COMBINED SCREENING AND SCOPING REQUEST REPORT

Havering Data Centre
Land at North Ockendon, Havering

DIGITAL REEF

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SLR

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1.0 Introduction

1.1 Purpose of Report

This Combined Screening and Scoping Request Report has been prepared by SLR Consulting Limited ('SLR') on behalf of Digital Reef ('the Applicant') to facilitate the adoption of both a Screening and Scoping Opinion by the London Borough of Havering Council ('LBoH') with regard to the following:

> *'Proposed development of up to 390,000 square metres of data centre floorspace (Class B8 use) and associated built development, electrical substations, distribution and infrastructure equipment, battery storage or grid balancing infrastructure, renewable energy technology and green energy production, together with indoor agriculture farming operations, green energy production, highways works, engineering works, hard and soft landscaping, and formation of associated parkland/enhanced biodiversity habitat and visitors centre at North Ockendon, Havering, Greater London.'*

The Screening and Scoping Opinions adopted by LBoH will assist the preparation of any forthcoming Environmental Impact Assessment prepared to support the development. Further information regarding the development proposals is provided in Section 4 of this report.

This Combined Screening and Scoping Request Report ('CSSRR') outlines the statutory context of the submission, a description of the site location and land use, information on the proposed development works, a description of the environmental setting of the site (i.e. identifying any sensitive receptors), an opinion of the likely significant effects and other information pertinent to the Combined Screening and Scoping Request.

1.2 The Applicant & Land Ownership

1.2.1 Land Ownership

The site is owned and operated as agricultural land associated with four working farms. An Options Agreement has been entered into with the associated landowners, but they do not form part of the development team promoting these proposals.

1.2.2 Digital Reef

Digital Reef is the combination of two experienced UK brands: leading urban regeneration company Reef Group, with a portfolio in excess of 4bn in community developments since founding in 2001; and Tynton Group Ltd – digital economy experts responsible for the creation and growth of world leading digital infrastructure solutions including UKCloud and Ark Data Centres.

1.2.3 SLR Consulting Limited

Established in 1994, SLR is a dynamic, responsive and a fast-growing environmental consultancy with an unrivalled reputation for providing high quality tailored services. With offices in Europe, Australasia, South Africa, and North America, we provide global advice and support on a wide range of strategic and site-specific environmental issues to a diverse and growing base of business, regulatory and governmental clients.

SLR has a strong planning and EIA team, with all senior members of the team professionally qualified (RICS or RTPI) and many have acted as Expert Witnesses at Public Inquiries. SLR is recognised by the Institute of Environmental Management and Assessment (IEMA) as a recommended consultancy to prepare and review

Environmental Statements ('ES') for Environmental Impact Assessments ('EIA'). Further information on SLR can be found on its corporate website at www.slrconsulting.co.uk.

1.3 Report Structure

This Combined Screening and Scoping Request Report is structured as follows:

- Section 2 – Background & Legislative Context;
- Section 3 – Site Location & Land Use;
- Section 4 – Description of Development;
- Section 5 – EIA Screening Considerations;
- Section 6 – EIA Scoping Considerations;
- Section 7 – Environmental Issues to be 'Scoped In';
- Section 8 – Environmental Issues to be 'Scoped Out'; and
- Section 9 – Closure.

2.0 Background & Legislative Context

This section of the document seeks to detail the background of the submission of this Combined Screening and Scoping Request Report and how the content of this report interrelates to the requirements laid out within the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ('the Regulations').

Each section below provides the pertinent background and requirements for the preparation of any subsequent Environmental Impact Assessment ('EIA') in support of the development proposals.

2.1 Legislative Requirements

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ('the Regulations') came into force on 16th May 2017. The findings of the Environmental Impact Assessment undertaken on the proposed development will be reported in an Environmental Statement ('ES') prepared in accordance with Regulation 18 and Schedule 4 of the Regulations.

2.2 The Screening Exercise

It should be noted that, at the time of this submission, no Screening Opinion has been adopted by LBoH. Whilst the applicant is already of the opinion that the scheme falls to be considered under Schedule 2 of the Regulations and is likely to be deemed EIA development, this submission seeks to clarify this position and for LBoH to formally adopt a Screening Opinion to this effect.

On this basis, and in accordance with Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended). This submission contains sufficient information to satisfy the requirements of Regulation 6(2) for the adoption of a Screening Opinion by LBoH, as follows:

(a) A plan sufficient to identify the land;

(b) A description of the development, including in particular –

  i. A description of the physical characteristics of the development and, where relevant, of demolition works;

  ii. A description of the location of the development, with particular regard to the environmental sensitivity of geographical areas likely to be affected;

(c) A description of the aspects of the environment likely to be significantly affected by the development;

(d) To the extent the information is available, a description of any likely significant effects of the proposed development on the environment resulting from –

  i. The expected residues and emissions and the production of waste, where relevant; and

  ii. The use of natural resources, in particular soil, land, water and biodiversity; and

(e) Such other information or representations as the person making the request may wish to provide or make, including any features of the proposed development or any measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment.

The above information is provided within the subsequent sections of this Combined Screening and Scoping Request Report. Regulation 6(4) continues by stating that a person compiling the information outlined above must, where relevant, take into account:

(a) The criteria set out in Schedule 3; and

(b) The results of any relevant EU environmental assessment which are reasonably available to the person requesting the screening opinion.

2.3 The Scoping Exercise

In accordance with Regulation 15 (1) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended), where a proposal is EIA development, the local planning authority may state in writing its opinion as to the scope and level of detail of the information to be provided in the environmental statement (a 'Scoping Opinion').

Regulation 15 (2) continues by confirming that a Scoping Request must include:

i. A plan sufficient to identify the land;

ii. A brief description of the nature and purpose of the development including its location and technical capacity;

iii. An explanation of the likely significant effects of the development on the environment; and

iv. Such other information or representations as the person making the request may wish to provide or make.

The above information is provided within the subsequent sections of this Combined Screening and Scoping Request Report. When detailing the topics to be 'Scoped In' to the EIA, information has been provided regarding any key legislative, guidance, planning policy or background information that has informed the methodology proposed. The report also details the baseline and methodology of the assessments considered necessary to assess the environmental impact of the proposed development.

In addition to the above, Section 6 of this report also details the 'Approach to the EIA', including overarching methodological approaches relating to the structure and format of the Environmental Statement, consideration of alternatives and the assessment of cumulative impacts.

Notwithstanding, when forming a Scoping Opinion, the Council should be proportional in their approach to the EIA. It should be remembered that there are three main purposes in undertaking the scoping exercise:

- To focus the EIA on the environmental, social, and economic issues and potential impacts which need the most thought and attention;
- To provide a means to discuss methods of impact assessment and reach agreement on the appropriate way forward; and
- To identify those issues which are unlikely to need detailed study and will not, therefore, form part of the EIA.

The Scoping process should address the concerns of all of those likely to be affected by the proposals, including

statutory and non-statutory consultees, and the public. Good practice also requires that the opinion of stakeholders should also be sought at this stage. Stakeholders should be asked to identify their concerns, sources of and gaps in information, and additional options or sites that may not have been considered.

The content of this report is intended to provide the Council and the relevant consultees with the information necessary to come to an opinion on the issues that should be addressed in the ES. The value of all consultees and stakeholders in inputting into the Scoping Opinion is recognised by the Applicant and SLR, and both parties will be pleased to discuss any aspect of the proposed scheme with any relevant organisation.

2.4 Pre-Submission Consultation

No formal pre-submission consultation has been undertaken to date. Notwithstanding, initial discussions have taken place with professional officers from LBoH and Council members regarding the process and programme for the consenting route for the development proposals. A masterplan presentation has also been made which set out the initial development proposals and which was attended by planning officers. However, these discussions are limited in scope and are non-binding until such time as a Heads of Terms and Memorandum of Understanding have been formally entered into between the Applicant and the Council.

As such, this Combined Screening and Scoping exercise seeks to continue this consultation process entered into with the Council at this point in time.

3.0 Site Location & Land Use

This section of the document seeks to detail the site location with regard to its position within the London Borough of Havering (LBoH) and adjoining administrative areas, along with its setting at a local level and its relationship with the surrounding area.

3.1 Wider Site Location

The site is situated within the eastern confines of the LBoH, lying immediately adjacent to the administrative boundary with Thurrock Council, whilst the boundary with Brentwood Borough Council also lies approximately 1.4km to the north.

The site is located within an area of open agricultural land, close to the village of North Ockendon, and located between the settlements of Upminster to the west, South Ockendon to the south, Bulphan to the east and West Horndon to the northeast. The site is located approximately 30 km east of central London, 12 km north of the River Thames and 4 km east of Upminster town centre. The London Orbital Motorway (M25) is situated less than a kilometre west of the site boundary.

Figure 1 below provides a wider site location plan which shows the site in context with the nearby urban areas and the M25. The road identified with the blue line is the proposed route of the M25 Lower Thames Crossing route which links the M25 near North Ockendon, links to the A14 near Orsett and onward to the A2 via a tunnel under the River Thames.

An at scale copy of a formal Red Line Site Location Plan is provided within Appendix 1.

Figure 1: Wider Site Location

3.2 Site Setting

The site is set within the Metropolitan Green Belt and as a result, the surrounding area is predominantly

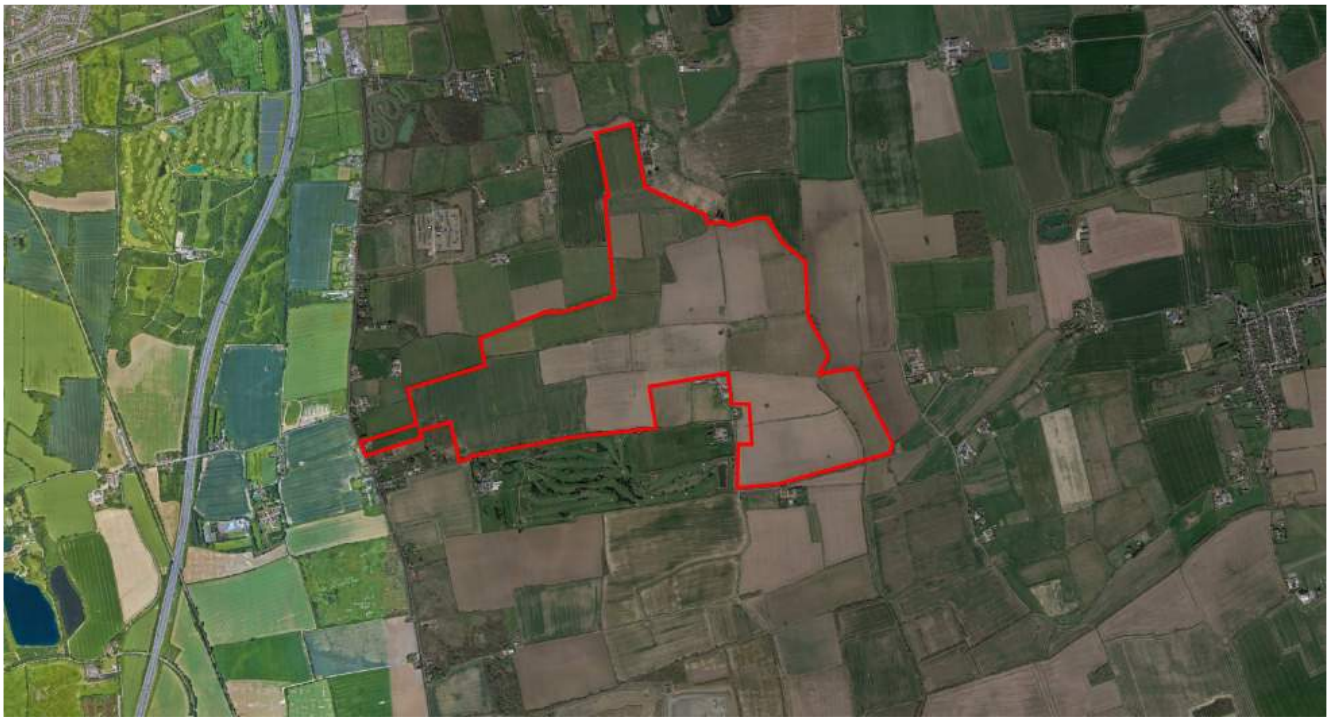
agricultural in nature. Notwithstanding, there are a number of small villages, hamlets and farmsteads located to the north, south and west of the site. Furthermore, the Top Meadow Golf Course and Hotel are located immediately to the south of the site on the opposite side of Fen Lane. The site is bound by a sewage water treatment works to the north, whilst Warley Substation is located less than a kilometre northwest of the site.

