertaken to identify any designated sites within a 2km radius of the site. The records obtained show that there are four sites with European or National statutory designation and one Local Nature Reserve within the search area. The records obtained from the GiGL database are shown in Vol 2 Appendix 5.5 Table 1.

**Vol 2 Appendix 5.5 Table 1: Statutory Sites Designated for Nature Conservation Value within 2km of the Site**

Site Name	Description
Lee Valley Special Protection Area (SPA)	Located approximately 1.8km to the south of the site and comprises a series of man-made and semi-natural wetlands which are of European importance due to supporting rare wintering waterbirds (e.g. bittern <i>Botaurus stellaris</i> ) and significant numbers of wintering wildfowl such as shoveler ( <i>Anas clypeata</i> ) and gadwall ( <i>Anas strepera</i> ).
Lee Valley Ramsar Site	As above, the area also qualifies as a Ramsar site due to the presence of a nationally rare aquatic plant and an uncommon aquatic invertebrate in addition to the waterfowl included above.
Chingford Reservoirs Site of Special Scientific Interest (SSSI)	Located approximately 0.3km north east of the site and comprises a series of drinking water storage basins, which attract a wide variety of migratory wildfowl, gulls and other waterbirds. The reservoirs are one of the major wintering grounds for wildfowl and wetland birds in the London area and hold nationally important wintering numbers of shoveler and great crested grebe ( <i>Podiceps cristatus</i> ).
Walthamstow Reservoirs SSSI	Located approximately 1.8km south of the site and comprises ten relatively small and shallow water storage basins. The reservoirs contain one of the country's major heronries and have a large concentration of breeding wildfowl, as well as supporting nationally significant populations of wintering shoveler and tufted duck ( <i>Aythya fuligula</i> ). Breeding birds include coot ( <i>Fulica atra</i> ), pochard ( <i>Aythya ferina</i> ), yellow wagtail ( <i>Motacilla flava</i> ), reed ( <i>Acrocephalus scirpaceus</i> ) and sedge ( <i>Acrocephalus schoenobaenus</i> ) warblers and great crested grebe. Locally important plants at the site include marsh marigold ( <i>Caltha palustris</i> ) and lesser bulrush ( <i>Typha angustifolia</i> ).
Ainslie Wood Local Nature Reserve (LNR)	Locally important area of woodland located approximately 2km east of the site.

Non-statutory sites are identified by the Greater London Authority on account of their flora and fauna. They are of Greater London or regional importance. Vol 2 Appendix 5.5 Table 2 lists those non-statutory sites within the 2km search area from the site.

**Vol 2 Appendix 5.5 Table 2: Non-statutory Sites Designated for Nature Conservation Value within 2 km of the Site**

Site Name	Description
Lee Valley	Site of Metropolitan importance for nature conservation, consisting of a series of open spaces along the River Lee valley, including lakes, reservoirs, marshes and wet grassland. The River Lee lies approximately 200m to the east of the site. Protected or notable species found here include: water vole ( <i>Arvicola terrestris</i> ), great crested newt ( <i>Tritaurus cristatus</i> ), kingfisher ( <i>Alcedo atthis</i> ), little ringed plover ( <i>Charadrius dubius</i> ), goosander ( <i>Mergus merganser</i> ), red-eyed damselfly ( <i>Erythromma najas</i> ), creeping marshwort ( <i>Apium repens</i> ) and brookweed ( <i>Samolus valerandi</i> ).
Tottenham Marshes	Located approximately 1km south of the site. Large expanse of rough grassland, damp in places, with small areas of scrub and tall herbs. Diverse flora includes the nationally scarce wall bedstraw ( <i>Galium parisiense</i> ) and yellow vetchling ( <i>Lathyrus aphaca</i> ).
Banbury Reservoir	Large reservoir and adjacent area of community woodland, approximately 1km south east of the site. Reservoir is important for waterbirds including gulls and great crested grebe. Areas of wildflowers and neutral grassland attract several species of butterflies and grasshoppers.
Tottenham Marshes East	Located approximately 1.5km south of the site and comprises a large expanse of rough grassland and scrub. The grassland provides good habitat for invertebrates and the scrub and young trees provide good breeding habitat for common bird species.
Tottenham Hale to Northumberland Park Railsides	Located approximately 1.5km south west of the site and comprises a range of linear habitats including rough grassland and scrub. Some areas of more mature woodland are also present along with patches of tall herbs. The rare hybrid 'Wurzell's wormwood' ( <i>Artemisia vulgaris x verlotiorum</i> ) is abundant around Northumberland Park station.
Ching Brook in Central Walthamstow	Located approximately 1.5km south east of the site, consisting of a treelined stream flowing through allotments and open space which attracts birds such as grey wagtail ( <i>Motacilla cinerea</i> ), house sparrow ( <i>Passer domesticus</i> ) and chiff chaff ( <i>Phylloscopus collybita</i> ). Flora includes oak ( <i>Quercus robur</i> ), crack willow ( <i>Salix fragilis</i> ), pendulous sedge ( <i>Carex pendula</i> ) and soft rush ( <i>Juncus effuses</i> ).
Pymmes Park	Located approximately 1.8km west of the site and comprises a large public park with a lake which supports a range of breeding waterbirds including mallard ( <i>Anas platyrhynchos</i> ), tufted duck, coot, and mute swan ( <i>Cygnus olor</i> ). Flora includes water figwort ( <i>Scrophularia auriculata</i> ), remote sedge ( <i>Carex remota</i> ) and gypsywort ( <i>Lycopus europaeus</i> ).
Marsh Lane Allotments	Allotments with fruit trees and climbers providing habitat for a variety of wildlife including grass snakes and common bird and mammal species. Located approximately 1.8km south of the site.
Chingford Mount Cemetery	Large cemetery with abundant grassland, mature trees and a pond, located approximately 1.8km north east of the site. Trees include London plane ( <i>Platanus x hispanica</i> ), ash ( <i>Fraxinus excelsior</i> ) and pines ( <i>Pinus</i> spp.). The pond is likely to contain common amphibian species and wetland plants occur including great willowherb ( <i>Epilobium hirsutum</i> ), pendulous

Site Name	Description
	sedge and water mint ( <i>Mentha aquatica</i> ). A variety of common birds occur at the site, including the nationally declining house sparrow.

### 3.1.2 Legally Protected or Otherwise Notable Species

A desk study was undertaken to obtain records of any legally protected or otherwise notable species within a 2km radius of the site. Vol 2 Appendix 5.5 Table 3 contains records from the GiGL database of all protected or notable species within 2km radius of the site, with the closest record given in metres from the site.

**Vol 2 Appendix 5.5 Table 3: Protected or notable species within 2km radius of the site**

Common Name	Scientific Name	Closest Record (m)
Freshwater crayfish	<i>Austropotamobius pallipes</i>	1487
Stag beetle	<i>Lucanus cervus</i>	1043
White-letter hairstreak	<i>Satyrrium w-album</i>	829
Wall	<i>Lasiommata megera</i>	1759
Great crested newt	<i>Triturus cristatus</i>	1945
Common frog	<i>Rana temporaria</i>	1193
Caspian gull	<i>Larus cachinnans</i>	1235
Greylag goose	<i>Anser anser</i>	1235
Ruddy shelduck	<i>Tadorna ferruginea</i>	1235
Garganey	<i>Anas querquedula</i>	1996
Greater scaup	<i>Aythya marila</i>	1369
Velvet scoter	<i>Melanitta fusca</i>	1369
Common goldeneye	<i>Bucephala clangula</i>	1235
Smew	<i>Mergellus albellus</i>	1369
Slavonian grebe	<i>Podiceps auritus</i>	1235
Little egret	<i>Egretta garzetta</i>	1487
Eurasian marsh harrier	<i>Circus aeruginosus</i>	1690
Osprey	<i>Pandion haliaetus</i>	1690
Little ringed plover	<i>Charadrius dubius</i>	1996

Common Name	Scientific Name	Closest Record (m)
European golden plover	<i>Pluvialis apricaria</i>	1235
Northern lapwing	<i>Vanellus vanellus</i>	1075
Temminck's stint	<i>Calidris temminckii</i>	1996
Black-tailed godwit	<i>Limosa limosa</i>	1996
Bar-tailed godwit	<i>Limosa lapponica</i>	1996
Whimbrel	<i>Numenius phaeopus</i>	1690
Common greenshank	<i>Tringa nebularia</i>	1235
Green sandpiper	<i>Tringa ochropus</i>	1235
Mediterranean gull	<i>Larus melanocephalus</i>	76
Little gull	<i>Larus minutus</i>	1235
Herring gull	<i>Larus argentatus</i>	1235
Little tern	<i>Sternula albifrons</i>	1235
Black tern	<i>Chlidonias niger</i>	1235
Common tern	<i>Sterna hirundo</i>	782
Arctic tern	<i>Sterna paradisaea</i>	1235
European turtle dove	<i>Streptopelia turtur</i>	1690
Common cuckoo	<i>Cuculus canorus</i>	1690
Common kingfisher	<i>Alcedo atthis</i>	1235
Skylark	<i>Alauda arvensis</i>	1690
Sand martin	<i>Riparia riparia</i>	1235
Yellow wagtail	<i>Motacilla flava</i>	1235
Hedge accentor	<i>Prunella modularis</i>	1690
Black redstart	<i>Phoenicurus ochruros</i>	1235
Fieldfare	<i>Turdus pilaris</i>	1235
Song thrush	<i>Turdus philomelos</i>	1690
Redwing	<i>Turdus iliacus</i>	1690
Common grasshopper warbler	<i>Locustella naevia</i>	1690

Common Name	Scientific Name	Closest Record (m)
Spotted flycatcher	<i>Muscicapa striata</i>	1690
Red-backed shrike	<i>Lanius collurio</i>	1690
Common starling	<i>Sturnus vulgaris</i>	662
House sparrow	<i>Passer domesticus</i>	423
Eurasian tree sparrow	<i>Passer montanus</i>	1690
Brambling	<i>Fringilla montifringilla</i>	1369
Common linnet	<i>Carduelis cannabina</i>	1475
Common redpoll	<i>Carduelis flammea</i>	1690
Common crossbill	<i>Loxia curvirostra</i>	1690
Common bullfinch	<i>Pyrrhula pyrrhula</i>	1690
Reed bunting	<i>Emberiza schoeniclus</i>	1690
West European hedgehog	<i>Erinaceus europaeus</i>	1193
Daubenton's bat	<i>Myotis daubentonii</i>	447
Noctule bat	<i>Nyctalus noctula</i>	1396
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	1396
European otter	<i>Lutra lutra</i>	1006
European water vole	<i>Arvicola terrestris</i>	291

## 3.2 Field survey

A Phase 1 habitat survey map is provided in Appendix A (Figure 1). A habitat description, together with details of characteristic and/or notable species, is provided below.

### 3.2.1 Habitat description

The site is approximately 16 ha in extent, consisting predominantly of a fully operational waste handling facility with associated infrastructure, which also contains small amounts of natural and semi-natural habitat.

Large areas of the site are dominated by hard standing and buildings. Natural and semi-natural habitats within the site include: mature trees, vegetated boundaries, a small pond, ruderal vegetation, introduced shrubs, amenity grassland and young plantation woodland. The eastern and western boundaries of the site consist of watercourses.

A line of semi-mature trees is present along the eastern boundary of the north-east part of the site and this linear feature has the potential to be used by bats when dispersing between roosting and foraging sites. Some of the older trees may provide opportunities for roosting bats.

A small area of young plantation woodland is present to the north of the site and this has some potential as a habitat for invertebrates, which in turn would provide bats with foraging opportunities as well as providing foraging and nesting resources for birds.

Areas of introduced shrub are present on site, predominantly within the amenity grassland area to the south and around several of the parking areas and building boundaries. Vegetation is relatively dense in these areas and comprises a number of species. These shrubs have the potential to support a number of invertebrate species and hence represent a foraging resource for bats and also provide opportunities for nesting and foraging birds.

Areas of amenity grassland are present at the site. The main areas of amenity grassland lie to the south and north-east of the site. These areas comprise regularly mown species-poor grassland which has been assessed as being unlikely to support reptiles. Some ruderal vegetation and longer grass is present around the site boundaries, particularly to the south.

The site boundary to the west consists of a watercourse known as Salmon's Brook. This watercourse has the potential to support otters, water voles and breeding birds as well as providing habitat for a diverse invertebrate community and hence foraging resource for bats. The River Lee is situated just to the east of the site boundary and, although outside the site boundary, it is likely to support a diverse invertebrate community and hence foraging resource for bats and birds which is close to the site itself. A shallow ditch (known as Enfield ditch) which is periodically wet is present to the east and south of the site and has the potential to act as a resource for foraging bats and birds.

A small man-made lined pond is located in the north-east of the site, within an area of mown amenity grassland edged by young planted trees to the north and a line of mature trees to the east. The south and west boundaries of this area are adjacent to access roads, car parks and buildings. The pond is open in terms of vegetation encroachment and any marginal vegetation is limited in its extent. The pond is likely to support a range of invertebrates which in turn, have potential to support foraging bats.

### 3.2.2 Protected species

The majority of grassland areas are mown to a short sward, and few opportunities exist for reptiles. No reptiles were found during 2012 surveys at the site.