With regard to the village of North Ockendon, this is irregular in form layout, with properties located along Ockendon Road (B186), Church Lane and Fen Lane. Part of the village is allocated as a conservation area, whilst there are a number of listed buildings in the area. The site is not within the conservation area, it is located less than a kilometre east of it. The Cranham conservation area is also located 2km west of the site.

3.3 Proposed Site

The proposed site itself measures at approximately 472 acres (191 hectares). The site comprises agricultural land used for arable farming, associated field boundaries, ditches and vehicular access tracks/roads. An Aerial Image of the site is shown within Figure 2 below.

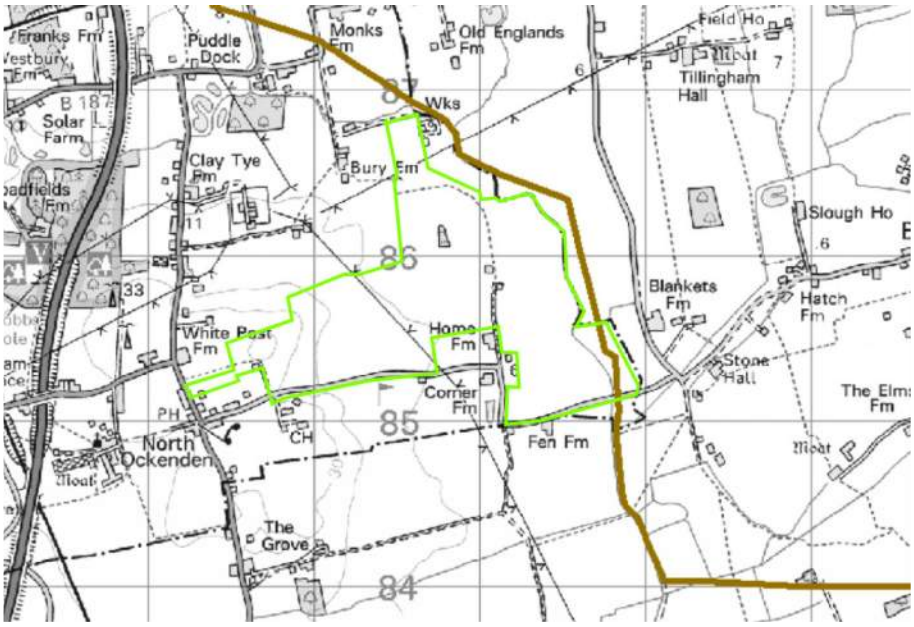
Figure 2: Aerial Image of Site



The site is bound to the north and east by the Mar Dyke, a small river that flows into the Thames Estuary at Purfleet. There are a number of overhead power lines in the vicinity of the site which distribute power to and from the nearby Warley Substation. One power line briefly crosses the centre of the site in a north-west to south-east alignment, crossing Fen Lane and across the eastern confines of the Top Meadow Golf Course.

In addition to the above, there are also a number of LHP and NHP gas mains in the vicinity of the site, whilst a LHP gas main crosses the western most confines of the site in a north-south alignment. The site is also crossed by the Hordon to Abridge High Pressure Gas Pipeline and is therefore within the HSE's 'major hazard zone' associated with this infrastructure. The alignment of this infrastructure is shown on Figure 3 below.

Figure 3: Hordon to Abridge High Pressure Gas Pipeline (brown line)



British Geological Survey records indicate the site is underlain by superficial deposits of Head and Alluvium, overlying solid deposits of London Clay on Chalk at significant depth.

With regard to Agricultural Land Classification, the Natural England revised 2010 mapping identifies that the site predominantly contains land of 'Good to Moderate' quality (Grade 3 – shown in green). However, the field within the western most confines of the site is identified as being of 'Excellent' quality (Grade 1 – blue). An extract of the Natural England mapping is provided within Figure 4 below.

However, it should be emphasised that (whilst updated in 2010) this mapping was created on a desk-based review originally undertaken (and mapped) in 1988. As such, it is of significant age and it may be necessary to undertake a field survey to definitively establish the true Agricultural Land Classification of the site and whether its loss would have any demonstrable effect upon the provision of agricultural land within this region of the country.

Figure 4: Agricultural Land Classification[1]

[1] Natural England Website - http://publications.naturalengland.org.uk/category/5954148537204736

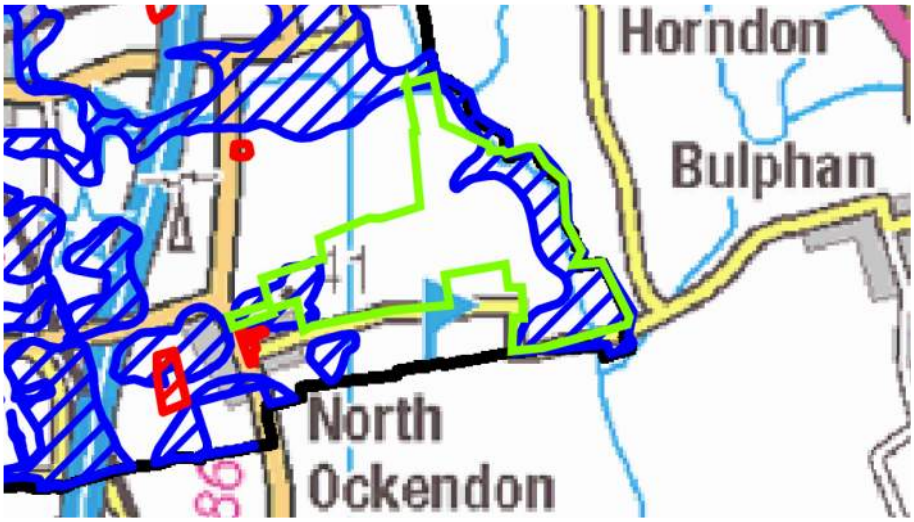
The Mar Dyke is an Environment Agency designated Main River, with an estimated upstream catchment of 28.28km^2 adjacent to the site. The flood zones associated with the river extend significantly into the site. A large area of the eastern part of the site is located within Flood Zones 2 and 3 and although there are flood defences adjacent, the site doesn't appear to benefit from them.

Figure 5: Environment Agency Flood Map for Planning

Bullens and Herds, a Grade II Listed building was situated in the centre of the site (Historic England Listing ref. 1079929). The listing of the building indicated that it is in a state of ruin and there is little evidence of the building today. On this basis, an application for de-listing was submitted to Historic England and the building was formally removed from the List of Buildings of Special Architectural and Historic Interest on 28th September 2022 (application ref. 1480184).

Whilst the site does not appear to have any archaeological records within it and the site has no history of significant development, the western and eastern most confines of the site are identified as an Archaeology Priority Area within the Greater London Archaeology Advisory Service (GLAAS).

Figure 6: Archaeology Priority Areas[2]



[2] https://historicengland.org.uk/content/docs/planning/apa-havering-pdf/

The entirety of the London Borough of Havering was declared as an Air Quality Management Area on 11th September 2006. This was due to the pollutant levels of Nitrogen Dioxide (NO_2) and Particulate Matter (PM_{10}) associated with Road Transport emissions within the Borough.

As can be noted from Figure 7 below, there are two Public Rights of Way which cross through the site. Footpath 233 from Fen Lane to Bury Farm which crosses through the centre of the site; and Footpath 283 from Fen Lane to Ockendon Road which crosses the western most confines of the site.

Figure 7: Public Rights of Way[3]

Whilst the Council's Aurora Mapping System[4] indicates that Tree Preservation Order (TPO) ref. 12/93 is located within the proposed site, this is incorrect and it actually immediately abuts the southern boundary of the site. An aerial image overlaying the site boundary (red line) and TPO boundary (black overlay) is provided within Figure 8 below; as can be noted, the small copse of trees within the red line area are not subject to the extant TPO.

Figure 8: TPO 12/93 – Ladyville Lodge, Fen Lane, North Ockenden

[3] https://www.havering.gov.uk/download/downloads/id/2291/map_4_-_upminster_brentwood_warley.pdf
[4] http://maps.havering.gov.uk/

3.4 Policy & Designations

The sections below seek to outline the relevant national and local planning policy for the development proposals at this point in time.

3.4.1 The National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2021 sets out the government's planning policies and planning objectives and how they should be applied.

Section 2 of the NPPF relates to 'achieving sustainable development' stating in paragraph 7 that "*The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs."*

Paragraph 8 continues by identifying that "*Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):*

a) ***An economic objective*** *– to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.*

b) ***A social objective*** *– to support strong, vibrant and healthy communities by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being;*

c) ***An environmental objective*** *– to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".*

Paragraph 11 relates to considering sustainable development in plans and decision making, placing a clear presumption in favour of sustainable development. "*For* ***decision-taking*** *this means:*

…

c) *approving development proposals that accord with an up-to-date development plan without delay; or*

d) *where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:*

   i. *the application of policies in this framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or*

   ii. *any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this framework taken as a whole".*

Section 6 of the NPPF relates to 'building a strong, competitive economy', with paragraph 81 identifying that

"Planning policies and decisions should help create the conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development. The approach taken should allow each area to build on its strengths, counter any weaknesses and address the challenges of the future."

Section 9 of the NPPF relates to 'promoting sustainable transport'. Paragraph 110 states that in assessing proposals for development, *"it should be ensured that:*

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree".

Paragraph 111 states that development proposals should only be refused on highways grounds "*if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe"*. Paragraph 112 states that proposals for development should:

a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure, and attractive – which minimise the scope for conflicts between pedestrians, cyclists, and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible, and convenient locations".

Section 11 relates to 'making effective use of land' with Paragraph 119 stating that *"Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions".*

Paragraph 124 states that planning decisions *"should support development that makes efficient use of land, taking into account:*

a) the identified need for different types of housing and other forms of development, and the availability of land suitable for accommodating it;

b) local market conditions and viability;

c) the availability and capacity of infrastructure and services – both existing and proposed – as well as their potential for further improvement and the scope to promote sustainable travel modes that limit future car use;

d) the desirability of maintaining an area's prevailing character and setting (including residential gardens), or of promoting regeneration and change; and e) the importance of securing well-designed, attractive, and healthy places".

Section 12 relates to 'achieving well-designed places' with Paragraph 126 stating that *"Good design is a key aspect of sustainable development"*. Paragraph 130 continues by stating that planning decisions should *"ensure that developments:*

a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;

b) are visually attractive as a result of good architecture, layout, and appropriate and effective landscaping;

c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);

d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming, and distinctive places to live, work and visit;

e) optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks; and

f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience".

Paragraph 134 states that *"significant weight should be given to:*

a) development which reflects local design policies and government guidance on design, taking into account any local design guidance and supplementary planning documents such as design guides and codes; and/or
b) outstanding or innovative designs which promote high levels of sustainability, or help raise the standard of design more generally in an area, so long as they fit in with the overall form and layout of their surroundings."

Section 13 of the NPPF relates to protecting Green Belt land. Paragraph 137 states that *"The fundamental role of Green Belt policy is to prevent urban sprawl"*, whilst paragraph 138 identifies that the *"Green Belt serves five purposes:*

a) to check the unrestricted sprawl of large built-up areas;

b) to prevent neighbouring towns merging into one another;

c) to assist in safeguarding the countryside from encroachment;

d) to preserve the setting and special character of historic towns; and

e) to assist in urban regeneration, by encouraging the recycling of derelict and other urban land."

Paragraph 148 states that when considering a development proposal affecting the greenbelt, local authorities should *"ensure that substantial weight is given to any harm to the greenbelt. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations"*.