No evidence of badgers, otters or water voles was observed at the site during 2012. This situation has also been monitored during site visits in 2013 with no evidence shown.

Birds were observed utilising the buildings, wooded areas, shrubs, waterbodies and mature trees for foraging. A breeding bird survey is being undertaken during 2013 and the results will be presented in a subsequent report.

Bats are likely to be using wooded edges, the pond, watercourses and grassland areas for foraging, and a limited number of trees may provide suitable roosting sites. A series of bat surveys is therefore being undertaken. Three common pipistrelles were recorded foraging at the site during a bat survey in 2012.

### 3.3 Appraisal

The Edmonton site consists largely of a fully operational waste handling facility with associated infrastructure. As a consequence of this, it does not represent a site of high biodiversity potential.

However, the site has some potential to support notable and/or protected species and surveys are being undertaken to fully investigate this.

## 4 Conclusions and recommendations

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### 4.1 Summary of findings

The desk study data search has identified four designated sites fall within a 2km radius of the site. However, no designated areas are likely to be impacted by the proposed level of works. Furthermore, proposed development of the site will be set back from the boundary and enclosed by landscaping elements and is therefore less likely to have a significant negative impact upon biodiversity in the wider area.

Nevertheless, at a site level, protected species may be at risk from the proposals and mitigation or compensation measures may be required to ensure that there is no net negative effect on the habitats and species present in the longer-term. Therefore, a number of species-specific surveys have been, and continue to be, undertaken to identify which species are present and how and to what extent they may be impacted upon by the development proposals.

#### 4.1.1 Reptile Surveys

Reptile surveys were undertaken during 2012 and none were found to be present at the site. Given that the surveys were undertaken in accordance with Best Practice Guidelines, at the correct time of year and in appropriate weather conditions, it is unlikely any reptiles are present at the site.

#### 4.1.2 Bird Surveys

The site is likely to be suitable for a range of common bird species. The level of works proposed is unlikely to have a significant impact upon any populations at the local or regional level. However, all nesting birds, their young and eggs are protected by law and thus any building demolition or vegetation clearance should be undertaken outside of the nesting season (generally from March to August inclusive). Guidance should be sought from a suitably-qualified ecologist with regard to clearance works at any time of the year. A breeding bird survey is being undertaken during 2013 to assess the species assemblage present and to determine any important areas of the site for breeding birds.

#### 4.1.3 Bat Surveys

Bat surveys will be needed to inform upon the general level of bat activity at the site, whether any roosts will be affected by the proposed works and whether important foraging and/or commuting routes are present. An initial dusk survey was conducted in 2012 and further surveys are being undertaken in 2013.

#### 4.1.4 Otter and water vole surveys

Otter and water vole surveys were carried out during 2012 and no evidence of either species was found at the site. The situation has been monitored during other site surveys in 2013 and again no evidence has been found on site.

#### 4.1.5 Badger survey

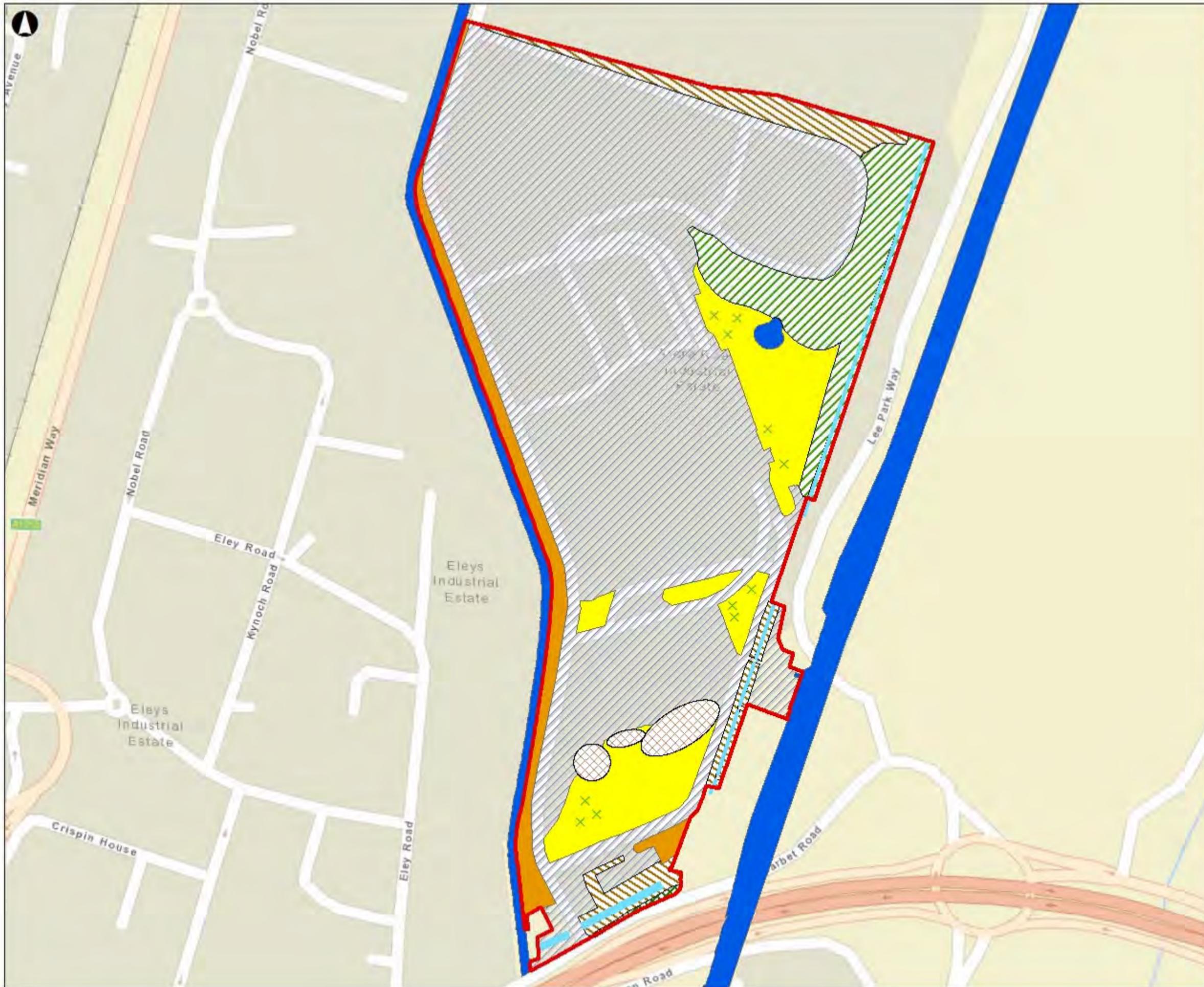
Badger surveys were carried out during 2012 and no evidence of this species was found at the site. The situation has been monitored during other site surveys in 2013 and again no evidence has been found on site.

### 4.2 Summary of recommendations

- a. Land take which impacts semi-natural habitats should be kept to a minimum in order to reduce the risk of impacts upon any protected species and the level of mitigation required for such impacts.
- b. Bat surveys should be completed to identify the levels and types of use of the site by bats.
- c. With regard to breeding birds, surveys will be undertaken during 2013. Any works involving building demolition, tree, scrub or ground clearance associated with the proposals should be conducted outside of the main breeding season (March to August inclusive). Potential breeding habitat should be checked by an ecologist prior to works at any time of the year.

## Appendix A

### Edmonton: Phase 1 Habitat Survey Figure



- Legend**
- Main Site
  - x Scattered broadleaved trees
  - Wet ditch
  - Rough species poor grassland
  - Broadleaved plantation woodland
  - Open water
  - Scrub
  - Introduced shrub
  - Amenity grassland
  - Tall ruderal
  - Buildings and hards tanding

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**ARUP**

5 Fitzroy Street  
 London W1T 4BQ  
 Tel +44 20 7650 1031 Fax +44 20 7650 3924  
 www.arup.com

Client  
**North London Waste Authority**

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Job Title  
**North London Heat and Power Project**

**Figure 1:  
 Phase 1 Habitat Map**

Scale 1:2,750

Job No 224552-06	Drawing Status ISSUE
Drawing No 001	Sheet P1

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.6  
2013 BAT SURVEY REPORT

AD06 .02

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North London Waste Authority  
**North London Heat and Power  
Project**  
2013 Bat Survey Report

Issue 2 | 8 May 2015



This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 232185-71

**Ove Arup & Partners Ltd**  
13 Fitzroy Street  
London  
W1T 4BQ  
United Kingdom  
[www.arup.com](http://www.arup.com)

**ARUP**

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Figure 1 2013 Bat Surveys

# 1 Introduction

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## 1.1 Background

Arup was commissioned by North London Waste Authority (NLWA) to undertake a series of bat surveys at Edmonton EcoPark, Advent Way, London, N18 3AG, at Ordnance Survey grid reference TQ 35767 92649. The Edmonton EcoPark lies adjacent to the A406 at its southern end, with Pymme's Brook lying along the western boundary and the River Lee along its eastern boundary. A water treatment facility is located to the north of the survey area. The survey area is shown in Figure 1. The majority of the survey area comprised a waste handling facility with associated buildings and infrastructure. Natural and semi-natural habitats within the survey area included scrub, trees, rough and amenity grassland and waterbodies.

The surveys were carried out in order to assess whether bats were roosting within the survey area identified in Figure 1 and to identify any important commuting corridors or foraging habitat for bats.

This report presents the findings of bat emergence and re-entry, activity and automated surveys undertaken during August 2012 and June, August and September 2013. Recommendations for mitigation measures and enhancements to the survey area have been made in order to positively facilitate the planning process.

## 1.2 Aims and Objectives

The aims of the bat surveys were to:

- a. Determine the presence/likely absence of any bat roosts within the survey area or in the vicinity of the proposed development that could be affected by development works;
- b. Assess whether the survey area represents an important dispersal corridor for bats commuting between roosting and foraging sites;
- c. Identify any areas of the survey area that afford a potential foraging resource for bat species; and
- d. Provide mitigation and enhancement measures to ensure compliance with relevant legislation and planning policy and avoid or otherwise mitigate for any potential adverse ecological impacts of the proposed development on local bat populations.

## 2 Guidance, Legislation and Policy

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### 2.1 Legislation

The interpretations of the findings of this survey and the subsequent recommendations have been produced in accordance with the relevant legislation and guidelines. Legislation relating to ecological resources that are relevant to this report and the recommendations provided include:

- a. ***Wildlife and Countryside Act 1981 (as amended) (WCA)*** – this legislation comprises the primary means of protecting wildlife in the UK and provides the mechanism by which a number of international directives are implemented in the UK;
- b. ***Countryside and Rights of Way (CROW) Act 2000*** – this act strengthens the details of the Wildlife and Countryside Act in relation to Sites of Special Scientific Interest (SSSI) and threatened species;
- c. ***Conservation of Habitats and Species Regulations 2010 (as amended) (Habitats and Species Regulations)*** – these regulations provide protection for European Protected Species and their habitats, which includes bats; and
- d. ***Natural Environment and Rural Communities (NERC) Act 2006*** – the NERC Act puts an obligation on public authorities to have regard for the conservation of species and habitats of principal importance for the purpose of conserving biodiversity. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England.

### 2.2 Policy and Biodiversity Background

The National Planning Policy Framework (NPPF) (2012) sets out government policy regarding consideration of biodiversity in planning decisions. Under the NPPF, the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat.

The ‘UK Post-2010 Biodiversity Framework’ (July 2012) succeeds the UK Biodiversity Action Plan (UK BAP). However, the UK BAP list of priority species remains an important reference source and has been used to help draw up statutory lists of priorities in England. Regional and local planning authorities will use the lists of species on the former UK BAP and those of principal importance for conserving biodiversity to identify the species that should be afforded priority when applying the requirements of the NPPF to promote the protection and recovery of priority species populations, linked to national and local targets.

### 2.3 Bats

All British bat species (*Vespertilionidae* and *Rhinolophidae*) receive full protection under Section 9 of the WCA. They are also identified as European Protected Species on Schedule 2 of the Habitats and Species Regulations, which confers protection under Regulation 41.

Under the legislation outlined above, it is an offence to:

- a. Intentionally or recklessly kill, injure or take a bat;
- b. Possess any part of a bat either alive or dead;
- c. Damage or destroy their roosts or intentionally or recklessly obstruct access to their roosts (whether bats are present or not);
- d. Deliberately disturb bats (including when they are outside their roosts) or intentionally or recklessly disturb roosting bats; or
- e. Sell or attempt to sell any individual bat.

Several species of bat, including soprano pipistrelle *Pipistrellus pygmaeus* and noctule *Nyctalus noctula* are listed as priority species on the former UK BAP and as species of principle importance for the conservation of biological diversity in England under Section 74 of the CRow Act 2000.

At a regional and local level, bats are also listed in the London BAP as a priority species, meaning that bats are considered to be a priority for conservation at all levels of UK planning policy. Under the NERC Act 2006, it is the duty of all governmental departments to take BAP species into account as a material consideration in the determination of planning applications.

## 3 Methodology

---

### 3.1 Desk Study

A biological record search was conducted using Greenspace Information for Greater London (GiGL) to identify historic records of bats within a 2km radius of the survey area.

### 3.2 Field Surveys

Bats roost in a variety of locations at different times of the year, including trees and buildings. Bats may roost within mature trees occupying crevices, splits or disused woodpecker hole cavities within the trunk, broken limbs or behind loose bark, where these features provide protection from the weather and disturbance. Buildings can offer many roosting opportunities for bats, particularly pre-20<sup>th</sup> century or early 20<sup>th</sup> century buildings and traditional agricultural buildings. Roosts are often located within roof voids, or crevices between bricks, wooden boards or under loose flashing for example.

A bat scoping and inspection survey was conducted, which informed the requirements for emergence/re-entry, activity and automated surveys. The survey methodology was developed with reference to the Bat Conservation Trust's (BCT's) Good Practice Guidelines for Bat Surveys (2012).

#### 3.2.1 Scoping Survey

A bat scoping survey was conducted during August 2012 by Arup ecologists. During this survey, the buildings and trees within the survey area were examined to identify any potential roosting locations, as well as any field signs which would identify use by roosting bats, such as droppings, feeding remains and staining.

#### 3.2.2 Activity and Emergence/Re-Entry Surveys

The scoping survey identified the presence of features with a low potential for roosting bats. The survey area was also defined as largely being of low habitat quality for bats. As such, a series of bat activity and emergence re-entry surveys were undertaken during August 2012 and June, August and September 2013.

Three activity and emergence re-entry surveys (two at dusk and one at dawn) were conducted by Arup ecologists experienced in bat work. These surveys were timed to occur between 15 minutes prior to sunset and two hours after, and two hours prior to sunrise until sunrise. On all occasions, each surveyor used a Batbox Duet in combination with a recording bat detector, either a Roland R-05 recorder, Anabat SD2 or Song Meter SM2BAT+.

The surveyors were positioned to observe features identified through the initial bat scoping survey as having potential to support roosting bats and observations of bat species, number, location, registration times and behaviour were made on each survey, including general bat activity across the survey area. In the final hour of each survey, one surveyor undertook a walked transect to establish bat activity across the survey area. In each case, one surveyor remained in position to ensure that the features assessed as having a potential to support roosting bats were

surveyed for one hour and 30 minutes after sunset/prior to sunrise, in accordance with the BCT survey guidelines. The bat data recorded during the surveys was analysed on a computer using appropriate software (Bat Sound or Analook). The emergence return and activity surveys concentrated on three features identified to have a potential to support roosting bats; two trees and one structure all within close proximity to the pond (Figure 1).

The dates, times and weather conditions during each bat survey are provided in Vol 2 Appendix 5.6 Table 1. Conditions during all surveys were suitable for recording bat activity with overnight temperatures consistently above 10°C and no strong wind or rain.

Vol 2 Appendix 5.6 Table 1: Weather Conditions during Activity and Emergence/Re-entry Surveys

Date	Type of Survey	Time of Sunset/Sunrise	Start – Finish Times	Weather Conditions
20 <sup>th</sup> August 2012	Emergence	20:12	19:55-22:30	2/8 cloud cover, dry, light breeze, 17°C.
25 <sup>th</sup> June 2013	Emergence	21:21	21:00-23:25	4/8 cloud cover, dry, light breeze, 13°C.
26 <sup>th</sup> June 2013	Return	04:44	03:00-04:45	4/8 cloud cover, dry, light breeze, 12°C.
9 <sup>th</sup> September 2013	Emergence	19:29	19:10-21:30	5/8 cloud cover, dry, light breeze, 14°C.

### 3.2.3 Automated Surveys

Two automatic bat detectors (either an Anabat SD2 unit or Song Meter SM2BAT+) were deployed in a tree at grid reference TQ 35857 92734, close to the pond (Figure 1), and along Pymme's Brook at grid reference TQ 35654 92304. The detectors were set out in appropriate positions so as to optimise the volume of data collected.

The survey area was defined as being of low habitat quality following the bat scoping survey. As such, the bat detectors were set to record for at least three nights each month (25<sup>th</sup> June – 5<sup>th</sup> July, 31<sup>st</sup> July – 4<sup>th</sup> August, and 9<sup>th</sup> – 16<sup>th</sup> September 2013) from at least 30 minutes before dusk until dawn.

The bat data was analysed using specialist software (Analook) allowing a more in depth understanding of how bats are using the survey area.

### 3.3 Survey Limitations

The findings presented in this report represent those apparent during the period when the survey was undertaken. Variations in these conditions could occur as a result of seasonal factors, population dispersal and changes in habitats over time.

Fauna may travel over wide areas and can have large home ranges. Species which are absent at the time of survey may return or colonise a site at any time in the future.

The bat surveys were limited in extent to the survey area illustrated in Figure 1.

Although the automated detectors were left within the survey area on three occasions, the Pymme's Brook detector malfunctioned during the September survey and did not record any data. However, this is not considered to adversely affect the results as fifteen nights of data was still recorded from June and August. It is considered that adequate survey data was obtained to assess the importance of the survey area to bats.

## 4 Results

### 4.1 Desk Study

The GiGL report stated that three species of bat have been recorded within 2km of the survey area:

- a. Daubenton's bat *Myotis daubentonii*;
- b. Noctule; and
- c. Common pipistrelle *Pipistrellus pipistrellus*.

A further three records of unidentified species belonging to the *Vespertilionidae* family were also reported within 2km of the survey area.

### 4.2 Field Surveys

#### 4.2.1 Scoping Survey

The initial scoping assessment of the trees and buildings indicated that there were features of low potential to support roosting bats. No signs to indicate the presence of roosting bats were recorded during the survey. The inspected structures and trees assessed as having potential to support roosting bats are described in Vol 2 Appendix 5.6 Table 2 below. All other trees and structures within the survey area were considered to have no potential to support roosting bats. All buildings were modern and well-sealed, and due to the works within the survey area were situated within a noisy and well lit environment, not conducive to supporting bats. Trees were either immature or did not possess any features in which bats could roost.

Vol 2 Appendix 5.6 Table 2. Features with the potential to support roosting bats

Feature	Map Reference	Description	Level of Bat Potential
Driveway structure	B1	A concrete elevated section of driveway with many gaps and crevices underneath	Low
Tree 1	T1	Mature willow with located close to the pond and River Lee	Low
Tree 2	T2	Mature ash located close to the pond and River Lee with sections of loose bark	Low

#### 4.2.2 Activity and Emergence and Re-Entry Surveys

Bat activity recorded during the surveys is detailed in Vol 2 Appendix 5.6 Table 3. Figure 1 illustrates the foraging and dispersal locations identified during surveys.

Due to the plasticity of a bat call, with each call being adapted to a variety of environmental factors, a call cannot always be identified to species level. Where a species has been identified as pipistrelle species, it falls between the diagnostic features of common and soprano pipistrelle or common and Nathusius' pipistrelle.

Vol 2 Appendix 5.6 Table 3. Data obtained from Bat Activity/Emergence Surveys in 2012 and 2013

Date	Time	Species	Behaviour
20/08/2012	21:00	Common pipistrelle	Commuting near pond.
20/08/2012	21:18	Common pipistrelle	Commuting past trees near pond.
20/08/2012	21:21	Common pipistrelle	Commuting past trees near pond.
20/08/2012	21:27	Common pipistrelle	Two bats commuting past trees near pond.
25/06/2013	21:53	Noctule	Heard on eastern boundary.
25/06/2013	22:18	Noctule	Feeding calls heard along eastern boundary
25/06/2013	22:20	Common pipistrelle	Foraging near pond.
25/06/2013	22:26	Common pipistrelle	Foraging near pond.
25/06/2013	22:51	Common pipistrelle	Foraging near pond.
25/06/2013	22:55	Common pipistrelle	Foraging near pond.
25/06/2013	23:01	Common pipistrelle	Commuting along tree line near pond.
25/06/2013	23:07	Common pipistrelle	Commuting along tree line near pond.
25/06/2013	23:11	Common pipistrelle	Foraging near pond.
25/06/2013	23:18	Noctule	Heard on eastern boundary.
26/06/2013	03:51	Noctule	Commuting along Pymme's Brook.
26/06/2013	04:00	Noctule	Heard on eastern boundary.
26/06/2013	04:04	Noctule	Heard on eastern boundary.
26/06/2013	04:09	Noctule	Heard on eastern boundary.
09/09/2013	20:27	Common pipistrelle	Foraging along eastern boundary.
09/09/2013	20:34-20:36	Common pipistrelle	Foraging near pond – constant passes.
09/09/2013	20:37-20:45	Common pipistrelle	Foraging near pond – constant passes.

Two species of bat (noctule and common pipistrelle) were identified during the course of these surveys. Low to moderate levels of bat activity were recorded around the pond and the area of shrubs at grid reference TQ 35788 92423, where

foraging behaviour was observed at times during all surveys. Throughout the course of these surveys, only one bat was recorded along Pymme's Brook.

During the first emergence survey, common pipistrelle was first observed at 21:00. On the second emergence survey, the same species was observed at 22:20. On the final survey, common pipistrelle was observed at 20:27, closely followed by further regular calls.

All these calls were recorded around an hour after sunset which would suggest that there is low potential for these bats to be roosting close by. Pipistrelle species are known to emerge from roost sites from half an hour after sunset (Hundt, 2012).

All of the noctule calls were recorded around half an hour after sunset or half an hour before sunrise. Noctule are known to emerge from their roosts around sunset time, so this would suggest there is a low potential for these bats to be roosting close to the survey area.

No bats were seen to emerge from or return to any of the survey trees or buildings.

### 4.2.3 Automated Detector Surveys

A summary of the results obtained from the three automated surveys conducted at the two locations is displayed in Vol 2 Appendix 5.6 Table 4.

Although the automated detectors were left in-situ for at least 5 nights during each deployment, Vol 2 Appendix 5.6 Table 4 only details the nights during which bat calls were recorded. In total, 7 nights of data was obtained from the pond static and 4 nights from the Deepphams Sewage Treatment Works (STW) outflow channel static over the course of the automated surveys. A total of 117 registrations were recorded from 4 species of bat; common pipistrelle, soprano Pipistrelle, Nathusius' pipistrelle and noctule.

Common pipistrelle activity dominated the records from the pond static with a optimum bat activity index (BAI) of 11 – 12 during two surveys. A minimal number of calls from other species, including Nathusius' pipistrelle, were also recorded in this location.

Vol 2 Appendix 5.6 Table 4. Data obtained from Automated Detector Surveys

Survey Period	Date	C.pip	S.pip	N.pip	Pip	Noc.	Total Passes
<b>Pond</b>							
25/06/2013 – 05/07/2013	26/06/2013					3	<b>3</b>
<b>Bat Activity Index</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.27</b>	
31/07/2013 – 04/08/2013	31/07/2013	7					<b>7</b>
	01/08/2013	32	7		4		<b>43</b>
	02/08/2013	13	1		1		<b>15</b>
	03/08/2013	6			1		<b>7</b>
<b>Bat Activity Index</b>		<b>11.6</b>	<b>1.6</b>	<b>0</b>	<b>1.2</b>	<b>0</b>	

Survey Period	Date	C.pip	S.pip	N.pip	Pip	Noc.	Total Passes
09/09/2013	09/09/2013	15	1	5		1	22
– 10/09/2013	10/09/2013	9		5	2		16
<b>Bat Activity Index</b>		<b>12</b>	<b>0.5</b>	<b>5</b>	<b>1</b>	<b>0.5</b>	<b>43</b>
<b>Pymme's Brook</b>							
25/06/2013	26/06/2013					1	1
– 05/07/2013	27/06/2013					1	1
	30/06/2013					1	1
<b>Bat Activity Index</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.27</b>	
31/07/2013	01/08/2013			1			1
– 04/08/2013							
<b>Bat Activity Index</b>		<b>0</b>	<b>0</b>	<b>0.2</b>	<b>0</b>	<b>0</b>	

## 5 Conclusions and Recommendations

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### 5.1 Bat Roosts

No bat roosts were identified during the course of the survey. The first bats recorded after sunset and the last bats recorded before sunrise were most frequently noctule within approximately 30 minutes of sunset/sunrise times, and common pipistrelle recorded approximately after 45 - 60 minutes. Therefore, it is thought unlikely that there is a bat roost within or in close proximity to the survey area.

### 5.2 Foraging Habitat and Dispersal Corridors

Most activity was recorded around the pond and adjoining woodland, with foraging being prevalent in both these areas. A minimal number of bat calls were recorded along Pymme's Brook in the west of the survey area, both during activity and automated detector surveys. Survey results also indicated the use of the River Lee as a key dispersal corridor by noctule which were heard commuting and foraging along the eastern boundary of the survey area.

The automated recorders provided valuable information regarding the species diversity within the survey area, especially with respect to Nathusius' pipistrelle. Although this species is known to be present in London<sup>1</sup>, Nathusius' pipistrelle was not recorded in the data search and thus these records are notable in this urban environment. It is recommended that these records, as well as the other species records, are submitted to Greenspace Information for Greater London, to further inform their distribution in London.

In the context of the wider environment, Edmonton EcoPark provides a small foraging resource and dispersal corridor for a low number of bats, specifically common, soprano and pipistrelle bats and noctule. They were recorded dispersing along the tree lines that connect this survey area to other parks and green spaces, such as the River Lee itself and the wider area of the Lee Valley, as well as local parks and amenity areas such as Lee Valley Golf Course and Pymme's Park.