Section 14 relates to *'meeting the challenge of climate change, flooding and coastal change.'* Paragraph 157 states that in planning decisions, *"…local planning authorities should expect new development to:*

a) *comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and*

b) *take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption".*

Paragraph 159 relates to planning and flood risk, stating that *"Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere."*

Paragraph 167 states that *"When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment"* and that *"Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*

a) *within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*

b) *the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*

c) *it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*

d) *any residual risk can be safely managed; and*

e) *safe access and escape routes are included where appropriate, as part of an agreed emergency plan".*

Paragraph 169 states that "*major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:*

a) *take account of advice from the lead local flood authority;*

b) *have appropriate proposed minimum operational standards;*

c) *have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and*

d) *where possible, provide multifunctional benefits".*

Section 15 relates to *'conserving and enhancing the natural environment'*. Paragraph 174 states planning

decisions *"…should contribute to and enhance the natural and local environment by:*

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate"

Paragraph 180 relates to *'habitats and biodiversity'* stating that when making planning decisions*, "…local planning authorities should apply the following principles:*

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts) adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."

With regard to 'ground conditions and pollution', Paragraph 185 identifies that planning decisions should *"ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development

– and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."

Section 16 relates to *'conserving and enhancing the historic environment'*. Paragraph 189 states that in determining proposals for development *"local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance."*

Paragraph 197 states that in planning decisions, *"local planning authorities should take account of:*

a) the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;

b) the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and

c) the desirability of new development making a positive contribution to local character and distinctiveness"

3.4.2 The London Plan (March 2021)

The London Plan was formally published by the Mayor on 2nd March 2021 and the following policies are considered relevant to the proposed development:

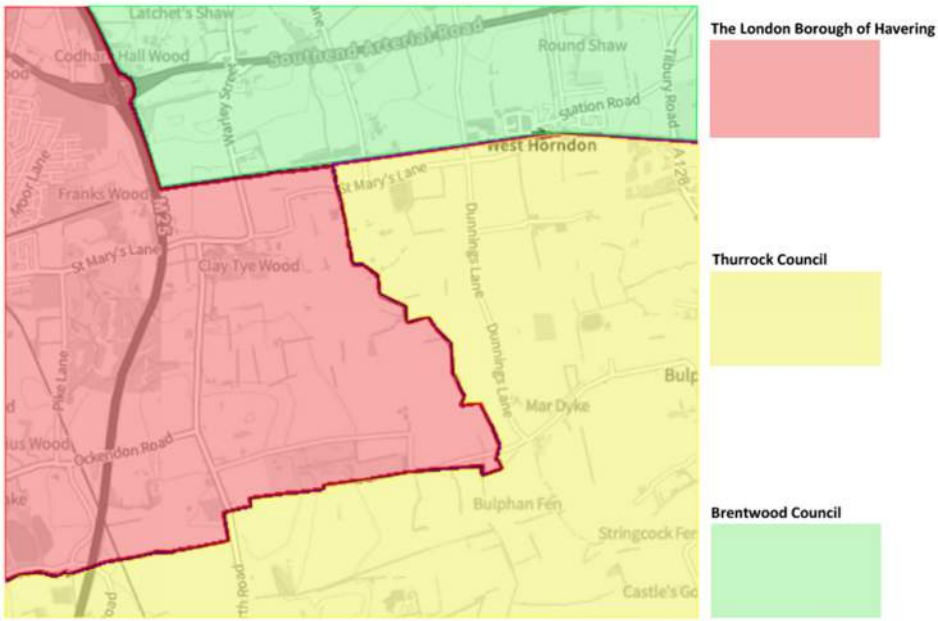
- Policy GG2 (Making best use of land);
- Policy GG5 (Growing a good economy);
- Policy GG6 (Increasing efficiency and resilience);
- Policy D2 (Infrastructure requirements for sustainable densities);
- Policy D3 (Optimising site capacity through the design-led approach);
- Policy D4 (Delivering good design);
- Policy D5 (Inclusive design);
- Policy D8 (Public realm);
- Policy D11 (Safety, security, and resilience to emergency);
- Policy D14 (Noise);
- Policy E2 (Providing suitable business space);

- Policy E4 (Land for industry, logistics and services to support London's economic function);
- Policy E11 (Skills and opportunities);
- Policy HC1 (Heritage conservation and growth);
- Policy G1 (Green infrastructure);
- Policy G2 (London's Green Belt);
- Policy G4 (Open space);
- Policy G6 (Biodiversity and access to nature);
- Policy G7 (Trees and woodland);
- Policy G8 (Food growing);
- Policy SI 1 (Improving air quality);
- Policy SI 2 (Minimising greenhouse gas emissions);
- Policy SI 3 (Energy infrastructure);
- Policy SI 4 (Managing heat risk);
- Policy SI 12 (Flood risk management);
- Policy SI 13 (Sustainable drainage);
- Policy T1 (Strategic approach to transport);
- Policy T4 (Assessing and mitigating transport impacts);
- Policy T7 (Deliveries, servicing and construction); and
- Policy T9 (Funding transport infrastructure through planning policy).

3.4.3 Local Planning Policy

The site is located entirely within the administrative bounds of LBoH. However, the site abuts the administrative boundary of Thurrock to the east and south, whilst the administrative boundary of Brentwood is also located in relative proximity to the north. These administrative boundaries are illustrated on Figure 9 below.

Figure 9: Administrative Boundaries



The Havering Local Plan 2016-2031 was formally adopted in November 2021, thereby replacing the Core Strategy and Development Control Policies Development Plan Document (2008). On this basis, the applicable local planning policy comprises of the following:

- Policies Map (South) (2021);
- Havering Local Plan 2016-2031 (November 2021);
- Joint Waste Development Plan (2012);
- Site Specific Allocations (2008); and
- Romford Area Action Plan (2008).

It should be noted that there are no policies of relevance contained within either the Joint Waste Development Plan (2012) and Romford Area Action Plan (2008). As such, these documents and their associated policies are not referenced further below.

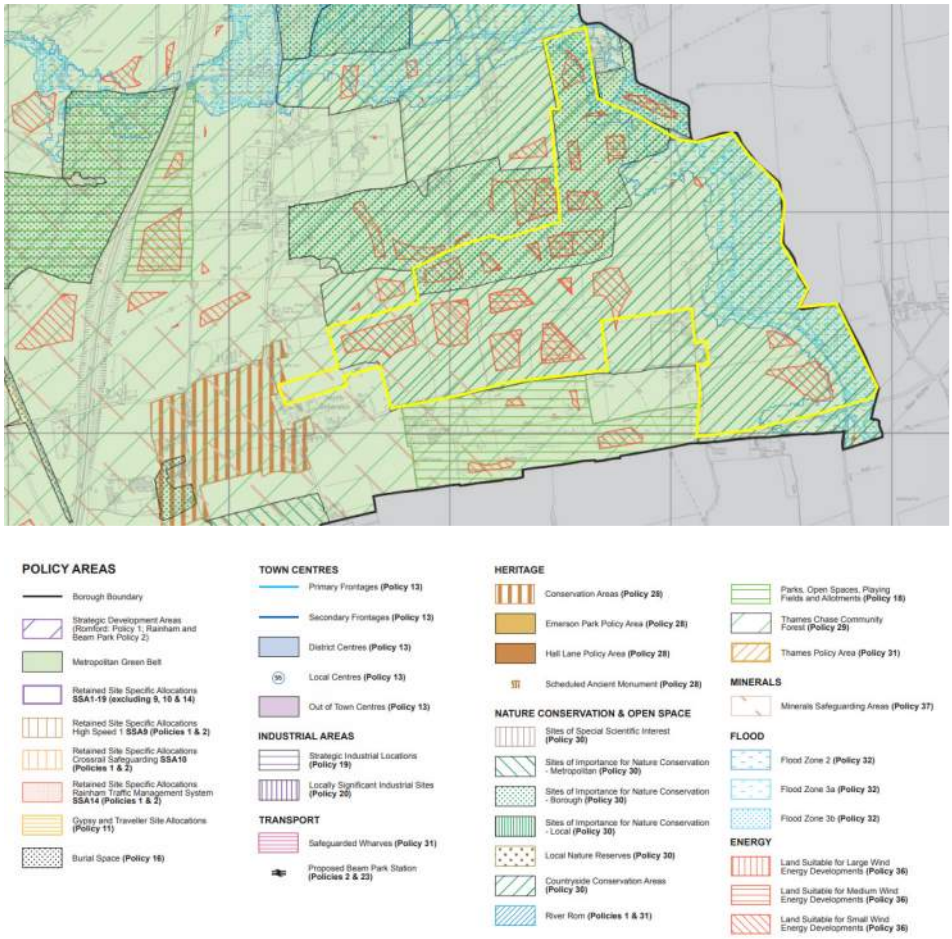
Policies Map South (2021)

Figure 4 below provides an extract of the extant Policies Map for the development site (2021). As can be noted, the site is subject to the following designations within the Proposals Map:

- Metropolitan Green Belt;
- Countryside Conservation Area;
- Thames Chase Community Forest;
- Sites of Importance for Nature Conservation – Borough;

- Minerals Safeguarding Areas;
- Flood Zones 2, 3a and 3b; and
- Land Suitable for Small and Medium Wind Energy Developments.

Figure 10: Policies Map South Extract (2021) (Site outlined in yellow)



Havering Local Plan 2016-2031 (November 2021)

The Havering Local Plan 2016-2031 was adopted in November 2021 and sets the Council's vision and strategy for the future growth and sustainable development within the borough up to 2031. The policies that are relevant to the proposals for the site are the following:

- Policy 12 (Healthy Communities);
- Policy 16 (Social Infrastructure);
- Policy 18 (Open Space, Sports and Recreation);
- Policy 19 (Business Growth);
- Policy 22 (Skills and Training);

- Policy 23 (Transport Connections);
- Policy 24 (Parking Provision and Design);
- Policy 25 (Digital Infrastructure);
- Policy 26 (Urban Design);
- Policy 27 (Landscaping);
- Policy 28 (Heritage Assets);
- Policy 29 (Green Infrastructure);
- Policy 30 (Biodiversity and Geodiversity);
- Policy 31 (Rivers and River Corridors);
- Policy 32 (Flood Management);
- Policy 33 (Air Quality);
- Policy 34 (Managing Pollution);
- Policy 35 (Waste Management);
- Policy 36 (Low Carbon Design and Renewable Energy);
- Policy 37 (Mineral Reserves); and
- Policy 39 (Secondary Aggregate).

Site Specific Allocations (2008)

The Site-Specific Allocations Document was adopted in 2008 and it outlines the specific allocations for individual sites across the borough. There are no site-specific allocations for the site, however, there is an allocation Policy SSA 8 within close proximity to the site, details of which are outlined in Section 6.6 of this document.

3.4.4 Policy Analysis

The proposed site does not form part of any extant site allocation within the current local development framework for the area, albeit a number of plots 'suitable' for potential wind turbines are defined within the site boundary (Policy 36 of the Havering Local Plan 2016-2031).

Notwithstanding, it is duly recognised that the site is located within the Metropolitan Green Belt, and contains areas designated as a Countryside Conservation Area, Site of Importance for Nature Conservation (Borough) and Minerals Safeguarding Area. The applicant will suitably justify the need for this development to be located at this site and the very special circumstances which justify this development taking place within these designations as part of any forthcoming submission.

A review of the wider local and national planning policy suggests that the proposed development would be in

line with the local planning authority's objectives for the area regarding sustainable development, low carbon development, improving digital infrastructure and business growth. The development proposals would be in conformity with national planning policy for sustainable development as set out in the NPPF taken as a whole, and there are no known material considerations that indicate that the proposals would be unsuitable for the area.

4.0 Description of Development

The following section of the Combined Screening & Scoping Report seek to outline the proposed development in more detail. The description of development is as follows:

> *'Proposed development of a minimum 300,000 square meters and up to 390,000 square metres of internal floorspace comprising data centres (Class B8 use), indoor horticulture facilities, battery storage green energy power generation technology and visitor centre. In addition, the proposals include external plant equipment, electrical substations and distribution infrastructure equipment together with new access roads, civil engineering works, hard and soft landscaping, and formation of associated parkland/enhanced biodiversity habitat at North Ockendon, Havering, Greater London.'*

An Indicative Proposed Build Zone Plan is provided within Figure 11 below, whilst an at scale copy is provided within Appendix 2.