### 5.3 Recommendations

#### 5.3.1 Further Survey Work

No further surveys are recommended, although update surveys will likely be required to inform a future planning application, should two years elapse prior to submission.

#### 5.3.2 Lighting

Appropriate measures should be implemented to avoid the disturbance of foraging and commuting bats during any development construction period, as well as during the operation of future development, in line with the BCT's guidelines.

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<sup>1</sup> <http://www.londonbats.org.uk/>

Lighting should not be directed towards the pond and associated small wooded area or along the River Lee, which currently provides valuable foraging and commuting habitat for pipistrelle bats.

The following general measures should also be employed:

- a. Low or high pressure sodium lamps should be used where possible instead of mercury or metal halide lamps;
- b. Lighting should be directed to where it is needed and accessories such as hoods, cowls, louvres and shields used to minimise spillage. Lights should not be directed towards the waterways or the woodland strip, or any bat boxes;
- c. The height of lighting columns should be minimised; and
- d. Light levels should be as low as guidelines permit and be turned off when not required.

### 5.3.3 Habitat Enhancements

The pond and surrounding wooded area has been identified as a foraging resource for bats and is located along the River Lee, which acts as a dispersal corridor. If possible this area should be retained and protected during any demolition, construction and operation works. However, should development be necessary on this area of the survey area, mitigation for the loss of this habitat will be required. This could involve the enhancements to Enfield Ditch/Pymmes Brook and native tree planting to create improved foraging habitat. This would ideally provide habitat linkage to the River Lee Navigation. The replacement habitat should be of equal or greater biodiversity quality than that lost. Mitigation measures will be subject to further assessment as part of the formal environmental impact assessment process.

Native species planting is also recommended that would attract insects that bats prey upon. Vegetation along the western boundary should be retained or new trees, scrub and/or hedgerows planted. Any new planting should be interconnected and remain unlit to potentially provide new flight lines for bats.

Should a future development incorporate an appropriate building adjacent to the pond or wooded area, we recommend the installation of bat boxes onto retained trees. These should be orientated ensuring that they are exposed to the sun for part of the day. South-facing locations should be avoided, as the boxes may overheat. Access should not be cluttered with structures or vegetation, to ensure a clear flight line. They should be located along foraging and/or commuting corridors, in sheltered and dark locations, away from artificial lighting.

## Figures

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- Legend**
- Survey Area
  - Transect Route
  - ↔ Foraging and Dispersal
  - X Low Potential Features
  - Pymme's Brook Static Detector
  - Pond Static Detector

P1	10-10-13	ZW	AB	-
Issue	Date	By	Chkd	Appd

Metres

0      50      100      200

**ARUP**

13 Fitzroy Street  
 London W1T 4BQ  
 Tel +44 20 7636 1531 Fax +44 20 7580 3924  
 www.arup.com

Client  
 North London Waste Authority

Job Title  
 Edmonton EcoPark

**Figure 1 -  
2013 Bat Surveys**

Scale at A3  
**1:4,000**

Job No 230751-05	Drawing Status <b>ISSUE</b>
Drawing No <b>001</b>	Issue <b>P1</b>

Source: Esri, DigitalGlobe, GeoEye, Iacubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.7  
2013 BREEDING BIRD SURVEY REPORT

AD06 .02

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North London Waste Authority  
**North London Heat and Power  
Project**  
2013 Breeding Bird Survey Report

Issue 2 | 8 May 2015



This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 232185-71

**Ove Arup & Partners Ltd**  
13 Fitzroy Street  
London  
W1T 4BQ  
United Kingdom  
[www.arup.com](http://www.arup.com)

**ARUP**

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Figure 2 Bird Surveys Amber List Species Territory Map

Figure 3 Bird Surveys: Green List and Non-listed Species Territory Map

## Appendix A

Raw Survey Methods

## Appendix B

Estimated Number of Breeding Territories

# 1 Introduction

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Ove Arup and Partners Ltd (Arup) was commissioned by North London Waste Authority (NLWA) to undertake a breeding bird survey of Edmonton EcoPark, Advent Way, London, N18 3AG. UK grid reference: TQ 35767 92649. The survey area lies adjacent to the A406 at its southern end, and watercourses form the east and west boundaries. A water treatment works lies to the north of the survey area.

Breeding bird surveys were carried out over six visits between March and June 2013. Surveys were undertaken to identify species breeding at the survey area, or utilising the survey area in other ways - such as for foraging - and to give an indication of the bird communities present at the survey area.

The survey results will be used to inform development proposals considering the importance of the survey area for breeding bird species, which may be a constraint to the proposed works. The 'survey area' includes all areas of proposed works. Habitats of importance to breeding birds within the survey area include: trees and shrubs, scrub, watercourses and buildings.

## 1.1 Legislation

All wild birds (defined as species which are resident or are visitors to the UK, but generally not game birds) are protected by the Wildlife and Countryside Act 1981 (as amended). As far as planning and development is concerned, it is an offence to kill, injure or take any wild bird. Some species, listed in Schedule 1 of the Act, are protected by special provisions because of their rarity and it would constitute an offence to disturb them at any time.

Further to the protection listed above, some bird species are also included as key features of importance within European protected sites named Special Protection Areas (SPAs), which are afforded protection through the provisions of the Conservation of Habitats and Species Regulations 2010 (known as the "Habitats Regulations"). As a result, appropriate consideration needs to be made of the potential effects on the populations of birds which are features of SPAs caused by development plans or projects. This process is known as a Habitat Regulations Assessment (HRA). Planning consent may only be granted for a project if the conclusion of the HRA is that the development will not give rise to an adverse effect on the integrity of a European site (including consideration of imperative reasons of overriding public interest and potential compensatory requirements). Temporal and spatial patterns of bird distributions need to be considered as part of the HRA process, to ensure birds which could be part of the SPA populations are fully considered.

Bird species that have undergone a population decline in the UK over the last 25 years are also included in the Red and Amber Lists of conservation concern (Eaton *et al* 2009):

- a. *Red List*: species that are globally threatened, whose population or range has declined rapidly in recent years, and those whose populations have declined historically and not exhibited any signs of recovery. Species that have experienced a population decline of >50 per cent; and
- b. *Amber List*: species with an unfavourable conservation status in Europe, whose populations have declined moderately in recent years, including species that show a historical decline but whose populations have shown a substantial increase, species that are rare, with localised populations and those species of international importance with UK populations and species that have experienced a population decline or breeding range decline of 25 per cent to 49 per cent.

The UK Biodiversity Action Plan (BAP) was produced in accordance with the 1992 UN Convention on Biological Diversity. It describes the UK's biological resources and commits a detailed plan for the protection of these resources, focusing on key habitats and species considered to be of particular significance to nature conservation within a UK context.

The London BAP (LBAP) promotes the protection and enhancement of the area's most important and distinctive animals, plants and habitats, as well as its regional-level contribution to the UK Action Plan.

Under the Natural Environment and Rural Communities (NERC) Act 2006, it is the duty of all governmental departments to take BAP species into account as a material consideration in the determination of planning applications.

As a result of new drivers and requirements, the 'UK Post-2010 Biodiversity Framework', published in July 2012, has now succeeded the UK Biodiversity Action Plan. In particular, due to devolution and the creation of country-level biodiversity strategies, much of the work previously carried out under the UK BAP is now focussed at a country level. Additionally, international priorities have changed: the framework particularly sets out the priorities for UK-level work to support the Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020 and its five strategic goals and 20 'Aichi Targets', agreed at the CBD meeting in Nagoya, Japan, in October 2010; and the new EU Biodiversity Strategy (EUBS) in May 2011. The UK BAP lists of priority species and habitats remain, however, important and valuable reference sources.

## 2 Methodology

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### 2.1 Desk Study

Searches of available internet resources were carried out to gather information on sites designated for their nature conservation interest which are present either within or close to the survey area and to ascertain whether any protected or notable bird species are listed as features on these sites. Data from the GiGL database was accessed to discover which bird species which had been recorded within 2km of the survey area.

### 2.2 Field Survey

The general principles of the Common Bird Census (CBC) methodology (Marchant, 1983, Bibby et al, 2000) was employed during each of the six survey visits. The CBC methodology was designed by the British Trust for Ornithology (BTO) to monitor populations of common breeding birds, particularly song birds, which are most vocally active during the early morning.

The whole survey area was included, with the surveyors able to walk to within at least 10m of all areas, ensuring all birds present could be seen and/or heard. A pair of 8x32 binoculars was used for observations. Any birds recorded in close proximity to the survey area (within 10m) were also recorded to give an idea of the species present in a 'buffer zone' around the survey area. The section of the River Lee adjacent to the eastern boundary was also included. This was to ensure that any notable species which were close to the survey area, and which therefore could potentially be affected by future activities, were recorded. During the surveys, all birds that were seen or heard, together with evidence of breeding behaviour were recorded on large scale maps using the standard CBC notation.

Surveys were carried out by experienced ornithologists and ecologists who are capable of identifying bird species both from sight and from their full repertoire of calls and songs. The survey maps of birds recorded on each of the six visits were then compared to determine where species had been recorded in the same locations on multiple occasions suggesting the presence of a breeding territory. This information, combined with direct evidence of breeding such as nests, juvenile birds or adult birds carrying nest material or food, has been used to produce territory maps for all species which exhibited breeding behaviour within the survey area. The information gathered was also used to assess the species diversity and abundance within the survey area, which also indicates the key habitats and areas in terms of breeding birds.

### 2.3 Limitations

No account can be made for the presence or absence of species on any one survey occasion, since they may travel over wide areas and/or have large home ranges. Protected bird species may visit the survey area at any future time. However, professional judgement and experience allows for the likely presence of these species to be predicted with sufficient certainty so as to not significantly limit the validity of these findings.

No surveys can ever produce a definitive list of species or population sizes however; based on professional opinion; it is considered that the surveys have produced a robust assessment of the populations and species diversity within the area surveyed.

## 3 Results

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### 3.1 Desk Study

#### 3.1.1 Designated Sites

A desk-based search shows that there are three sites with European or national designation within the search area and one Local Nature Reserve (LNR). These are as follows:

- a. The River Lee is designated as an SPA and as a Ramsar site;
- b. Chingford Reservoirs Site of Special Scientific Interest (SSSI);
- c. Walthamstow Reservoirs SSSI; and
- d. Ainslie Wood LNR.

The River Lee qualifies for SPA designation under section 4.1 for its wintering population of bittern (*Botaurus stellaris*) and section 4.2 for wintering numbers of both shoveler (*Anas clypeata*) and gadwall (*Anas strepera*).

The River Lee qualifies for the Ramsar designation due to the presence of a nationally rare plant and invertebrate species, but also qualifies under Criterion 6 for the wintering populations of shoveler and gadwall.

Chingford Reservoirs SSSI is designated due to being one of the major wintering grounds for wildfowl and wetland birds in the London area and holds nationally important wintering numbers of some species, including: shoveler and great crested grebe (*Podiceps cristatus*). The reservoirs also support one of London's principal wintering gull roosts.

Walthamstow Reservoirs SSSI is designated for its large number of breeding wildfowl and its heronry. The heronry is of national importance, with large numbers of breeding grey heron (*Ardea cinerea*) which consistently places it in the top five breeding sites in the country for this species. Wintering numbers of shoveler and tufted duck (*Aythya fuligula*) regularly reach levels of national importance.

Ainslie Wood LNR contains a diverse range of tree and shrub species as well as a large number of woodland birds including: tawny owl (*Strix aluco*), treecreeper (*Certhia familiaris*), nuthatch (*Sitta europaea*), great spotted woodpecker (*Dendrocopos major*), long tailed tit (*Aegithalos caudatus*) and blackcap (*Sylvia atricapilla*).

### 3.2 Field Survey

A total of 35 species of bird were recorded at the survey area during 2013. These are discussed below. The species have been split into sections with reference to their protection/rarity status. The dates, times and weather conditions for each survey undertaken can be found in Appendix A.

Vol 2 Appendix 5.7 Table 1 includes all species recorded at the survey area and indicates their likely breeding status. Vol 2 Appendix 5.7 Table 2 lists notable species recorded along with their designation(s).