Figure 11: Indicative Proposed Build Zone Plan

The proposed development, which is based on an upper quantum in accordance with the 'Rochdale Envelope' approach, consists of the following limitations (minimum and maximum of any one use):

- A minimum of 300,000 square meters and maximum of 330,000 square metres of new data centre floorspace;

- Up to a maximum of 40,000 square metres (minimum of 0 square metres) of indoor floorspace for heated or non-heated horticulture facilities;
- Up to a maximum of 50,000 square metres (minimum of 0 square metres) of indoor floorspace for battery storage or grid balancing infrastructure;
- Up to a maximum of 50,000 square metres (minimum of 0 square metres) of indoor floorspace for green energy power generation technology;
- Up to a maximum of 5,000 square metres (minimum of 0 square metres) of indoor Visitor Centre space;
- External infrastructure and plant including Electrical substations distribution equipment; and
- More than 113 hectares (280 acres) of new green space / nature reserve, with accessibility to the public.

The 'Rochdale Envelope' approach has been utilised by the technical topics contained within this Scoping Report to formulate a 'worst case' development scenario for the assessment scoping purposes. This should be sufficient to allow the Council to adopt a suitable Scoping Opinion.

Nevertheless, it is intended that a range of design criteria will be established during the undertaking the various technical assessments (i.e. landscape and visual) and are likely to include; scale, mass, height, floorspace, materials, colour pallet and landscape design. These will not, however, exceed the 'Rochdale Envelope' parameters outlined above.

Further information regarding the current indicative development proposals is provided within the sections below.

4.1 Data Centre

The proposed development includes a minimum of 300,000 square meters and maximum of 330,000 square metres of data centre internal floorspace which is considered as a Class B8 (storage and distribution) use. In addition, data centres will include roof top and external heating, cooling, ventilation and back-up power plant mounted on gantry or similar supports along with Photovoltaic Panels, rainwater harvesting systems and storage tanks. The primary function of the development is to support cloud computing services and the storage of data as part of the operator's long-term commercial plan and provision of services.

The development would be Europe's largest single data centre campus and an infrastructure development of national importance. It will increase London's existing data centre capacity by more than 50%, ensuring the UK remains internationally competitive.

The specification of the design and quality of the proposed development is proposed to be very high. The data centre buildings will be sensitively designed into the ground and the landscape, softened by extensive new planting and green infrastructure, with significant benefits to biodiversity. It will also embrace a number of innovate sustainable solutions, such as the repurposing of data centre heat to warm intensive agriculture biomes. Renewable energy sources will be key to achieving carbon neutrality, whilst the aim is to harness the natural energy potential of the site.

The development is proposed to operate on a Carbon Neutral basis with Carbon Negative infrastructure designed and installed to feed into the grid in the future as green technology advances. It is intended to be an exemplar for the future of data centre design and operation of global significance to the future of the planet, showcasing the UK as a world leader in reducing carbon emissions. The Carbon Neutral and Carbon Negative attributes are

anticipated to be able to facilitate further inward investment and job creation whilst being a significant contributor to the UK plc's target to achieve zero emissions by 2050.

At this stage, the development proposals allow for flexible and adaptable buildings to accommodate evolving data centre technologies and innovative cooling and backup power strategies. Typically, each build zone will accommodate between 1 to 6 data centre buildings with a variety of building numbers and in sizes between approximately 6,000 square meters and 50,000 square meters depending on plot size and building data capacity requirements. Data buildings will be a mix of two and three storeys' in height with external plant consisting of energy centres, heating and cooling plant, backup power generators, rainwater harvesting and photovoltaic renewable energy systems together with other related support tanks and plant equipment. External plant will generally be located on gantry support systems both on the roof and external to the building with screening for aesthetics and noise mitigation.

The proposed maximum building height is 21 meters above ground floor excluding any exhaust flues if required that will extend no more than 5 meters above the 21 meters maximum building height.

Backup power for essential systems is required for data centre use and can be provided with either diesel or hydrogen ready gas generators. Generator size and number will vary depending on building size and required back up power load.

The data campus main entrance is via a new site access road from Fen Lane and will include management and security accommodation together with security check point and gates. The main entrance area will also include personnel and visitor car park and cycle parking provision.

Each data centre site will be secured with a fence up to 6m tall with gated access points and a small security hut. Other facilities within a data centre secure compound include LV substations and switch gear infrastructure no more than 8 meters high, tank storage, generator, and other associated plant together with a provision of car and cycle parking bays and site landscaping.

The proposed data centres will be best of bread efficiency targeting annual power usage effectiveness (PUE) of 1.2-1.3 and have the potential to evacuate waste heat for future energy hub networks on and off site, potentially used with the proposed indoor horticulture detailed under 4.2 below.

Water usage varies considerably for data centre cooling technology and is always evolving with advancement of technology. The proposed development will include diverse mains water supplies that will be supplemented by rainwater harvesting used for grey systems within the proposed buildings.

4.2 Intensive Horticulture

The development proposals include up to 40,000 square metres of indoor heated or non-heated horticulture within the proposed build Zone K to the south of the site, sharing access from Fen Lan with the proposed visitor centre.

The proposed indoor horticulture use is to replace and intensify the historic use of the site with year-round produce with an opportunity to trial the use of excess heat from the data centres as a net-Zero Carbon initiative. New glass house structures, welfare, and storage facilities together with any heat network infrastructure are proposed between the height of 4 meters and maximum of 10 meters.

The facility will require a small service yard for movement of goods together with a minimal provision employee car and cycle parking bays and site landscaping.

4.3 Battery Storage or Grid Balancing Infrastructure

The development proposals include for the provision of up to 50,000 square metres of battery storage or grid balancing infrastructure across the site to support Greater London and UK's electrical network at peak periods, support renewable energy technology on and off site together with the achieving the development future Zero carbon targets.

Battery storage units are generally made off site in modules to be lifted onto site and connected to local electrical infrastructure and substation to assist with grid balancing during peak times and support renewable energy low generation periods. Battery module sizes will vary and can be stacked for efficiency with suitable space between modules for maintenance access provision. Height of the proposed battery use is proposed between 4 meters and maximum of 14 meters.

Battery storage use requires no regular traffic provision apart from periodic maintenance access.

4.4 Green Energy

The development provides for up to 50,000 square metres of green energy power generation technology such as gas or hydrogen generators, fuel cell, battery storage, green micro grid or other technology to achieve on site renewable energy and future Zero carbon targets.

It is important this proposed use remains open and flexible for evolving renewable energy technology and innovations across the estate. As an example, this use may include a hydrogen ready gas generator up to 21 meter high connected to an onsite micro grid with substations, switch rooms and associated network equipment to supply the data campus with renewable energy as either a primary or backup power source.

4.5 Visitor Centre

The development proposals include up to 5,000 square metres Visitor Centre for information, discovery and learning facilities within the proposed build zone K to the south of the site, sharing access off Fen Lane with the proposed Horticulture use. The Visitor Centre will include Nature Reserve management welfare and storage facilities and building height of up to 8 meters together with external amenity areas and landscaping.

The Visitor Centre will have shared use of the proposed Nature Reserve car park which will include a provision of visitor car parking spaces, cycle parking bays and coach parking bays.

4.6 Substations

Due to the significant electrical supply connection proposed from Warley substation north of the development site, new electrical infrastructure is required on site including high and low voltage substations, switch rooms and other network distribution equipment. This electrical distribution equipment is proposed within proposed build zones with cable network below ground, however this equipment is excluded from the proposed development internal floor space area and includes but not limited to the following:

- UKPN Main Substation comprising electrical equipment, switch gear and cabling sitting within an external compound up to 150 meters by 80 meters with maximum equipment height of 8 meters. The substation compound and equipment are expandable by up to a further 110 meters by 80 meters for future expansion as part of the proposed development phase 2 and 3;

- Up to 6 primary substations each comprising electrical equipment, switch gear and cabling sitting within

an external compound up to 80 meters by 50 meters with maximum equipment height of 6 meters;

- Up to 6 primary switch rooms each comprising electrical equipment switch gear and distribution cabling 25 meters by 12 meters with maximum equipment height of 5 meters;
- Up to 25 Energy Centres located adjacent to the proposed data centre and battery storage facilities each comprising low voltage switch gear and transformers. Energy Centre size will vary depending on the electrical capacity, enclosure size up 1,200 square meters with maximum height of 6 meters; and
- Other smaller electrical and telecommunication disruption equipment enclosures and substations will be required across the proposed development up to 5 meters by 10 meters with maximum height of 5 meters.

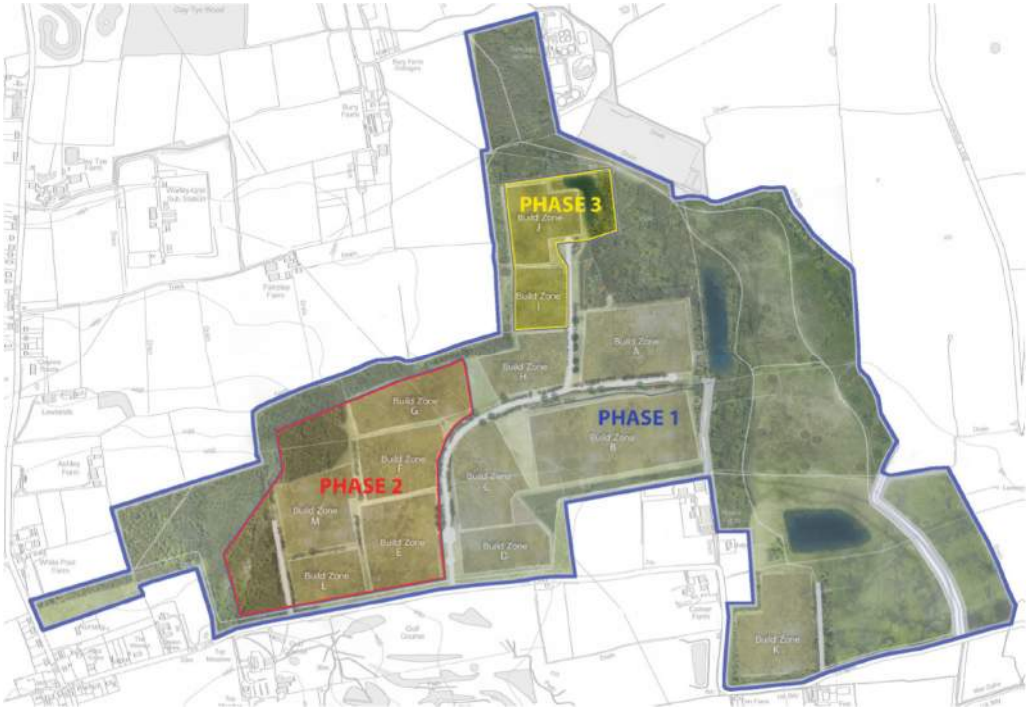
4.7 Proposed Phasing

Development phasing will be further developed throughout the design and consultation process, however an indicative phasing strategy is outlined and illustrated in Figure 12 below:

- Phase 1 – Main site access road, build zones A, B, C, D, H, K and all primary development infrastructure, strategic bunding landscaping together with majority of ecology park biodiversity planting, public walkways and cycle routes across the estate.
- Phase 2 – Secondary access road to the west of the estate together with related infrastructure, build zones E, F, G, L, M and surrounding landscaping.
- Phase 3 – Build zones I and J together with related infrastructure and surrounding landscaping.

An Indicative Proposed Phasing Plan is provided within Figure 12 below, whilst an at scale copy is provided within Appendix 3.

Figure 12: Indicative Proposed Phasing Plan



4.8 Highways & Engineering Works

The scheme will include new on and off-site road infrastructure to support the proposed development, whilst engineering works will include (but are not limited to) the creation of an open swale and SUDS pond and biodiversity features. Cut and fill levelling is proposed locally to each build zone to provide suitable development platforms where required, excess soil will be reused on site for raised woodland landscaped bunding to the build zone parameter. The raised bunding will assist to reduce or remove visibility of the proposed buildings from proposed the proposed nature reserve along with the wider area and heritage assists.