Vol 2 Appendix 5.7 Table 1: All bird species recorded and their breeding status within the survey area

Common Name	Scientific Name	Breeding Status
Canada Goose	<i>Branta canadensis</i>	Confirmed breeding
Teal	<i>Anas crecca</i>	Non-breeding
Mallard	<i>Anas platyrhynchos</i>	Probable breeding
Cormorant	<i>Phalacrocorax carbo</i>	Non-breeding
Grey Heron	<i>Ardea cinerea</i>	Non-breeding
Moorhen	<i>Gallinula chloropus</i>	Probable breeding
Coot	<i>Fulica atra</i>	Non-breeding
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Non-breeding
Common Gull	<i>Larus canus</i>	Non-breeding
Lesser Black-backed Gull	<i>Larus fuscus</i>	Non-breeding
Herring Gull	<i>Larus argentatus</i>	Non-breeding
Great Black-backed Gull	<i>Larus marinus</i>	Non-breeding
Feral Pigeon	<i>Columba livia domesticus</i>	Confirmed breeding
Wood Pigeon	<i>Columba palumbus</i>	Confirmed breeding
Collared Dove	<i>Streptopelia decaocto</i>	Non-breeding
Common Swift	<i>Apus apus</i>	Non-breeding
Magpie	<i>Pica pica</i>	Confirmed breeding
Carrion Crow	<i>Corvus corone</i>	Confirmed breeding
Blue Tit	<i>Cyanistes caeruleus</i>	Confirmed breeding
Great Tit	<i>Parus major</i>	Confirmed breeding
Swallow	<i>Hirundo rustica</i>	Non-breeding
Long-tailed Tit	<i>Aegithalos caudatus</i>	Probable breeding
Chiffchaff	<i>Phylloscopus collybita</i>	Probable breeding
Blackcap	<i>Sylvia atricapilla</i>	Confirmed breeding
Common Whitethroat	<i>Sylvia communis</i>	Non-breeding
Wren	<i>Troglodytes troglodytes</i>	Confirmed breeding
Starling	<i>Sturnus vulgaris</i>	Confirmed breeding
Blackbird	<i>Turdus merula</i>	Confirmed breeding
Robin	<i>Erithacus rubecula</i>	Confirmed breeding
Dunnock	<i>Prunella modularis</i>	Confirmed breeding
House Sparrow	<i>Passer domesticus</i>	Confirmed breeding
Pied Wagtail	<i>Motacilla alba</i>	Confirmed breeding
Chaffinch	<i>Fringilla coelebs</i>	Confirmed breeding
Greenfinch	<i>Chloris chloris</i>	Probable breeding
Goldfinch	<i>Carduelis carduelis</i>	Probable breeding

Vol 2 Appendix 5.7 Table 2: Notable species recorded

Common Name	Birds of Conservation Concern List Category	Other Designations
Teal	Amber	
Mallard	Amber	
Black-headed Gull	Amber	
Common Gull	Amber	
Lesser Black-backed Gull	Amber	
Herring Gull	Red	NERC, UK BAP, LBAP
Great Black-backed Gull	Amber	
Swift	Amber	
Swallow	Amber	
Common Whitethroat	Amber	
Starling	Red	NERC, UK BAP, LBAP
Duncock	Amber	NERC, UK BAP, LBAP
House Sparrow	Red	NERC, UK BAP, LBAP

The bird species encountered during each of the surveys have been assessed and the results have been used to produce a map showing the territories of breeding birds that are present within the survey area. The breeding bird figures have been split by species protection/rarity (e.g. Birds of Conservation Concern (BoCC) red list, amber list) and are shown on Figures 1-3.

### 3.2.1 Birds of Conservation Concern Red List Species

Three bird species on the BoCC red list (Eaton, *et al.* 2009) were recorded within the survey area during the surveys in 2013. Of the three species below, two were confirmed to be breeding within the survey area, and one is non-breeding. The three BoCC red list species are discussed in more detail below.

Confirmed breeding:

- a. House sparrow; and
- b. Starling.

Non-breeding:

- c. Herring gull.

#### 3.2.1.1 Herring Gull

A maximum count of 15 herring gulls was recorded on survey one. This species was recorded in lower numbers (two and four) on visits three and six. Herring gulls observed at the survey area appeared to be resting and/or feeding. The London Bird Report 2009 states that in recent years, the nearest breeding herring gulls were recorded at Walthamstow Reservoir.

### 3.2.1.2 House Sparrow

A maximum count of 26 house sparrows was recorded within the survey area on visit one. This species was seen in similar numbers on every survey visit. The majority of records were from the area in the north-west of the survey area, around the buildings and in the shrubs and climbing plants near Salmon's Brook. House sparrow was a confirmed breeding species within the survey area, with several observations of adults seen carrying food to young and an adult carrying a faecal sac away from a nest.

### 3.2.1.3 Starling

Starling was recorded on all six survey visits. On the first survey, a large flock was recorded and this was the maximum number seen within the survey area – 256 individuals. Starlings form large flocks during the winter and this number decreased significantly in subsequent surveys, as individuals dispersed to breeding territories. Starling was confirmed as breeding within the survey area with numerous observations of adults entering and leaving nest sites and adults seen carrying food, nesting material and faecal sacs. The majority of records were associated with buildings to the north and west of the survey area. Several nests were observed under the elevated section of roadway close the reception area and buildings.

## 3.2.2 Birds of Conservation Concern Amber List Species

Ten species of birds on the BoCC amber list were recorded during the breeding bird surveys in 2013. These are discussed below:

Confirmed breeding:

- a. Dunnock.

Probably breeding:

- b. Mallard.

Non-breeding:

- c. Teal;
- d. Black-headed Gull;
- e. Common Gull;
- f. Lesser Black-backed Gull;
- g. Great Black-backed Gull;
- h. Common Swift;
- i. Swallow; and
- j. Common Whitethroat.

### 3.2.2.1 Teal

Six teal (three pairs) were recorded along Salmon's Brook on the first survey visit. No further sightings of this species were recorded subsequently. The six birds recorded on visit one were likely to be using the Salmon's Brook for feeding purposes before moving off to breeding sites further afield. The London Bird Report 2009 states that there have been no recent records of breeding teal in London. This species is typically thinly distributed in the UK

during the breeding season, with a preference for northern moors and mires (RSPB website 2013).

### **3.2.2.2 Mallard**

This species was observed on every survey visit, with most records associated with Salmon's Brook and the pond in the north-east area of the survey area. No direct evidence of breeding was observed, but mallard is likely to have bred within the survey area, with several pairs seen in suitable breeding habitat.

### **3.2.2.3 Black-headed Gull**

This species was recorded on visit one only when 155 individuals were noted. The majority of the black-headed gulls recorded on this survey were perched on top of buildings at the northern end of the survey area. As with all the gulls recorded within the survey area, this species was likely to be utilising the survey area for resting and/or feeding and not for breeding purposes.

### **3.2.2.4 Common Gull**

Common gulls were seen on four out of the six visits, with the majority of observations being flyover records. The largest count for this species was 11 birds on visit one.

### **3.2.2.5 Lesser Black-backed Gull**

This species was recorded on five out of the six visits with a maximum count of 17 on visit one. Most records were of birds flying over the survey area.

### **3.2.2.6 Great Black-backed Gull**

Great black-backed gull was recorded on three out of the six visits with a maximum count of eight on visit one.

### **3.2.2.7 Common Swift**

Swifts were recorded foraging over the survey area in small numbers (eight and seven) on visits five and six. This species is likely to breed in suitable buildings close by and was utilising the area above the survey area for feeding.

### **3.2.2.8 Swallow**

Four swallows were recorded feeding over the River Lee (adjacent to the eastern boundary of the survey area) on visit five. This species is likely to breed in suitable buildings in the vicinity of the survey area.

### **3.2.2.9 Common Whitethroat**

This species was recorded singing in scrub alongside the River Lee on visits five and six. Common whitethroat was therefore considered to breed in this area but not to breed within the survey area itself.

### 3.2.2.10 Dunnock

Dunnock was recorded on five out of six survey visits. It was present in small numbers (a maximum count of four) and was confirmed as a breeding species by the presence of a juvenile on visit six. The shrubs and scrubby areas of the survey area are clearly important for this species, with the majority of records coming from these habitats, particularly the scrub to the east of the survey area.

### 3.2.3 Non-listed Species

There were also 22 non-listed species recorded during the breeding bird surveys in 2013 which have no specific nature conservation importance and have not experienced recent population declines and as such are listed on the green BoCC list (Eaton *et al.*, 2005), or not listed at all, e.g. Canada goose (*Branta canadensis*). None of these were recorded in significant numbers nor was there a high diversity of these species present. The non-listed species recorded were considered to be a typical assemblage of species which would normally be associated with the types of habitats present and were consistent with those present in similar habitats in the wider area.

## 3.3 Appraisal

The survey area is approximately 16 ha in extent, consisting predominantly of an operational waste handling facility with associated infrastructure, which also contains small amounts of natural and semi-natural habitat.

Large areas of the survey area are dominated by hard standing and buildings. Natural and semi-natural habitats within the survey area include: mature trees, vegetated boundaries, a small pond, ruderal vegetation, introduced shrubs, amenity grassland and young plantation woodland. The eastern and western boundaries of the survey area consist of watercourses.

From the species observed during the surveys, the following habitats are deemed the most valuable within the survey area for breeding/potentially breeding birds. Examples are given of species which were regularly associated with these habitats within the survey area:

- a. Buildings and hardstanding - House Sparrow, Starling, Pied Wagtail;
- b. Salmon's Brook - Mallard, Moorhen;
- c. Pond - mallard, Moorhen, Canada Goose;
- d. Trees and woodland - Blackbird, Chiffchaff, Chaffinch, Goldfinch, Blue Tit, great tit, Long-tailed Tit; and
- e. Scrub and shrubs - Dunnock, Blackcap, Wren.

## 4 Conclusions

---

A total of 35 species were recorded within the survey area during the surveys, with 16 species being confirmed as breeding and a further six species considered likely to have bred during 2013. The remaining 13 species were deemed to be non-breeding and were utilising the survey area in other ways – i.e. foraging and resting.

Fuller (1980) devised standard procedures for evaluating breeding bird communities on different types of sites. Recording the number of species present at a site can provide a simple measure of species diversity from which to confer a level of conservation importance to a site. For breeding birds, the standard qualifying levels provided by Fuller are as follows: national importance, 85+ species; regional importance, 70-84 species; county importance, 50-69 species; local importance, 25-49 species.

The number of confirmed breeding species for the survey area totalled 16, which falls outside the range for local importance. It may be argued that proof of breeding was not achieved for some species which may indeed have been breeding within the survey area, so this figure could well be higher. For example, if those species listed as ‘probable’ breeders were included, the total would be closer to the range for local importance (22).

The survey area supports an assemblage of birds which is considered typical for the habitats present and in the wider locality. The diversity and abundance of the bird assemblages within the study area should continue to be monitored during and post-works.

### 4.1 Legal Implications

All bird species within the UK and their nests are protected during the breeding season. It is an offence under the Wildlife and Countryside Act 1981 (as amended) to damage, disturb or destroy the eggs or nest, while it is in use, of a wild bird.

A number of bird species are also listed either as priority species under the UK Biodiversity Framework (JNCC, 2012) or under the Section 41 list of Species of Principal Importance to England (NERC, 2006). This means that the presence of any of these species recorded breeding within the survey area would be a material consideration in the determination of any applications for development consent. The following species listed under Section 41 were confirmed as breeding within the survey area: Dunnock, Starling and House Sparrow.

In terms of species included as key features of the nearby Lee Valley SPA, none of these were recorded within the survey area and it seems very unlikely that the proposed development would have any negative impact upon the Lee Valley SPA.

### 4.2 Mitigation Principles

It is recommended that the following mitigation principles are followed as part of the mitigation strategy, with the aim of maintaining, as far as possible, the current species diversity in line with the Code of Construction Practice (CoCP):

- a. It is assumed that prior to the commencement of construction; a phase of enabling major earthworks will need to be undertaken. This is likely to entail the removal of vegetation and should therefore be preceded by various species mitigation works as part of an ecological facilitation phase;
- b. During this mitigation phase, it will be necessary to undertake habitat manipulation to remove bird habitat alongside and habitat creation, allowing birds to move out of the area where construction activities are programmed to occur;

- c. The mitigation phase will need to ensure that habitat clearance occurs outside of the breeding bird season to ensure no breeding birds are harmed during construction. If this is not possible, a suitably qualified ecologist/ornithologist will need to check for the presence of breeding birds prior to the commencement of any clearance or construction activities;
- d. The mitigation strategy will also need to consider the potential effects of indirect disturbance events to breeding bird populations. For example, certain construction activities could have indirect disturbance effects such as those caused by increased human presence or particularly noisy construction activities and
- e. The provision of appropriate nest boxes for starling is recommended post-construction. The positioning of these nest boxes should be carefully considered to ensure the maximum opportunity for successful breeding. Dunnock is less likely to use nest boxes and it would be preferable to ensure there are some areas of dense scrub/shrubs and/or bramble for this species to nest in.

### 4.3 Provision of Compensatory Habitat

Potential habitat loss associated with land clearance for the development should be compensated for where possible by creation and enhancement of a range of habitat types provided within the landscape/biodiversity masterplan.

These habitats should reflect the breeding species present within the survey area and include provision for those which nest within buildings such as house sparrow, and starling and those which nest in natural and semi-natural habitats such as scrub, shrubs and trees. Plans should also consider the need for sufficient foraging habitat and habitat connectivity.