As shown within the submitted Build Zone Plan (Figure 10 above), there would be three points of access into the site. These points of access, whilst indicative at this stage, will include:

- A new western access taken from Fenn Lane to serve two of the proposed build zones;
- A new central access taken from Fenn Lane to serve the majority of the build zones, and include internal spur roads for access; and
- A new eastern access taken from Fen Lane to serve a single build zone and the proposed Parkland / Enhanced Biodiversity Habitat

It should be noted that the existing access into the farm which sits between the central build zones and the Parkland / Enhanced Biodiversity Habitat will also be retained in situ.

Figure 13: Extract of Indicative Proposed Build Zone Plan Showing Points of Access

4.9 Scale and Design

In terms of scale, and given the flexibility allowed for, the proposed build zones within the development could accommodate single (large) or multiple (smaller) footprint buildings. It is intended that there would be some flexibility in the design and construction of the development but that a range of design criteria will be established prior to obtaining consent. These design criteria would be informed by undertaking the various technical assessments (i.e. landscape and visual) and are likely to include; scale, mass, height, floorspace, materials, colour pallet and landscape design. However, at this stage, it is intended that none of the structures would exceed a height of 21m above ground level nor exceed the floorspace quantum's provided within the description of

development (Section 4.0 above).

4.10 Hard and Soft Landscaping

Hard landscaping within the built area will be as locally sourced, low carbon as reasonably possible and provide SUDS features such as permeable paving. All build zones will be required to meet a detailed soft landscaping standard or guidance to enhance the biodiversity of the wider site nature reserve and where possible complement or enhance new biodiversity corridors proposed as part of the wider site master plan and infrastructure.

4.11 Parkland/Enhanced Biodiversity Habitat

The proposed development seeks to incorporate a Nature Reserve no less than 101 hectares (250 acres). This Nature Reserve would be for use as parkland and to provide enhanced biodiversity / habitat to compensate for the proposed development. It is intended that this Nature Reserve would include the provision of a mixture of wetland, wet grassland, wet woodland, woodland, ponds and open grassland. A network of foot and cycle paths would be provided, whilst a discovery centre is also proposed.

The proposed nature reserve will have shared use of the proposed Visitor Centre car park which will include a provision of visitor car parking spaces, cycle parking bays and coach parking bays. These proposed access facilities will be in build zone K to the south of the site, sharing access off Fen Lane with the proposed Horticulture and Visitor Centre.

5.0 EIA Screening Considerations

EIA development is taken to mean development which is either Schedule 1 development or Schedule 2 development which is likely to have significant effects on the environment by virtue of factors such as its nature, size or location.

5.1 Schedule 1

Schedule 1 development principally relates to large infrastructure, mining and minerals, oil and gas, power, chemical, waste, ports and waterways, road and rail, dams and intensive farming developments which will, by their nature, likely result in significant environmental effects.

The development proposals are not of the type, size or scale of operation to fall to be considered under Schedule 1 of the Regulations.

5.2 Schedule 2

Schedule 2 development means development, other than exempt development, of a description mentioned in Column 1 of the table in Schedule 2 of the Regulations where:

- Any part of that development is to be carried out in a sensitive area; or
- Any applicable threshold or criteria in the corresponding part of Column 2 of that table is respectively exceeded or met in relation to that development.

Given the scale of the development proposals, they would fall to be considered under Schedule 2, Class 10(b) – 'Urban Development Projects' – of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ('EIA Regulations'). Schedule 2 stipulates that an EIA *may* be required when:

(i) The development includes more than 1 hectare of urban development which is not dwellinghouse development; or

(ii) The development includes more than 150 dwellings; or

(iii) The overall area of the development exceeds 5 hectares.

In considering the applicable threshold and criteria set out within Schedule 2, 10(b) of the Regulations, the development proposals do not fall to be considered against criteria (ii) as no dwellinghouse development is proposed. However, the quantum of development and overall site area do exceed the thresholds detailed within criteria (i) and (iii).

5.3 Schedule 3

Schedule 3 of the Regulations detail the selection criteria for screening Schedule 2 development to determine whether an EIA is, or is not, required to support the development proposals. The associated selection criteria are as detailed within the sections below, whilst the relevant information for the consideration of these selection criteria is contained throughout this Combined Screening and Scoping Request Report.

The Schedule 3 selection criteria, which have been duly considered within the latter sections of this report as part of the formal Scoping exercise, are as follows:

- The **Characteristics of Development**, considering:
  - The size and design of the whole development;
  - Cumulation with other existing development and/or approved development;
  - The use of natural resources, in particular land, soil, water and biodiversity;
  - The production of waste;
  - Pollution and nuisances;
  - The risk of major accidents and/or disasters relevant to the development concerned, including those caused by climate change, in accordance with scientific knowledge; and
  - The risks to human health (for example, due to water contamination or air pollution).
- The **Location of Development**, establishing the environmental sensitivity of any geographic areas likely to be affected by the development, considering:
  - The existing and approved land use;
  - The relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground;
  - The absorption capacity of the natural environment, paying particular attention to the following areas:
    - Wetlands, riparian areas, river mouths;
    - Coastal zones and the marina environment;
    - Mountain and forest areas;
    - Nature reserves and parks;
    - European sites and other areas classified or protected under national legislation;
    - Areas in which there has already been a failure to meet the environmental quality standards, laid down in Union legislation and relevant to the project, or in which it is considered that there is such a failure;
    - Densely populated areas; and
    - Landscapes and sites of historical, cultural or archaeological significance.
- The **Types and Characteristics of the Potential Impact** on the environment, considering:
  - The magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected);
  - The nature of the impact;

- The transboundary nature of the impact;
- The intensity and complexity of the impact;
- The probability of the impact;
- The expected onset, duration, frequency and reversibility of the impact;
- The cumulation of the impact with the impact of other existing and/or approved development; and
- The possibility of effectively reducing the impact.

6.0 EIA Scoping Considerations

The following sections of the Combined Screening and Scoping Request Report deal specifically with EIA Scoping considerations. This includes consideration of the approach to an EIA, including:

- Methodology;
- Structure and Format of ES;
- The Team;
- Consenting Route;
- Consideration of Alternatives; and
- Committed Developments.

Further detail regarding the topics which would be 'Scoped in' and those topics proposed to be 'Scoped out' of any ES are detailed within Sections 7 and 8 of this report respectively.

6.1 Methodology

The EIA will be prepared in accordance with the requirements of the Regulations and with reference to best practice guidance, including that published by the Institute of Environmental Management and Assessment ('IEMA'). All information required or reasonably required to identify the significant environmental effects of the development, as defined by Schedule 4 of the Regulations, will be provided as part of the ES.

The assessment will also include consideration of relevant policy and legislation of relevance whilst also considering comments received through both the scoping exercise and any pre-submission consultation undertaken.

Each technical assessment will follow a consistent approach and format, which will include the following details:

- Review of relevant policy, legislation, and guidance;
- A detailed topic specific assessment methodology (including forecasting methods and baseline evidence), consultation undertaken, and confirmation of how the assessment relates to the standardised significance criteria adopted for the EIA;
- Consideration of baseline conditions, including identification of sources of information, site history, current environmental conditions and future trends/anticipated changes to current conditions that could be anticipated without the scheme (i.e. the 'future baseline');
- Identification of the potential effects, including a summary of those resources/receptors likely to be affected, the sensitivity of those receptors to accommodate change; the magnitude (degree) of change resulting from the proposal; the change of events or pathways linking cause to effect and a prediction in the significance of effects in terms of nature, extent and magnitude including whether it is direct/indirect, short/long term, temporary/reversible/permanent, and adverse/neutral/beneficial in nature;
- The scope for incorporating mitigation measures to avoid, reduce, remedy, or compensate for any

identified effects and the need for any monitoring measures; and

- Identification of any effects remaining after mitigation (the 'residual effects').

Where appropriate, the technical assessments will also identify areas of technical deficiency and/or knowledge; such as a lack of baseline evidence or inconsistency in results from any monitoring, modelling or alike. In such circumstances, a 'worst case' assessment approach should be undertaken unless otherwise justified.

The effects of individual environmental matters will be transcribed, where appropriate, against a common list of significance criteria for the EIA. However, the use of the common list of significance criteria will be dependent upon any specific legislative and assessment guidance requirements for each topic (i.e. ECIA or GLVIA3). At this stage, it is proposed that the common list of significance criteria will comprise:

- Substantial / Major beneficial;
- Moderate beneficial;
- Minor beneficial;
- Neutral/ Negligible;
- Minor adverse;
- Moderate adverse; and
- Substantial / Major adverse.

Where necessary, it will be clarified where the sensitivity, magnitude of change and subsequent significance criteria are based on fact, technically robust assumptions or professional judgement. This is generally reliant upon the technical assessment, the methodology employed and the level of evidence available at the time of the assessment. An appropriate list of reference material will be provided at the end of each technical assessment chapter.

The technical assessments will include consideration of both construction and operational phase effects, including any overlap of development phases (i.e. occupation of part of the development whilst construction activities are ongoing).

As detailed below, Chapter 2 of the proposed ES would outline the EIA Process and Methodology in more detail. This will include detailed information on the methodology and approach adopted for the undertaking of the cumulative and in-combination assessment, identification of committed developments, zone of influence for each technical chapter and where any professional judgement has been appropriately utilised.

6.2 Structure and Format of ES

The findings of the EIA will be set out in the ES which will comprise three volumes, as follows:

- Volume 1 – Main Report containing the individual ES Chapters, including:
  - Chapter 1 – Introduction
  - Chapter 2 – EIA Process and Methodology

- Chapter 3 – Description of Site and Surroundings
- Chapter 4 – Description of the Proposed Development
- Chapter 5 – Consideration of Alternatives
- Chapter 6 – Scoping and Consultation
- Chapter 7 – Planning Policy Context
- Chapter 8 – Description of Committed Developments
- Chapter 9 – Land Quality & Ground Conditions
- Chapter 10 – Water Environment & Flood Risk
- Chapter 11 – Ecology & Biodiversity
- Chapter 12 – Landscape & Visual
- Chapter 13 – Transport
- Chapter 14 – Noise
- Chapter 15 – Air Quality
- Chapter 16 – Cultural Heritage
- Chapter 17 – Socio-Economics
- Chapter 18 – Other Environmental Issues
- Chapter 19 – Assessment of Cumulative Effects
- Chapter 20 – Summary of Mitigation and Monitoring
- Chapter 21 – Summary of Residual Effects and Conclusion

- Volume 2 – Technical Appendices; and
- Volume 3 – Non-Technical Summary.

A glossary and list of acronyms and abbreviations used within the EIA will be provided within Volume 2 (Technical Appendices).

6.3 The Team

The 2017 EIA Regulations requires that the EIA be prepared by 'competent experts' (i.e. those with sufficient expertise) to ensure the completeness and quality of the statement (Regulation 18 (5) (a)). It is confirmed that the team proposed to be involved in the EIA have the relevant experience and competency to carry out the technical assessment work. The ES will include a statement on confirming how the requirements of the Regulations have been met.

SLR is a registered Environmental Impact Assessor Member of the Institute of Environmental Management and Assessment (IEMA), benefiting from the IEMA EIA Quality Mark, whilst the following consultant team will be responsible for the preparation of the technical assessments and, if appropriate, the chapters of the ES itself:

Table 6-1: EIA Consultant Team

Technical Topic / Assessment	Name & Grade	Company	Qualifications & Experience
EIA Co-ordination	Edward Bright Technical Director	SLR Consulting Limited	BSc Town and Country Planning MSc Regeneration MRTPI 14+ years
Land Quality & Ground Conditions	Louise Beale Technical Director	SLR Consulting Limited	Chartered geologist (CGeol) Specialist in Land Condition (SiLC) Suitably Qualified Person (SQP) under National Quality Mark Scheme (NQMS) 38 years experience in undertaking land quality assessments,
Water Environment & Flood Risk	Emily Owen Associate	SLR Consulting Limited	Msc. Hydrology and Water Resource Management Chartered Water and Environmental Manager (C.WEM) Chartered Scientist (C.Sci) Chartered Environmentalist (C.Env) Over 7 years' experience in Flood Risk Drainage and Water Environment Assessments
Ecology & Biodiversity	Bob Edmonds Technical Director	SLR Consulting Limited	20+ years professional experience. CIEEM - Also a member of the Professional Standards Committee of CIEEM since 2014 10 years leading the development of guidance and good practice in the area of BNG and EcIA: contributing author to CIRIA-CIEEM-IEMA Principles for BNG published in 2016 and a committee member on British Standard BS8683 – Biodiversity Net Gain. Key role in preparing CIEEM's 2019 EcIA Guidelines and 2017 Guidelines for Preliminary Ecological

Technical Topic / Assessment	Name & Grade	Company	Qualifications & Experience
			Appraisal and was lead author of CIEEM's BNG Report Templates published in 2021
	Emily Drinkwater Associate	SLR Consulting Limited	Holds licences for bats, Great Crested News and is a certified tree climber: NPTC CS38 qualification. Bsc, Msc, Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM) (ACIEEM). Approximately 10yrs experience.
Landscape & Visual	Simon Myers Associate	SLR Consulting Limited	Master of Landscape Planning and Management (MLPM(Hons)), Associate Member of the Landscape Institute, over 20 years' LVIA experience.
Transport	Adam Turner Associate	SLR Consulting Limited	ONc Civil Engineering Over 20 Years' experience in Highways & Transportation and EIA.
	Alan Hatton Technical Director	SLR Consulting Limited	MSc Town Planning BSc (Hons) Regional Science (Geography & Economics). MCIHT MTPS Over 20 Years' experience in Highways & Transportation.
Noise	Michelle Dawson Technical Director	SLR Consulting Limited	BSc, Diploma in Acoustics and Noise Control, MIOA, 10 years' experience within industry on EIA projects.
	Aaron Tomlinson Associate	SLR Consulting Limited	BEng Acoustics, MIOA, 8 years' experience within industry on EIA projects.
Air Quality	Morgan Fitzpatrick Technical Director	SLR Consulting Limited	BSc, MSc, MIAQM, MIEnvSc, 18 years' professional experience relating to assessment of air quality.

Technical Topic / Assessment	Name & Grade	Company	Qualifications & Experience
	Lucy Boulton Associate	SLR Consulting Limited	BSc, MSc, AMIAQM, AMIEnvSc, 5 years' experience in the field of air quality.
Cultural Heritage	Chris Morley Technical Director	SLR Consulting Limited	BA, MPHIL, MCIfA are the post-nominals. Chris has over 16 years' experience in commercial heritage and archaeology, including as an Expert Witness.
	James Evans Senior	SLR Consulting Limited	Professional archaeologist for eight years and holds a BA (hons) and MA degree and is an Associate Member (ACIfA) of the Chartered Institute for Archaeologists (CIfA)
Utilities	Andrew Dannatt Technical Director	SLR Consulting Limited	Chartered Civil Engineer Chartered Water & Environmental Manager 35 years experience
Socio-Economic	Anne Dugdale Technical Director	SLR Consulting Limited	BSc Geography with Geology MA Town and Regional Planning MRTPI 40+ years experience

The following technical information and assessments will also be prepared and cross referenced within the ES (but will not form part of the ES itself):

- Topographic Site Survey — SLR Consulting Limited
- Tree Survey and Arboricultural Impact Assessment — CBA Trees
- Minerals Safeguarding Assessment (if required) — SLR Consulting Limited
- Agricultural Land Classification (if required) — TBC

6.4 Consideration of Alternatives

Schedule 4 of the Regulations requires a description of the 'reasonable alternatives' for the development which have been studied by the developer and the main reasons for selecting the chosen option, including a comparison of the environmental effects. The 'need' for the development will be established in brief within the ES (with a more detailed justification provided separately), this will include a suitable justification for the scale and regional / geographic requirement for the consideration of alternatives.

The EIA will include a review of:

- The likely effects in the event that the development does not come forward ('the no development scenario'); and
- Details of alternatives considered with regard to the location and the design of the development itself.

The consultant team has been involved in the process of design iteration and emergence of the development proposals. This process will be documented as part of the EIA. It is not necessary to provide consideration of theoretical alternatives (i.e. alternatives not considered through the design process).

6.5 Committed Developments and Cumulative Effects

In accordance with the Regulations, the EIA will include an assessment of any direct and indirect cumulative effects arising from the development when considered alongside any other developments in the area surrounding the site. The objective is to identify any combined effects from the development of effects from several developments; and if, whilst individually the effects may insignificant could when considered together cause a further significant or indirect impact requiring mitigation.

In relation to other development, best practice dictates that cumulative assessments of this nature should have regard to those schemes which are 'reasonably foreseeable' (i.e. usually those under construction, with an extant planning permission or are subject of a suitable development plan allocation). The assessment is only capable of being carried out based on the information available at the time of assessment.

The assessment should focus only where there is the potential for significant cumulative effects and, for this development, an initial review of potential developments requiring review has therefore focussed on those developments which due to their proximity or scale are most likely to give rise to cumulative effects. Consideration has been given to the areas within which cumulative effects are most likely.

The cumulative assessment will therefore include a review of the potential effects when the scheme is considered alongside other committed developments located within the immediate vicinity of the development site. SLR has utilised a 2.5km search area around the proposed development site (which includes consideration of the London Borough of Havering [LBoH], Thurrock Council [TC] and Brentwood Borough Council [BBC] administrative areas) to consider current and recently approved applications, as well as strategic site allocations, any minerals and waste applications submitted to Essex County Council (ECC), any other LDO's and Nationally Significant Infrastructure Projects (NSIPs) / Development Consent Orders (DCO).

Notwithstanding, a suitable Zone of Influence (ZOI) will be established by each technical assessment within their associated topic chapter within the ES. An overview of the ZOI's established by each topic will be contained within the Methodology Chapter of the ES, whilst a map will be provided within Volume 2 (Technical Appendices) of the EIA.

An initial set of plans showing the intended ZOI's for the technical chapters proposed to be 'scoped in' to the ES (as detailed within Section 7.0) are provided within Appendix 4.

6.5.1 Local Planning Authority & County Council

Reasonably foreseeable significant developments and local plan site allocations relevant to the site and that would be considered in the cumulative assessment for the proposed development have been listed in Tables 6-2 and 6-3 below.

Table 6-2: Committed Developments - Planning Applications

Authority Area	Application Ref	Description	Decision	Decision Date
LBoH	P1917.18	Demolition of existing buildings, conversion of the former St George's Hospital Administrative Building and the erection of new buildings to provide 162 residential units (class C3) including car parking, cycle parking, landscaping and associated infrastructure along with the refurbishment of The Suttons Building for use as a Heritage Centre (Class D1)	Undecided	N/A
LBoH	P0862.18	Part demolition, extensions and alterations to the existing kennels and outbuildings to form 14 no. dwellings with associated parking, private amenity space and boundary treatment	Approved	21.08.18
LBoH	P1463.19	LPG Storage Compound and tanks for the supply of gas	Approved	19.11.19
LBoH	P0528.20	Demolition of an existing building, conversion, part demolition and part extension of existing kennels and associated outbuildings into 14 dwellings with associated parking, garages, private amenity space and landscaping of communal open space	Undecided	N/A
TC	21/00077/FUL	Installation of renewable led energy generating station comprising ground-mounted photovoltaic solar arrays and battery-based electricity storage containers together with substation, inverter/transformer stations, site accesses, grid connection cable, internal access tracks, security measures, access gates, other ancillary infrastructure, landscaping and biodiversity enhancements.	Awaiting Decision	N/A
BBC	21/01525/OUT	Outline application with all matters reserved apart from Access, for: the construction of a Garden Community which includes up to 3,700 dwellings, 3 care homes, 5 gypsy/travellers pitches,	Awaiting Decision	N/A

Authority Area	Application Ref	Description	Decision	Decision Date
		secondary and primary schools, children's nurseries and creches. Employment hub, village centre and neighbourhood hubs, mobility hub, community sports hub, football, hub, cricket ground, green and blue infrastructure, sustainable drainage system, accesses to A128 Tilbury Road, footpath and cycle link to the A127 and other associated infrastructure and works including noise barrier, demolition of structures and undergrounding of the overhead lines.		
BBC	22/00402/FUL	Hybrid application seeking outline planning permission for M25 to B186 link Road (Phase 2) and detailed planning permission for demolition of existing buildings and structures; ground works to enable creation of development plots; highways works including construction of new A127 overbridge, access from B186, site roads and construction of M25 J29 to B186 link road (Phase 1); erection of buildings for Class B8 (storage & Distribution) and/or Class B2 (general Industrial) use, with ancillary office space (within Class E); landscaping; infrastructure and enabling works including diversion of public rights of way.	Awaiting Decision	N/A
ECC	CC/BRW/48/16	Essex County Council seeking planning permission for construction of a flood alleviation scheme consisting of a flood defence bund (800m in length and maximum 1.65m height above ground level) and watercourse diversion to capture and store surface water, on land north of West Horndon industrial Area and west of Thorndon Avenue, West Horndon, Essex.	Granted	09.02.2017

Table 6-3: Committed Developments - Site Allocations

Authority Area	Local Plan Ref	Allocation Site	Details of Allocation
LBoH	Policy SSA 8	Upminster Cemetery and South	8.3 hectares of land allocated for

Authority Area	Local Plan Ref	Allocation Site	Details of Allocation
		Essex Crematorium	future burial space.
BBC	Policy RO1	Dunton Hills Garden Village SPD	259.2 hectares of land allocated for a new Garden Village delivering up to 4,000 new homes over 20 years
East London Waste Authority	Hall Farm Site – Adopted Joint Waste DPD	Hall Farm, North Ockendon	19 hectares for a large-scale composting facility, to be delivered between 2015 - 2020

6.5.2 Local Development Orders and Nationally Significant Infrastructure Projects

There are no Local Development Orders (LDOs) located within 2.5km of the proposed site. However, the following NSIP submissions are of relevance to the proposed project:

Table 6-4: Committed Developments – NSIP

NSIP / DCO Ref.	Description	weblink	Decision
TR010032 (Nov 22)	Application for a Development Consent Order for the proposed A122 Lower Thames Crossing Project	https://infrastructure.planninginspectorate.gov.uk/projects/south-east/lower-thames-crossing/?ipcsection=overview	Awaiting Decision
2022 No. 573	Proposed M25 Junction 28 Improvement Project	https://infrastructure.planninginspectorate.gov.uk/projects/south-east/m25-junction-28-improvements/	DCO Made

6.5.3 Summary

SLR is unaware of any other extant or proposed applications, allocations, minerals developments, Local Development Orders (LDOs) or Nationally Significant Infrastructure Projects (NSIPs) within the study area which may need to be considered as part any cumulative assessment.

Notwithstanding, consideration of the effects associated with existing operational developments within the immediate vicinity of the application site (such as the adjoining golf course) will already be contained within the technical assessments given that they will form part of the baseline environment.

If the authority is aware of any other proposals that it considers will need to be assessed in terms of potential cumulative effects, these should be identified as part of the Scoping Opinion duly adopted by LBoH.

7.0 Environmental Issues to be 'Scoped In'

7.1 Air Quality

7.1.1 Introduction

The scope of the air quality assessment has been informed by national and local planning policy and guidance, and SLR's experience of similar projects. The assessment will consider potential air quality impacts and effects associated with all elements of the proposed development (as described in Section 4.0), during both the construction and operational phases as applicable.

7.1.2 Legislation, Policy & Guidance of Relevance

Legislation

- Air Quality Standard Regulations

The Air Quality Standards Regulations 2010 transpose the Ambient Air Quality Directive (2008/50/EC), and the Fourth Daughter Directive (2004/107/EC) within UK legislation. The regulations include Limit Values, Target Values, Objectives, Critical Levels and Exposure Reduction Targets for the protection of human health and the environment. Those relevant to the air quality assessment are presented within Table 7-1.

Following the UK's withdrawal from the EU, the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020[5] was introduced to mirror revisions to supporting EU legislation. As a result, the fine particulate matter ($PM_{2.5}$) Limit Value was reduced to 20µg/m^3 (to be met by 2020).