## 5 References

---

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<http://www.rspb.org.uk/wildlife/birdguide/name/t/teal/index.aspx>

## Figures

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**Legend**

- Survey Area
- Open water

*Bird Species*

- HS House Sparrow
- SG Starling

**Figure 2:  
Invasive Species Map**

PI	01-05-13	ZW	TM	-
Issue	Date	By	Check	Appd

Metres

0 35,000 70,000 140,000

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57 Broad Street  
London W1T 4EQ  
Tel: +44 20 7325 1521 Fax: +44 20 7325 3924  
www.arup.com

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Job Title  
**North London Heat and Power Project**

Drawing Title  
**Figure 1:  
Bird Surveys - Red List Territory  
Map**

230751-05	IS SUE
Drawing file 001	Issue P1



**Legend**

Survey Area

Open water

*Bird Species*

D. Dunnock

MA Mallard

PI	07-05-13	ZM	TM	-
Issue	Date	By	Check	Appd

Metres

0 35,000 70,000 140,000

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57 Broad Street  
 London W1T 4EQ  
 Tel: +44 20 7520 1921 Fax: +44 20 7520 3924  
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**Figure 2:  
Bird Surveys - Amber List  
Territory Map**

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230751-05 | ISSUE

Drawing file: 001 | Issue: P1



**Legend**

- Survey Area
- Open water

**Bird Species**

- CG Canada Goose
- MH Moorhen
- FP Feral Pigeon
- WP Wood Pigeon
- MG Magpie
- C. Crow
- BT Blue Tit
- GT Great Tit
- LT Long-tailed Tit
- CC Chiffchaff
- BC Blackcap
- WR Wren
- B. Blackbird
- R. Robin
- PW Pied Wagtail
- CH Chaffinch
- GR Greenfinch
- GO Goldfinch

PI	01-05-13	ZVI	TM	-
Issue	Date	By	Check	Appd

Metres

0 30,000 15,000 45,000

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Tel: +44 20 7626 1921 Fax: +44 20 7626 3924  
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Drawing Title  
**Figure 3:  
Bird Surveys - Green and  
Non-Listed Territory Map**

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230751-05 | ISSUE

Drawing file 001	Issue P1
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## Appendix A

### Raw Survey Methods

<b>Date</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Cloud</b>	<b>Rain</b>	<b>Notes</b>
25.03.13	09.45-10.30	2°C	1-2	8/8	None	Cold, some snow still on ground.
22.04.13	08.00-09.00	10 °C	1-2	5/8	None	Bright calm morning.
30.04.13	08.00-09.00	11°C	1-2	4/8	None	Bright sunny morning, but cool.
07.05.13	08.45-09.45	13	0-1	3/8	None	Bright sunny morning, warm.
13.05.13	08.00-09.00	12	1-2	6/8	None	Sunny spells.
12.06.13	07.30-08.30	15	2-3	8/8	Light drizzle	Overcast but mild.

## Appendix B

### Estimated Number of Breeding Territories

Species	Maximum Count	Estimated Number of Breeding Territories
Canada Goose	16	4
Teal	6	0 (Wintering)
Mallard	16	8
Cormorant	3	0 (Flyover)
Grey Heron	1	0 (Flyover)
Moorhen	4	4
Coot	6	0 (River Lee)
Black-headed Gull	155	0 (Non-breeding)
Common Gull	11	0 (Non-breeding)
Lesser Black-backed Gull	17	0 (Non-breeding)
Herring Gull	15	0 (Non-breeding)
Great Black-backed Gull	8	0 (Non-breeding)
Feral Pigeon	28	16
Wood Pigeon	7	3
Collared Dove	1	0 (Flyover)
Common Swift	8	0 (Flyover)
Magpie	4	3
Carrion Crow	81	18
Blue Tit	4	3
Great Tit	4	2
Swallow	4	0 (Flyover)
Long-tailed Tit	4	2
Chiffchaff	1	1
Blackcap	3	3
Common Whitethroat	2	0 (River Lee)
Wren	5	4
Starling	256	12
Blackbird	3	1
Robin	3	3
Duncock	4	4
House Sparrow	26	14
Pied Wagtail	2	2
Chaffinch	4	3
Greenfinch	4	2
Goldfinch	4	1

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.8  
REPTILE REPORT - TEMPORARY  
LAYDOWN AREA

AD06 .02

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North London Waste Authority  
**North London Heat and Power  
Project**  
Reptile Report – Temporary  
Laydown Area

Issue | October 2015

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north london waste authority

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## Appendices

<b>Appendix A : Figure 1: Survey Area</b>	<b>A.1</b>
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## 1 Introduction

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- 1.1.1 Ove Arup and Partners Ltd (Arup) was commissioned by the North London Waste Authority (the ‘Applicant’) to undertake a reptile survey within an area of land to the east of the Edmonton EcoPark known as the ‘Temporary Laydown Area’(see Appendix A – Survey Area).
- 1.1.2 The Applicant is proposing the redevelopment of the Edmonton EcoPark. The North London Heat and Power Project (the ‘Project’) proposes the decommissioning of the current Energy from Waste (EfW) facility at Edmonton EcoPark and the construction of a new Energy Recovery Facility (ERF). During the construction phase of the Project, it is proposed that the Temporary Laydown Area would be used for storage of materials and equipment, for site offices and other temporary buildings and car parking.
- 1.1.3 An Extended Phase 1 Habitat Survey was undertaken within the Temporary Laydown Area during February 2015. The habitats present included rough grassland with scattered scrub and ruderal vegetation - habitats that were identified as being suitable for supporting common reptile species. Reptile surveys were subsequently undertaken and are the focus of this report.

## 2 Scope of work and objectives

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- 2.1.1 The aims and objectives of the reptile survey were to:
- identify the presence, or likely absence, of any reptile species using the Temporary Laydown Area ;
  - identify any requirements for mitigation to ensure legislative compliance; and
  - provide recommendations for appropriate enhancements at the Temporary Laydown Area for reptiles if found to be present.

### 2.2 Policy and guidance

- 2.2.1 Common reptiles, including common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, adder *Viper berus*, grass snake *Natrix natrix*, are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)<sup>1</sup>. This makes it an offence to:
- kill or injure an individual from these species; and
  - trade/sell individuals.
- 2.2.2 The sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and Schedule 2 of The Conservation of Habitats and

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<sup>1</sup> Her Majesty’s Stationary Office (1981). ‘Wildlife and Countryside Act 1981’. [online] Available at <http://www.legislation.gov.uk/ukpga/1981/69/contents>.

Species Regulations 2010 (as amended)<sup>2</sup>, giving these species the status of European Protected Species. In addition to those offences listed above, this also makes it an offence to:

- a. take any individual of these species from the wild;
- b. possess an individual;
- c. intentionally disturb these reptiles whilst occupying a place used for shelter or protection; and
- d. destroy places of rest or shelter.

2.2.3 The Countryside and Rights of Way Act 2000<sup>3</sup> strengthens the Wildlife and Countryside Act 1981 (as amended) and requires Government Departments to have regard for the conservation of biodiversity, in accordance to the Convention on Biological Diversity 1992<sup>4</sup>.

2.2.4 The Natural Environmental and Rural Communities Act 2006<sup>5</sup> puts an obligation on public authorities to have regard to the conservation of species and habitats of principal importance for the purpose of conserving biodiversity. It also lists habitats and species of principal importance for conservation of biodiversity in England under Section 41. These were formally listed under the UK Biodiversity Action Plan (UK BAP), which has been succeeded by the UK Post-2010 Biodiversity Framework<sup>6</sup>.

### **Biodiversity Action Plans**

#### ***UK BAP and the Natural Environmental and Rural Communities Section 41 List***

2.2.5 All species of reptile were also listed as Priority Species under the UK Biodiversity Action Plan (BAP) in addition to local BAPs. These identify the priorities for conservation as required under the Convention on Biological Diversity (CBD) in 1992<sup>7</sup>. The CBD is a detailed plan for conserving key habitats and species considered to be of particular significance within the UK Context. The UK Post-2010 Biodiversity Framework<sup>8</sup> has now succeeded the UK BAP. However, the UK BAP list of priority species and habitats remain as a reference source.

2.2.6 The former UK BAP is also relevant in the context of Section 41 of the Natural Environmental and Rural Communities Act 2006, with UK BAP species listed as being of principal importance for the purpose of

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<sup>2</sup> Her Majesty's Stationary Office (2010) 'The Conservation of Habitats and Species Regulations 2010'. Available at <http://www.legislation.gov.uk/uksi/2010/490/contents/made>.

<sup>3</sup> Her Majesty's Stationary Office, (2000); 'Countryside and Rights of Way Act 2000', Available at: <http://www.legislation.gov.uk/ukpga/2000/37/contents>.

<sup>4</sup> United Nations (UN), (1992); 'Convention on Biological Diversity.'

<sup>5</sup> Her Majesty's Stationary Office, (2006); 'Natural Environment and Rural Communities Act 2006', Available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

<sup>6</sup> JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. Available from <http://jncc.defra.gov.uk/page-6189>

<sup>7</sup> United Nations (UN) (1992); 'Convention on Biological Diversity' [online]. Available at <http://www.cbd.int/convention/> [Accessed 19 July 2014]

<sup>8</sup> JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. 'UK Post-2010 Biodiversity Framework'. July 2012.

conserving biodiversity. Section 41 also states that the Secretary of State must take such steps as appear to be reasonably practicable to further the conservation of the living organisms included on the list, or promote the taking by others of such steps. Consequently, priority habitats and species on this list are of material consideration in planning.

- 2.2.7 Reptile species listed under the former UK BAP which could be supported by the habitats present at the Temporary Laydown Area are:
- a. common lizard;
  - b. slow worm; and
  - c. grass snake.

#### ***London Biodiversity Action Plan***

- 2.2.8 The London Biodiversity Partnership has identified a total of 214 priority species that are under particular threat in London. Planning decisions must take these species into account. Reptiles are one of the species groups identified as needing targeted action to secure their future in London and have their own Species Action Plan<sup>9</sup>.

#### ***Enfield Biodiversity Action Plan***

- 2.2.9 All UK native species of reptile are also included within the London Borough of Enfield's species action plans.<sup>10</sup>

### **3 Methodology**

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- 3.1.1 A total of 27 artificial refugia (consisting of roofing felt), measuring approximately 0.5m by 1m, were distributed in suitable areas of habitat within the Temporary Laydown Area on 1 April 2015. Suitable habitat consisted of rough grassland and the edges of scrub. Roofing felt heats up more quickly than the surrounding environment, providing warm refuges for reptiles, preferential to the surrounding environment. The artificial refugia were left in situ for two weeks, enough time for them to bed down into the grass and for any reptiles present to become accustomed to them, before the first survey was undertaken.
- 3.1.2 Seven survey visits were undertaken between 15 April 2015 and 7 May 2015, in accordance with current best practice guidelines<sup>11,12</sup>. One survey round was conducted on each day to determine presence or likely absence of reptiles. Dates of each visit and weather conditions during each survey are detailed in Vol 2 Appendix 5.8 Table 1.

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<sup>9</sup> <http://www.lbp.org.uk/londonpriority.html>

<sup>10</sup> [http://www.enfield.gov.uk/downloads/file/5182/enfield\\_bap](http://www.enfield.gov.uk/downloads/file/5182/enfield_bap)

<sup>11</sup> Gent, A.H., & Gibson, S. D., eds. 1998. *Herpetofauna workers' manual*. Peterborough. Joint Nature Conservation Committee.

<sup>12</sup> FROGLIFE 1999. Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10.

Vol 2 Appendix 5.8 Table 1: Reptile Survey Visits

Survey Number	Date	Weather conditions
1	15 April 2015	21.8°C, 0/8 cloud cover, light breeze, dry.
2	17 April 2015	14°C, 5/8 cloud cover, moderate breeze, dry.
3	21 April 2015	16.8°C, 3/8 cloud cover, light breeze, dry during survey, showers prior to survey.
4	28 April 2015	12.1°C, 3/8 cloud cover, moderate breeze, dry.
5	30 April 2013	13°C, 4/8 cloud cover, light breeze, dry.
6	5 May 2015	16.5°C, 4/8 cloud cover, strong breeze, dry.
7	7 May 2015	16°C, 5/8 cloud cover, moderate breeze, dry.

## 3.2 Limitations

3.2.1 The first survey (15 April) was undertaken at a time when the ambient temperature was greater than 20°C; conditions in which reptiles may have already dispersed from refuge areas. The remaining six surveys were carried out in optimum temperature conditions for locating reptiles, so this is unlikely to have adversely affected the results of the survey as a whole. The results within the report should be considered as valid for a period of two years after issue.

## **4 Results**

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- 4.1.1 No reptiles were recorded during any of the survey visits. Surveys were conducted during suitable weather conditions, within the optimum survey period and in accordance with current best practice guidelines. As such, it can be assumed that reptiles are likely to be absent from the Temporary Laydown Area.

## **5 Conclusions**

---

- 5.1.1 As no reptiles have been found, it will not be necessary to implement any mitigation measures regarding reptiles within the Temporary Laydown Area and no further action regarding reptiles will be required in terms of the current proposals.

# Appendix A: Figure 1: Survey Area



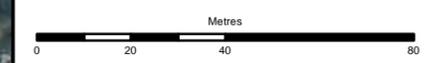
**Legend**

- Application Site Boundary
- Survey Area

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P1	02/07/15	KH	AK	SM
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Revision	Date	By	Chkd	Appd
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**ARUP**

13 Fitzroy Street  
 London W1T 4BQ  
 Tel +44 20 7636 1531 Fax +44 20 7580 3924  
 www.arup.com

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**North London Waste Authority**

Job Title  
**North London Heat and Power Project**

Drawing Title  
**Figure 1: Survey Area**

Scale at A3  
**1:1,500**

Job No <b>235271-10</b>	Drawing Status <b>Issue</b>
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Drawing No <b>001</b>	Revision <b>P1</b>
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.9  
TEMPORARY LAYDOWN AREA:  
INCIDENTAL BIRD RECORDS FILENOTE

AD06 .02

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Subject North London Heat and Power Project

Date 16 July 2015

Job No/Ref 235271-10

## Temporary Laydown Area: Incidental Bird Records Noted During Reptile Surveys

### 1 Background

This Filenote provides details of incidental bird records obtained during reptile surveys within the Temporary Laydown Area. During 2013, a breeding bird survey was undertaken within the current Edmonton EcoPark site and the results of this have been issued previously. The inclusion of the Temporary Laydown Area in the Project proposals meant that an Extended Phase 1 Survey was necessary and this was undertaken in 2015. This survey identified habitats suitable for both reptiles and breeding birds within the Temporary Laydown Area. Reptile surveys were then undertaken during April and May 2015.