Table 7-1: Air Quality Standards

Pollutant	Standard (µg/m^3)	Measured as	
Particulate matter with an aerodynamic diameter of less than 10µm (PM_{10}) (gravimetric)	40	Annual mean	-
	50	24 hour mean	Not to be exceeded more than 35 times a calendar year
Particulate matter with an aerodynamic diameter of less than 2.5µm ($PM_{2.5}$) (gravimetric)	20	Annual mean	-
Nitrogen dioxide (NO_2)	40	Annual mean	
	200	1 hour mean	Not to be exceeded more than 18 times a calendar year
Nitrogen oxides (NO_x)	30	Annual mean (all ecosystems)	

5 The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020, Statutory Instrument No. 1313, The Stationary Office Limited.

- The Air Quality Strategy for England[6], April 2023;
- The Environment Act 1995, Part IV; and
- The Environmental Protection Act 1990, Part III.

Policy

- National Planning Policy Framework (2021);
- The London Plan 2021; and
- Local Planning Policy (e.g. Havering Local Plan).

Key Guidance Documents

The key guidance documents used to inform the assessment methodology are as follows:

- Mayor of London's Supplementary Planning Guidance (SPG) 'The Control of Dust and Emissions During Construction and Demolition' (2014);
- Institute of Air Quality Management (IAQM) 'Guidance on the Assessment of Dust from Demolition and Construction' (2016);
- Environmental Protection UK (EPUK) and IAQM 'Land-Use Planning & Development Control: Planning for Air Quality' (2017);
- Mayor of London's 'London Local Air Quality Management Technical Guidance' (LLAQM.TG(19));
- Department for Environment, Food and Rural Affairs (Defra) 'Local Air Quality Management Technical Guidance' (LAQM.TG(22));
- Environment Agency (EA) 'Air emissions risk assessment for your environmental permit';
- IAQM 'A guide to the assessment of air quality impacts on designated nature conservation sites' (2020); and
- National Highways 'Design Manual for Roads and Bridges (DMRB): LA 105 Air quality' (2019).

7.1.3 Establishing the Baseline

A baseline assessment would be undertaken by:

- a desk-based review of the site location with respect to sensitive human and ecological receptor locations;
- a review of baseline air quality conditions using Local Air Quality Management (LAQM) reports, mapped background concentration data provided by Defra, the London Atmospheric Emissions Inventory, and any

6 Defra, Air Quality Strategy: Framework for Local Authority Delivery, April 2023.

monitoring data within the public domain (e.g. London Air); and

- a review of local LAQM and planning policy in respect of air quality.

At this stage no site-specific baseline monitoring is proposed as existing publicly available datasets (above) are considered sufficient to inform the air quality baseline.

The site falls within the administrative area of LBoH, where the whole borough is declared an Air Quality Management Area (AQMA) for exceedances of the Air Quality Objectives (AQOs) at locations of relevant exposure. The site is therefore located within the AQMA.

7.1.4 Study Area & Sensitive Receptors

The study area for the assessment of construction dust will be defined in line with the IAQM guidance.

The first stage of the assessment involves a screening to determine if there are sensitive receptors within threshold distances of the site activities associated with the construction phase of the scheme. A detailed assessment is required where a:

- human receptor is located within 350m of the site, and/or within 50m of routes used by construction vehicles, up to 500m from the site entrance(s); and/or
- ecological receptor is located within 50m of the site, and/or within 50m of routes used by construction vehicles, up to 500m from the site entrance(s).

The study area for the assessment of combustion emissions will be defined in line with best practice guidance, and due consideration will be given to relevant human and ecological receptor locations within the site locale. For example, LLAQM.TG(19) provides guidance on which locations constitute relevant human exposure for each of the AQO averaging periods.

The study area for the assessment of road traffic emissions will be defined by the road network predicted to experience a change in traffic flows due to development-generated trips. Where this change is considered 'significant' in line with relevant screening criteria, sensitive receptor locations present within 200m of the 'affected road network' (DMRB, 2019) would be considered for inclusion within any assessment.

7.1.5 Potential Effects

Potential effects in relation to air quality during the construction and operational phases of the proposed development are described in the following sections.

Construction Phase

The potential for significant effects from the construction phase of the proposed development will be addressed in the air quality assessment by considering the following:

- effects on human and ecological receptors arising as a result of exposure to construction dust (deposited);
- effects on human receptors arising as a result of exposure to PM_{10} associated with construction activities;
- effects associated with emissions from construction road vehicles movements and plant; and
- the potential for cumulative effects to occur.

Operational Phase

The potential for significant effects from the operational phase of the proposed development will be addressed in the air quality assessment by considering the following:

- effects on human and ecological receptors associated with combustion emissions to air from the Stand-By Generators from planned testing and maintenance or emergency operations;
- effects on human and ecological receptors associated with emissions from development-generated traffic flows; and
- the potential for cumulative effects to occur.

Effects will be identified as direct or indirect, secondary, cumulative, short or medium or long term, and positive or negative.

7.1.6 Assessment Methodology

The assessment methodology for the construction and operational phases is described in the following sections.

Construction Phase

The assessment of potential dust effects in relation to the development's construction phase will be undertaken qualitatively in accordance with the Mayor of London's SPG 'The Control of Dust and Emissions During Construction and Demolition' and the IAQM 'Guidance on the Assessment of Dust from Demolition and Construction'. The assessment of risk is determined by considering the risk of dust effects arising from four activities in the absence of mitigation:

- demolition;
- earthworks;
- construction; and
- track-out.

The assessment methodology considers three separate dust impacts with account being taken of the sensitivity of the area that may experience these effects:

- annoyance due to dust soiling;
- the risk of health effects due to an increase in exposure to PM_{10}; and
- harm to ecological receptors.

As mentioned, the first stage of the assessment involves a screening to determine the study area and need for detailed assessment.

The dust emission class (or magnitude) for each activity is determined on the basis of the guidance, indicative thresholds, and expert judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements.

It is proposed to screen road traffic flows associated with the construction phase using the indicative criteria presented within EPUK and IAQM guidance 'Land-Use Planning & Development Control: Planning for Air Quality'.

Operational Phase

The operational phase assessments are discussed in the following sections.

Data Centre Stand-By Generator Emissions

As detailed in Section 4.1, backup power is essential to any data centre in the event of an electricity grid outage and can be provided by either diesel or hydrogen ready gas generators (referred to as Stand-By Generators). To ensure a worst-case assessment (which assumes no advancement in fuel technology), the assessment will consider combustion emissions associated with diesel-fired Stand-By Generators and address the following operating scenarios:

- routine testing/maintenance operations; and
- emergency outage operations.

The assessment scope would be informed by the EA's guidance '*Air emissions risk assessment for your environmental permit*'. A staged approach will be followed as defined in the guidance, i.e. a screening assessment (known as Stage 1 and 2) to identify those emissions that can be considered insignificant and the requirement (if any) for detailed dispersion modelling.

If required, detailed dispersion modelling would be completed using AERMOD, a model accepted by the EA as appropriate for similar installations. The modelling will incorporate geographical information (mapping, topography, human receptor locations) and installation buildings and emission points and emission characteristics (temperature, volume flow, emission concentration, variation through time etc). Dispersion modelling would be completed with at least 3 years of meteorological data from an appropriate observing station.

Road Traffic Emissions

Development-generated traffic flows will initially be screened using the indicative criteria presented within the EPUK and IAQM guidance '*Land-Use Planning and Development Control: Planning for Air Quality'*. As the site is located within an AQMA, the lower screening criterion will apply i.e. a change in flows of 100 Light Duty Vehicle Annual Average Daily Traffic (AADT) and/or 25 Heavy Duty Vehicles AADT.

If development-generated traffic flows exceed the screening criteria, further assessment is required (via dispersion modelling). However, if the development-generated traffic flows do not exceed any of the relevant criteria, then a detailed impact assessment is consequently not required; and effects can be concluded as not significant.

Following this approach, any requirement for a detailed (dispersion modelling) assessment will be confirmed following the outcomes of the screening assessment.

Air Quality Neutral

An Air Quality Neutral (AQN) assessment will be included in the air quality assessment, as required. The

assessment approach will be in accordance with the Mayor of London's Air Quality Neutral guidance[7] and will be agreed with relevant consultees.

The requirement for the AQN assessment and/or the emission sources included would be confirmed during the design of the proposed development. For example, in accordance with the AQN guidance, emission sources controlled by an Environmental Permit, issued either by the Environment Agency or the Borough Council, are not subject to the AQN benchmarks. In consideration of the this, the data centre emission sources (which will require an Environmental Permit) are unlikely to require an AQN assessment, whereas potential emission sources associated with green energy power generation technology (for example) may require an assessment. This will be reviewed during project design.

7.1.7 Indicative Mitigation Measures

The above assessments will identify the nature and significance of potential air quality impacts that may arise as a result of the construction and operational phases of the development. If required, we therefore will:

- identify the relevant mitigation requirements proportionate to the development's nature, scale, and potential effect(s);
- discuss/collate any relevant embedded mitigation integrated as part of the scheme; and
- describe the nature and significance of any residual effects following application of the mitigation.

Mitigation measures to address potential effects of the construction phase of the development will be identified from the Mayor of London's SPG 'The Control of Dust and Emissions During Construction and Demolition', the IAQM 'Guidance on the Assessment of Dust from Demolition and Construction' and LLAQM.TG(19).

Indicative mitigation measures to address potential effects of the operational phase of the development in relation to the data centres may include specific measures that target the dispersal of combustion emissions (e.g. increased stack heights), controls/limitations on generator testing hours or engine specifications that accord with indicative Best Available Techniques (BAT). Other operational phase measures relating to road traffic may include Electric Vehicle (EV) charging infrastructure and enhancement of active travel infrastructure (e.g. foot and cycle paths).

7.1.8 Summary

The air quality assessment will identify the significance of potential air quality effects associated with the construction and operational phases of the proposed development. The assessment will be undertaken in line with relevant policy and best practice guidance, and where required mitigation measures will be identified to ameliorate any adverse effects.

7.2 Cultural Heritage

7.2.1 Introduction

This section describes the main issues identified for inclusion in the Environmental Impact Assessment in relation to Cultural Heritage. Consideration has been given to all designated and non-designated aspects of the historic

[7] Mayor of London, London Plan Guidance, Air Quality Neutral, February 2023.

environment, including buried archaeological remains, earthworks, historic buildings and structures, and areas of historic landscape.

7.2.2 Legislation, Policy & Guidance of Relevance

Statute

Planning (Listed Buildings and Conservation Areas) Act (1990)

Applicable Statute would comprise Section 66(i) of the Planning (Listed Buildings and Conservation Areas) Act (1990), which provides that:

> *'In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses'.*

National Planning Policy

National Planning Policy Framework (Revised 2019)

Applicable national policy comprises the National Planning Policy Framework (2019), and specifically the following paragraphs:

Paragraph 189, which states that:

> *'In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.'*

Paragraphs 193 and 194, which provide for designated heritage assets, and state respectively that:

> *'When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance,' and*
>
> *'Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*
>
> *a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;*
>
> *b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

Paragraph 195, which relates to instances of 'substantial harm', and states that:

> *'Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*
>
> *a) the nature of the heritage asset prevents all reasonable uses of the site; and*
>
> *b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and*
>
> *c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and*
>
> *d) the harm or loss is outweighed by the benefit of bringing the site back into use.'*

Paragraph 196, which relates to instances of 'less than substantial harm', and states that:

> *'Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.'*

Paragraph 197, which relates to non-designated heritage assets, and states that:

> *'The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*

Local Planning Policy

The London Plan (2021)

> ***Policy HC1 Heritage conservation and growth***
>
> *A. Boroughs should, in consultation with Historic England, local communities and other statutory and relevant organisations, develop evidence that demonstrates a clear understanding of London's historic environment. This evidence should be used for identifying, understanding, conserving, and enhancing the historic environment and heritage assets, and improving access to, and interpretation of, the heritage assets, landscapes and archaeology within their area.*
>
> *B. Development Plans and strategies should demonstrate a clear understanding of the historic environment and the heritage values of sites or areas and their relationship with their surroundings. This knowledge should be used to inform the effective integration of London's heritage in regenerative change by:*
>
> *1) setting out a clear vision that recognises and embeds the role of heritage in place-making*
>
> *2) utilising the heritage significance of a site or area in the planning and design process*
>
> *3) integrating the conservation and enhancement of heritage assets and their settings with*

innovative and creative contextual architectural responses that contribute to their significance and sense of place