No formal bird survey was undertaken within the Temporary Laydown Area. It was considered that habitats present would support common bird species similar to those identified within the adjacent Edmonton EcoPark site and that the detailed protection measures contained in the Code of Construction Practice would ensure that the legislation pertaining to breeding birds would be adhered to during the works. Also, the Temporary Laydown Area is planned to be reinstated as wildflower meadow with scrub boundaries post-construction, meaning the disturbance to birds would be temporary. Incidental sightings of bird species recorded during the reptile surveys were noted and are reported below.

### 2 Incidental bird records

During reptile survey visits, incidental bird sightings confirmed that the area supported common bird species. Vol 2 Appendix 5.9 Table 1 summarises these records:

Vol 2 Appendix 5.9 Table 1: Incidental Bird Records

Common Name	Scientific Name	Notes
Blackbird	<i>Turdus merula</i>	2 pairs
Blackcap	<i>Sylvia atricapilla</i>	1 singing male
Blue tit	<i>Parus caeruleus</i>	1 pair
Chaffinch	<i>Fringilla coelebs</i>	1 singing male
Common whitethroat	<i>Sylvia communis</i>	4 singing males
Dunnock	<i>Prunella modularis</i>	2 singing males

Subject North London Heat and Power Project

Date 16 July 2015

Job No/Ref 235271-10

Common Name	Scientific Name	Notes
Feral pigeon	<i>Columba livia</i> (domest.)	4 flying over
Grey heron	<i>Ardea cinerea</i>	1 flying over
Linnet	<i>Carduelis cannabina</i>	1 pair
Long-tailed tit	<i>Aegithalos caudatus</i>	1 pair
Magpie	<i>Pica</i>	1 pair
Robin	<i>Erithacus rubecula</i>	1 singing male
Starling	<i>Sturnus vulgaris</i>	10 flying over
Swallow	<i>Hirundo rustica</i>	2 feeding above
Woodpigeon	<i>Columba palumbus</i>	4 flying over
Wren	<i>Troglodytes troglodytes</i>	2 singing males

Sixteen species of birds were recorded during reptile survey visits. Of these, 13 are likely to breed within the Temporary Laydown Area. Of the remaining three, two were simply flying over – grey heron and starling – whilst swallow was foraging above the Temporary Laydown Area.

### 3 Conclusions

Of the sixteen species recorded, five were considered ‘notable’ due to their inclusion on the Birds of Conservation Concern (BoCC)<sup>1</sup> red and amber lists. The red and amber lists include species that have undergone a significant population decline in the UK over the last 25. Those on the red list were linnet and starling. The three species on the amber list were common whitethroat, dunnock and swallow. Dunnock, linnet and starling are also listed as UK and London BAP priority species and are included on the Natural Environment and Rural Communities (NERC) Act 2006.

All breeding birds within the Temporary Laydown Area will be protected through the measures contained in the Code of Construction Practice which will ensure that the legislation pertaining to breeding birds will be adhered to during the works.

<sup>1</sup> Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A., Hearn, R.D., Aebischer, N., Gibbons, D.W., Evans A. and Gregory, R.D. (2009). Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds, 102: 296-341.

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NORTH LONDON WASTE AUTHORITY  
NORTH LONDON HEAT AND POWER  
PROJECT

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ENVIRONMENTAL STATEMENT:  
VOLUME 2 APPENDIX 5.10  
LEE PARK WAY BAT REPORT

AD06 .02

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North London Waste Authority  
**North London Heat and Power  
Project**  
Lee Park Way Bat Report

AD06.02

The Planning Act 2008 The Infrastructure Planning  
(Applications: Prescribed Forms and Procedure)  
Regulations 2009 Regulation 5 (2)(a)

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**ARUP**

**nlwa**  
north london waste authority

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# 1 Introduction

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- 1.1.1 Ove Arup and Partners Ltd (Arup) was commissioned by the North London Waste Authority (the 'Applicant') to undertake a bat survey along Lee Park Way, located adjacent to the eastern boundary of Edmonton EcoPark.
- 1.1.2 An ecological walkover survey was undertaken along Lee Park Way on 8 September 2014, which identified two trees that have a potential to support roosting bats. These were crack willow *Salix fragilis* trees located adjacent to the River Lee Navigation at Ordnance Survey national grid reference TQ35933 92662<sup>1</sup>. They were assessed as Category 1 trees according to the Bat Conservation Trust (BCT) guidelines<sup>2</sup>, due to the presence of hollow cavities. During a subsequent survey on 1 April 2015, the Lee Park Way bridge was found to have a moderate potential to support roosting bats, due to the presence of gaps between concrete strips on the underside of the bridge<sup>1</sup>.
- 1.1.3 The Applicant is proposing the redevelopment of the Edmonton EcoPark. The North London Heat and Power Project (the 'Project') proposes the decommissioning and demolition of the current Energy from Waste (EfW) facility at Edmonton EcoPark and the construction of a new Energy Recovery Facility (ERF).
- 1.1.4 A new access route is proposed via Lee Park Way, which falls within the boundary of Lee Valley Site of Metropolitan Importance for Nature Conservation (SMINC). The bridge and trees that have a potential to support roosting bats are due to be retained. However, should these features support roosting bats, the Project could result in disturbance due to proposed lighting along Lee Park Way, particularly given that there is currently no lighting in this part of the Application Site. In addition, the point of access into Edmonton EcoPark is located opposite these trees, meaning that roosting bats would be particularly vulnerable to disturbance associated with headlights and increased traffic over the bridge. The Project may also result in disturbance to foraging and commuting bats along Lee Park Way and the River Lee Navigation.

## 1.2 Scope of work and objectives

- 1.2.1 The aims and objectives of the bat survey were to:
- a. assess the presence or likely absence of roosting bats within the trees and bridge;
  - b. assess the importance of any foraging and commuting habitat for bats along Lee Park Way and River Lee Navigation; and
  - c. identify any requirements for mitigation in light of the survey findings.

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<sup>1</sup> Ove Arup and Partners Ltd (2015) North London Heat and Power Project Phase 1 Report 2015.

<sup>2</sup> Hundt, L. (2012) Bat Surveys: Good Practice Guidelines. 2nd Edition. Bat Conservation Trust.

## 1.3 Legislation and guidance

- 1.3.1 All bat species are fully protected under the Wildlife and Countryside Act 1981<sup>3</sup> (as amended) and The Conservation of Habitats and Species Regulations 2010<sup>4</sup> (as amended) ('Habitats and Species Regulations'), which together make it an offence to:
- intentionally or recklessly capture, kill or injure bats;
  - deliberately disturb bats (including when they are outside their roosts) or intentionally or recklessly disturb roosting bats; or
  - damage or destroy their roosts or intentionally or recklessly obstruct access to their roosts (whether bats are present or not).
- 1.3.2 Under the Habitats and Species Regulations, disturbance includes in particular any disturbance which is likely to impair their ability to survive; breed or reproduce; rear or nurture their young; or hibernate or to affect significantly the local distribution or abundance of the species.
- 1.3.3 The Countryside and Rights of Way Act 2000<sup>5</sup> strengthens the Wildlife and Countryside Act and requires Government Departments to have regard for the conservation of biodiversity, in accordance to the Convention on Biological Diversity 1992<sup>6</sup>.
- 1.3.4 The Natural Environment and Rural Communities Act 2006<sup>7</sup> puts an obligation on public authorities to have regard to the conservation of species and habitats of principal importance for the purpose of conserving biodiversity.

### Biodiversity Action Plans

#### *UK Biodiversity Action Plan and the Section 41 List*

- 1.3.5 Some bat species are listed under relevant Biodiversity Action Plans (BAPs), which identify priorities for conservation as required under the Convention on Biological Diversity. While the UK Post-2010 Biodiversity Framework<sup>8</sup> superseded the UK BAP, but the lists of priority species and habitats continue to provide valuable reference sources while a National Biodiversity Strategy and/or Action Plan is being produced.
- 1.3.6 Bat species listed under the former UK BAP that could be relevant to the Application Site are noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus*. However, of these species, only noctule and soprano pipistrelle have been

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<sup>3</sup> Her Majesty's Stationary Office (1981) Wildlife and Countryside Act 1981. [online] Available at <http://www.legislation.gov.uk/ukpga/1981/69/contents>.

<sup>4</sup> Her Majesty's Stationary Office (2010) The Conservation of Habitats and Species Regulations 2010. Available at <http://www.legislation.gov.uk/uksi/2010/490/contents/made>.

<sup>5</sup> Her Majesty's Stationary Office (2000) Countryside and Rights of Way Act 2000, Available at: <http://www.legislation.gov.uk/ukpga/2000/37/contents>.

<sup>6</sup> United Nations (UN) (1992) Convention on Biological Diversity.

<sup>7</sup> Her Majesty's Stationary Office (2006) Natural Environment and Rural Communities Act 2006, Available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

<sup>8</sup> JNCC and Defra (on behalf of the Four Countries' Biodiversity Group (2012) UK Post-2010 Biodiversity Framework. July 2012. Available from <http://jncc.defra.gov.uk/page-6189>

recorded within the Application Site to date. These previous surveys were carried out in 2013<sup>9</sup> and 2014<sup>1</sup>.

1.3.7 The former UK BAP is relevant in the context of Section 40 of the Natural Environmental and Rural Communities Act 2006, meaning that Priority Species and Habitats are material considerations in planning.

1.3.8 The Secretary of State has published a list of living organisms and habitats of principal importance for the purpose of conserving biodiversity, as required under Section 41 of the Natural Environmental and Rural Communities Act 2006. This is referred to as the Section 41 list and includes the priority species listed under the former UK BAP. Section 41 also states that the Secretary of State must take such steps as appear to be reasonably practicable to further the conservation of the living organisms and types of habitat included in the list, or promote the taking by others of such steps.

***London Biodiversity Action Plan***

1.3.9 The London Biodiversity Partnership has identified a total of 214 priority species that are under particular threat in London. Bats are one of the species groups identified as needing targeted action to secure their future in London and have their own Species Action Plan<sup>10</sup>.

***Enfield Biodiversity Action Plan***

1.3.10 The Enfield BAP identifies bats as a priority for conservation. Although the specific targets and measures have not been defined, it states that a Species Action Plan for bats will be prepared by Enfield Council<sup>11</sup>.

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<sup>9</sup> Ove Arup and Partners Ltd (2013) Edmonton EcoPark 2013 Bat Survey Report.

<sup>10</sup> London Biodiversity Partnership (2007) London's Action Plan. Available at: <http://www.lbp.org.uk/londonpriority.html>

<sup>11</sup> Enfield Council (2011) Nature for People. A Biodiversity Action Plan for Enfield. Available at: [http://www.enfield.gov.uk/downloads/file/5182/enfield\\_bap](http://www.enfield.gov.uk/downloads/file/5182/enfield_bap)

## 2 Methodology

2.1.1 Bat emergence and return surveys were undertaken in June and July 2015, with reference to the BCT guidelines. Both the trees and bridge features were subject to two surveys, comprising a dawn and dusk survey. The dates, times and weather conditions are shown in Vol 2 Appendix 5.10 Table 1.

Vol 2 Appendix 5.10 Table 1: Conditions during the bat surveys

Date	Survey Type	Sunset/Sunrise Times	Start-End Times	Weather Conditions
23/06	Return	04:41	02:50 - 04:45	Minimum temperature 13°C, dry, 7/8 cloud, light wind
06/07	Emergence	21:19	20:50 - 22:49	Minimum temperature 19°C, dry, 5/8 cloud, light wind

2.1.2 Two surveyors were located at both the bridge and the trees during each survey. The surveyors at the bridge were positioned on the towpath to the north and south of the bridge. Those at the trees were located along Lee Park Way, observing the trees from the west. The surveyors were observing potential access/egress points for bats that were identified during the scoping survey, to record any bats emerging from or returning to the features.

2.1.3 The surveyors were each equipped with a Batbox Duet. Two SM2BAT+ (SM2) bat detectors were situated adjacent to the crack willow trees, one beneath the trees and the other overlooking the River Lee Navigation. These locations were selected to compare activity along the river and Lee Park Way. One SM2 detector was situated beneath the Lee Park Way bridge. The SM2 data was analysed using Analook, with reference to current guidelines<sup>12</sup>. This software was used to analyse the recorded bat passes to identify species (where possible), type of bat call and the time of that call.

## 2.2 Limitations

2.2.1 The surveys were carried out at an appropriate time of year and the weather conditions were suitable for recording bats.

2.2.2 During the dusk survey at the bridge, a member of the public lit a large fire and turned on a floodlight on the western bank of the River Lee Navigation at 22:35. This may have affected bat activity in the vicinity, but this is not considered to pose a significant constraint. Should this feature support roosting bats, it would be expected that bats would have emerged by this time. Furthermore, the remainder of this survey (prior to 22:35) and previous surveys were considered to provide sufficient information to assess the value of habitats for foraging and commuting bats.

<sup>12</sup> Jon Russ (2012) British Bat Calls. A Guide to Species Identification. Pelagic Publishing.

- 2.2.3 Given the location of the trees adjacent to the River Lee Navigation, it was not possible to have a clear view of the eastern side of the trees. However, a dawn return survey was carried out to record any swarming activity, which would likely be recorded from Lee Park Way.
- 2.2.4 Bats show great variety in their calls depending on the surrounding habitat and species call parameters overlap, meaning that it was not always possible to identify bats to species level. Bats identified as pipistrelle bats are either common pipistrelle *Pipistrellus pipistrellus* or soprano pipistrelle; or common pipistrelle or Nathusius' pipistrelle *Pipistrellus nathusii*. Furthermore, noctule or Leisler's bat *Nyctalus leisleri* calls were identified as *Nyctalus* sp.

## 3 Results

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3.1.1 The surveyors recorded no activity to indicate the presence of roosting bats within either the bridge or crack willow trees. However, foraging and commuting activity was recorded over the River Lee Navigation and along Lee Park Way. The following species were recorded:

- a. common pipistrelle;
- b. soprano pipistrelle;
- c. Nathusius' pipistrelle;
- d. noctule; and
- e. *Nyctalus* sp.

### 3.2 Dawn survey 23 June

#### Lee Park Way Bridge

3.2.1 The surveyors at the bridge recorded intense common, soprano and Nathusius pipistrelle foraging activity along the River Lee Navigation, including under the bridge, from the start of the survey. All three species were recorded concurrently and the surveyors observed up to three bats at any one time. Nathusius' pipistrelle activity ceased at 03:09, 1 hour and 32 minutes prior to sunrise, while soprano pipistrelle was recorded until 03:46 and common pipistrelle 03:50, 51 minutes prior to sunrise. No bats were observed near to sunrise or were seen returning to the bridge. A total of 866 passes were recorded throughout the survey, including some social calls.

#### Crack Willow Trees

3.2.2 Similar to the results of the bridge survey, intense common, soprano and Nathusius' pipistrelle foraging activity was recorded along the River Lee Navigation, including some social calls. Common and soprano pipistrelle foraging and commuting activity was also recorded along Lee Park Way, over the road and dense vegetation between Lee Park Way and Edmonton EcoPark.

3.2.3 Common and soprano pipistrelle activity was recorded from the start of the survey, with Nathusius' pipistrelle being recorded slightly later, from 02:55. Nathusius' pipistrelle was recorded until 03:35, soprano pipistrelle until 03:54 and common pipistrelle 03:57, 44 minutes before sunrise. In addition, noctule and *Nyctalus* sp foraging activity was recorded intermittently from 03:37 until 04:07, but was not observed. A total of 603 passes were recorded by the detector located adjacent to the River Lee Navigation, compared to 176 by the detector beneath the trees. No bats were observed near to sunrise or were seen returning to the trees.

### **3.3 Dusk survey 6 July**

#### **Lee Park Way Bridge**

- 3.3.1 Common and soprano pipistrelle and noctule were observed commuting and foraging along the River Lee Navigation, with 21 calls recorded. Noctule was recorded intermittently from 22:01 and the end of the survey, with common and soprano pipistrelle recorded later, from 22:32. No bats were recorded near to sunset or seen emerging from the bridge.

#### **Crack Willow Trees**

- 3.3.2 The detector located adjacent to the River Lee Navigation recorded noctule first, at 22:03, with *Nyctalus* sp. then recorded intermittently during the remainder of the survey. This activity was not observed. Common pipistrelle and *Pipistrellus* sp. were then recorded from 22:09, with Nathusius' pipistrelle joining later, at 22:30 and soprano pipistrelle occasionally from 22:34. This included some social calls. Common and soprano pipistrelle foraging activity was observed along Lee Park Way from 22:10, with up to two bats being observed at the same time. A total of 94 calls were recorded by the detector located below the willow trees, compared with 406 by the detector adjacent to the river. No bats were recorded near to sunset or were observed emerging from the trees.

## 4 Discussion

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- 4.1.1 Many of the calls recorded by the detector located beneath the crack willow trees were of poor quality. It is considered likely that these calls were associated with activity along the River Lee Navigation and were distorted due to interference associated with dense vegetation (including the crack willow trees) between Lee Park Way and the river. The positioning of the detectors in this part of the Application Site therefore provided a valuable means for comparison in bat activity between the river and Lee Park Way. More bat activity was recorded along the River Lee Navigation when compared with Lee Park Way.
- 4.1.2 A greater variety of species were recorded along the River Lee Navigation than along Lee Park Way. The River Lee Navigation provides important foraging and commuting habitat for common, soprano and Nathusius' pipistrelle and noctule. The bat passes identified as *Nyctalus* sp. were considered most likely to be noctule. These calls were characteristic of noctule calls made in clutter, most likely associated with foraging activity along the River Lee Navigation. Lee Park Way also provides commuting and foraging habitat for common and soprano pipistrelle.
- 4.1.3 A higher level of bat activity was recorded during the return survey at both locations. Similar activity was observed by surveyors located at the bridge and the crack willow trees. However, some key differences were noted. During the return survey, noctule and *Nyctalus* sp. were only recorded at the willow trees. Furthermore, a reduced level of bat activity was recorded during the emergence survey at the bridge when compared with the trees, with Nathusius' pipistrelle also not recorded at the bridge. These observations may both relate to disturbance associated with the floodlight and fire lit at the bridge during the emergence survey.
- 4.1.4 Since Nathusius' pipistrelle activity ceased relatively early during the return survey and started later during the emergence survey, when compared with common and soprano pipistrelle, it is considered likely that this species was roosting further afield. No bats were recorded near to dusk or dawn and it is considered that these features did not support roosting bats at the time of the surveys.

## 5 Mitigation

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5.1.1 Sensitive lighting design would be employed along Lee Park Way to minimise disturbance to foraging and commuting bats associated with the Project. Lighting can be particularly harmful if it illuminates important foraging habitats such as river corridors, woodland edges and hedgerows used by bats. Studies have shown that continuous lighting creates barriers that some bat species cannot cross<sup>13</sup>. The landscape strategy would also consider measures to shield the River Lee Navigation from lighting and maximise foraging opportunities. These measures would be implemented to ensure no net loss in biodiversity in line with the National Policy Statement (NPS) Biodiversity and Geological Conservation. The implementation of these measures is considered to be of particular importance given that these areas fall within the boundaries of Lea Valley SMINC. These measures are detailed below.

### 5.2 Lighting

5.2.1 There would be no light spill over the River Lee Navigation and lighting along Lee Park Way and along the eastern boundary of Edmonton EcoPark, including EcoPark House, would be designed to minimise disturbance to foraging and commuting bats.

5.2.2 The following measures are proposed in line with the BCT Interim Guidelines regarding artificial lighting and wildlife<sup>13</sup>:

- a. The locations of luminaires would be designed to prevent light spill over the River Lee Navigation, for example through not locating, or minimising the number of, luminaires along the western side of Lee Park Way;
- b. Light levels would be as low as guidelines permit and lights would be turned off when not required. Where not needed constantly for safety reasons, lighting would be activated by motion sensors to prevent unnecessary disturbance;
- c. Narrow spectrum lights that emit minimal ultra-violet light and peak higher than 550nm (yellow, orange and red wavelengths) would be used where possible;
- d. Flat cut-off lanterns or accessories would be employed to minimise light spill; and
- e. The height of lighting columns would be considered to minimise spillage.

### 5.3 Landscape Strategy

5.3.1 Dense and tall planting is proposed between Lee Park Way and the River Lee Navigation to create a barrier to light spill associated with luminaires and headlights. The same applies to the boundary between Edmonton

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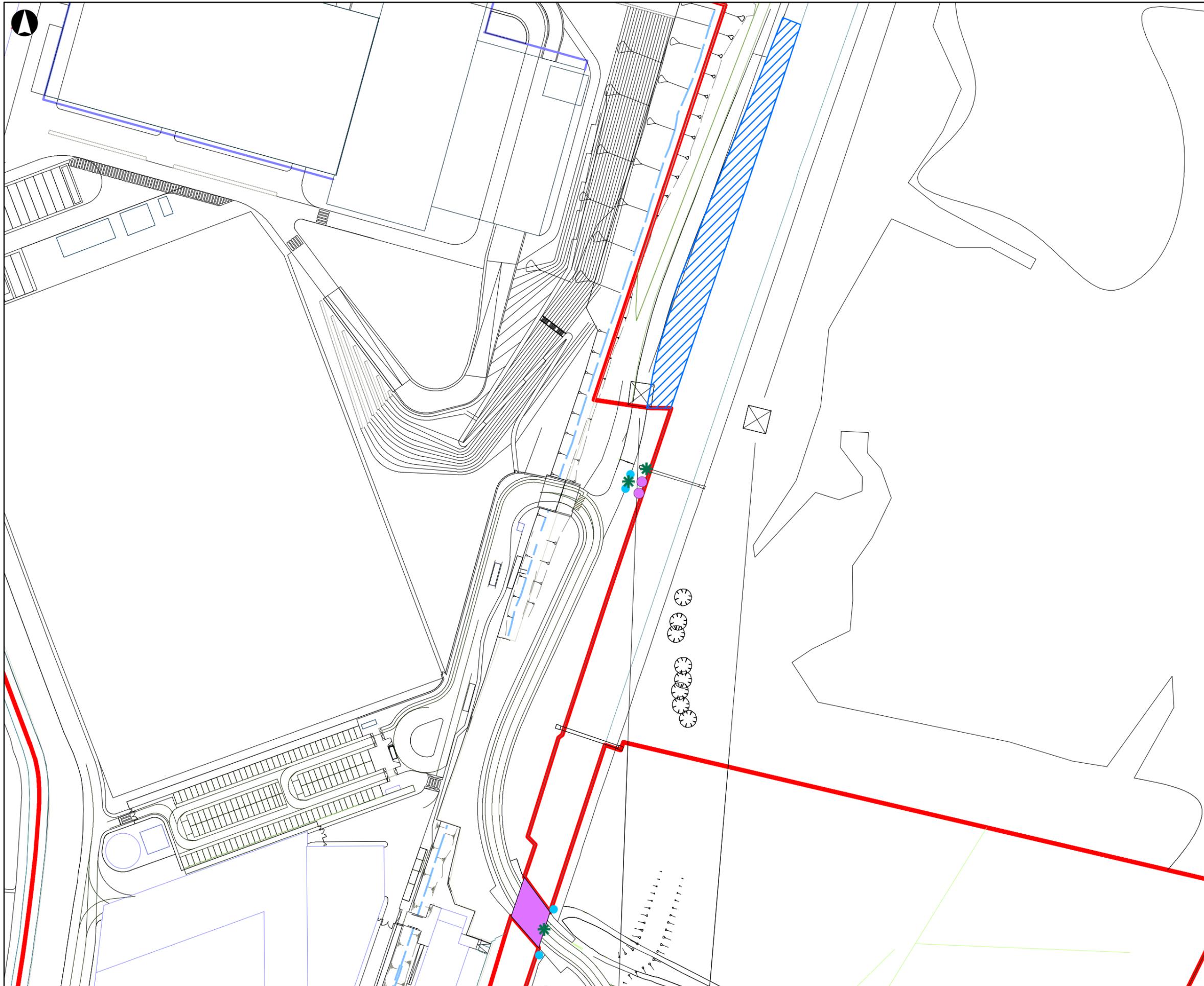
<sup>13</sup> Bat Conservation Trust (2014) Artificial lighting and wildlife. Interim Guidance: Recommendations to help minimise the impact artificial lighting.

EcoPark and Lee Park Way. Dark areas would be maintained within Lee Valley SMINC where possible.

- 5.3.2 The landscape strategy for Lee Park Way would include native scrub, trees and wildflowers, including nectar-rich species that would attract insects and therefore provide a source of food for bats. Plant species would be selected that vary in colour, fragrance and shape, including pale flowers that are attractive to insects at dusk.
- 5.3.3 In line with the NPS which promotes seeking 'opportunities to conserve and enhance biodiversity', bat boxes have been recommended for installation on mature trees along Lee Park Way. These would ideally be located to the north of the Application Site boundary, to avoid disturbance associated with the Project. These should be targeted towards pipistrelle and noctule bats, such as Schwegler IFF and 2FN bat boxes.

## Figures

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**Legend**

- Application Site Boundary
- Proposed Area For Bat Boxes
- Surveyed Features
- SM2BAT+ Locations
- Surveyor Location

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# ARUP

13 Fitzroy Street  
 London W1T 4BQ  
 Tel +44 20 7636 1531 Fax +44 20 7580 3924  
 www.arup.com

Client

**North London Waste Authority**

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**North London Heat and Power Project**

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**Figure 1:  
 Lee Park Way Bat Survey Plan**

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Series 06 Environmental  
Statement

**NORTH LONDON WASTE  
AUTHORITY**

1b Berol House, 25 Ashley Road  
Tottenham Hale  
N17 9LJ

Telephone: 020 8489 5730

Fax: 020 8365 0254

Email: [project@northlondonheatandpower.london](mailto:project@northlondonheatandpower.london)