4) *delivering positive benefits that conserve and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing.*

C. *Development proposals affecting heritage assets, and their settings, should conserve their significance, by being sympathetic to the assets' significance and appreciation within their surroundings. The cumulative impacts of incremental change from development on heritage assets and their settings should also be actively managed. Development proposals should avoid harm and identify enhancement opportunities by integrating heritage considerations early on in the design process.*

D. *Development proposals should identify assets of archaeological significance and use this information to avoid harm or minimise it through design and appropriate mitigation. Where applicable, development should make provision for the protection of significant archaeological assets and landscapes. The protection of undesignated heritage assets of archaeological interest equivalent to a scheduled monument should be given equivalent weight to designated heritage assets.*

E. *Where heritage assets have been identified as being At Risk, boroughs should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and reuse.*

London Borough of Havering Local Plan (2016-2031)

Chapter 11 'High Quality Places'

11.3 Heritage Assets

Policy 28 Heritage assets

The Council recognises the significance and value of Havering's heritage assets and will support:

i. *Proposals that seek to sustain or enhance the significance of heritage assets at risk in the borough;*

ii. *The maintenance of up to date Conservation Area Appraisals and Management Plans;*

iii. *The identification, and maintenance, of a local list of non-designated heritage assets that meet agreed selection criteria;*

iv. *Well designed and high quality development in a Conservation Area, or its setting, which preserves, enhances or better reveals the character and appearance of the area and its significance, and which contributes to local character and distinctiveness, taking into account the Conservation Area Appraisal or Management Plan. Where a building (or other element) detracts from the significance of a Conservation Area, its removal will be supported when acceptable plans for redevelopment have been agreed;*

v. *Viable uses, alterations or extensions to a listed building, or development within its setting, which would not be harmful to the significance of the heritage asset, including its historic and architectural interest;*

vi. *Well designed and high quality development within a Registered Park or Garden of Historic Interest, Historic Park or Garden of Local Interest, Area of Special Townscape or Landscape Character, or within their setting, which sustains or enhances the significance of the heritage asset, including its special character and important views; and*

vii. *Proposals affecting the significance of a heritage asset with archaeological interest, including the contribution to significance made by its setting, where:*

a. The proposals are supported by an appropriate assessment of the asset's significance;

b. Any harm is minimised, clearly justified and necessary to achieve public benefits that are substantial enough to outweigh loss or harm to the asset's significance; and

c. The significance of any asset or part of an asset to be lost is recorded and made publicly accessible.

Substantial harm to, or loss of, a Scheduled Monument or non-designated heritage asset with archaeological interest that is demonstrably of national importance, will only be considered in exceptional circumstances.

7.2.3 Establishing the Baseline

Scope of Data Procurement

For purposes of baseline data collection, a 1km search area would be utilised for non-designated heritage assets, and a 2km study area for designated heritage assets. Any heritage assets beyond those study areas that are considered relevant to establishing the Site's historic landscape context, or that are potentially susceptible to impact, will also been considered.

Sources Consulted

The following sources will be consulted:

- the National Heritage List for England (NHLE) for information relating to designated heritage assets;
- the Greater London Archaeological Advisory Service (GLAAS) Historic Environment Record (HER), for sites, events, and Historic Landscape Characterisation (HLC) data;
- cartographic sources, including tithe and enclosure plans, early ordnance survey editions, large-scale county mapping and any other relevant maps/plans;
- the Environment Agency's library of open access LiDAR data (DSM, DTM and point cloud);
- the Ordnance Survey open source library, for topographic and cartographic data, including elevation point cloud, contour, and hydrological data;
- London Borough of Havering Council's online planning application portal, for relevant documentation submitted in relation to proximate applications;
- grey literature relating to excavations within, and within proximity to, the Site; and
- any other available digital information, including geological and soil mapping, and satellite aerial imagery.

Site visit

A site inspection will be undertaken in order to assess the site within its wider landscape context, identify any evidence for previous disturbance, and examine any known or suspected archaeological features.

Heritage assets identified as potentially susceptible to impact as a result of changes to setting will also be subject to inspection from publicly accessible locations.

7.2.4 Establishing Significance & Identifying Potentially Sensitive Receptors

Assessment of Heritage Significance

Heritage assets will be assessed in terms of their significance, following the requirement in the NPPF paragraph 189, and taking account of Historic England's guidance on 'Managing Significance in Decision-Taking in the Historic Environment' (GPA2). Significance, in relation to heritage policy, is defined by the NPPF as:

> *'the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.'*

The NPPF glossary and the Planning Practice Guidance (PPG) provide that an asset's significance derives from its heritage 'interests', which the latter defines as follows:

- *Archaeological interest: "As defined in the Glossary to the National Planning Policy Framework, there will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point."*
- *Architectural and artistic interest: "These are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types. Artistic interest is an interest in other human creative skills, like sculpture."*
- *Historic interest: "An interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of our nation's history, but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity."*

Historic England's recently published guidance: *Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic England Advice Note 12* (2019),[8] concurs with the use of this terminology and methodology, both of which will therefore be adopted for the purposes of the EIA.

This approach will allow for a detailed and justifiable determination of heritage significance and the interests from which that significance derives. In accordance with the NPPF and the PPG, the level of significance attributed to heritage assets will be articulated as follows:

[8] Historic England, *Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic England Advice Note 12* (Swindon, October 2019).

- ***Designated heritage assets of the highest significance,*** *as identified in paragraph 194 of the NPPF, comprising Grade I and II* Listed buildings, Grade I and II* Registered Parks and Gardens, Scheduled Monuments, Protected Wreck Sites, World Heritage Sites and Registered Battlefields (and also including some Conservation Areas) and non-designated heritage assets of archaeological interest which are demonstrably of equivalent significance to Scheduled Monuments, as identified in footnote 63 of the NPPF;*

- ***Designated heritage assets of less than the highest significance,*** *as identified in paragraph 194 of the NPPF, comprising Grade II Listed buildings and Grade II Registered Parks and Gardens (and also some Conservation Areas); and*

- ***Non-designated heritage assets.*** *Non-designated heritage assets are defined within the PPG as "buildings, monuments, sites, places, areas or landscapes identified by plan-making bodies as having a degree of significance meriting consideration in planning decisions, but which do not meet the criteria for designated heritage assets".*[9]

The significance of known and potential heritage assets identified within or adjacent to the development site will be dully articulated within the chapter.

7.2.5 Potential Effects

Construction Phase

Prima facie, there do not appear to be any *known* archaeological remains of material significance within the site. Various historic earthworks are recorded within the site and its wider environs, however, and the eastern margins of the site, along the watercourse, are also underlain by substantive alluvial deposits, enhancing the paleo-environmental potential of that area specifically; this is recognised by its inclusion as one of Havering Borough's Archaeological Priority Zones. Lobes of gravel are also mapped to the west within the site and, circumstantially, these may have been conducive to occupation. As such, some level of archaeological potential does pertain to the site.

Potential truncation of any currently unrecorded buried archaeological remains within the site might result from the following construction activities:

- site investigation works, including geotechnical test-pitting, borehole sampling and archaeological trenching;

- topsoil and subsoil stripping, and any other ground preparation works, e.g. 'grubbing out', site levelling, ground reduction and/or 'cut and fill';

- excavation of building foundation trenches, road trenches, and service trenches;

- excavation of balancing ponds, swales and other site drainage; and

- any changes to the on-site water table as a result of cumulative excavations, new drainage regimes, changed land-use and increased utility of local supply etc.

In combination, the above activities would have the potential to truncate any buried archaeological remains that

[9] MHCLG, *PPG*, paragraph 039, reference ID: 18a-039-20190723.

may survive within the development footprint.

Operational Phase

Any physical truncation (harm to the significance) of archaeological remains would occur during the construction phase. As such any harm to heritage significance that might result from the operational phase of the development would be as a result of changes to setting. Based upon an initial high-level review of the site's heritage context, the following heritage assets have been identified as potentially susceptible to impact as a result of changes to setting:

Listed buildings beyond the site boundary

This would principally include the following Grade II Listed buildings:

- Blankets farmhouse, to the east of the site;
- Bury Farmhouse, to the west;
- Old England, to the north;
- Little Tillingham to the north-east; and
- The group of four Listed buildings, west of North Ockendon village; the most significant of these comprises the Grade I Listed Church of St Mary Magdalene, while the others, all Grade II, comprise The Rectory and two discretely Listed lengths of garden wall associated with former Ockendon Hall.

North Ockendon Conservation Area

The village of North Ockendon is located within a Conservation Area, part of which borders a short length of the western site boundary. Parts of the site are likely to be considered to fall within the asset's setting; the extent to which those parts of the site contribute to the significance of the Conservation Area, and the extent of any harm that might result from their alteration under the proposals, would require assessment. In addition, the Conservation Area also contains the following four Grade II Listed buildings, which would also require consideration as assets in their own right:

- Russell Cottage;
- The Forge;
- Kilbro; and
- Castle Cottages.

These potential operational phase impacts will all be addressed within the technical assessment and ES chapter, alongside any other potentially susceptible assets that are identified during the course of the baseline assessment.

7.2.6 Assessment Methodology

Construction Phase

Impact Assessment Methodology

Potential development effects (impacts) will be discussed in terms of *harm to heritage significance* with reference to the NPPF (2019), as follows:

- ***Substantial harm or total loss***
  Being a level of harm that would "have such a serious impact on the significance of the asset that its significance was either vitiated altogether or very much reduced";[10] *and*

- ***Less than substantial harm***
  Being any lesser level of harm than that defined above; recent case law has confirmed that this includes any level of harm (not considered substantial) regardless of its quantification, e.g. the finding of a 'negligible' level of harm must still be treated as less than substantial harm and be weighed in the balance under paragraph 196.

The PPG provides that the category of harm identified for any given asset be *'explicitly identified'*, and that the extent of that harm be *'clearly articulated'*.[11] This will be done with reference to a 'spectrum', e.g. *at the lower/upper end of the spectrum of less than substantial*.

The NPPF does not provide that harm to non-designated heritage assets be categorised as 'substantial' or 'less than substantial', only that the scale of any harm or loss is articulated.

As clarified in the High Court, preservation does not mean no change; it specifically means no harm.[12] This is echoed in GPA 2, which states that "*Change to heritage assets is inevitable but it is only harmful when significance is damaged*".[13]

The assessment of anticipated development effects will thus be undertaken in accordance with a robust methodology, formulated within the context of current best practice, the relevant policy provisions, and key professional guidance.

Operational Phase

Settings Assessment Methodology

Settings assessment will be undertaken in accordance with the industry-standard methodology provided by Historic England in their *'Good Practice Advice in Planning Note 3: The Setting of Heritage Assets'* (revised 2017). This guidance promotes a 'stepped' (iterative) approach, as follows:

- **Step 1** assess which assets would be affected and identify their setting.

- **Step 2** assess the degree to which these settings and views make a contribution to the significance of

[10] *Bedford Borough Council v Secretary of State for Communities and Local Government* [2013] EWHC 2847 (Admin), para. 25.
[11] MHCLG, PPG, paragraph 018, reference ID: 18a-018-20190723.
[12] *R (Forge Field Society) v Sevenoaks District Council* [2014] EWHC 1895 (Admin).
[13] Historic England, GPA 2, p. 9.

the heritage asset(s) or allow significance to be appreciated.

- **Step 3** assess the effects of the proposed development, whether beneficial or harmful, on that significance or on the ability to appreciate it.
- **Step 4** explore ways to maximise enhancement and avoid or minimise harm.
- **Step 5** monitor outcomes.

7.2.7 Indicative Mitigation Measures

Should archaeological mitigation be required, then it would likely comprise a combination of mitigation by design, i.e. preservation of significant remains *in situ*, and preservation by record, i.e. a targeted, proportionate level of recording of any archaeological remains that are to be lost in part or whole.

Should harm as a result of changes to setting be identified then this might be mitigated by design, e.g. through the use of a sensitive planting scheme, incorporation of view corridors and/or reconfiguration of building height/massing etc.

7.2.8 Summary

At present, nothing has been identified that would preclude development within the site, of the nature and on the scale proposed, in respect of heritage. A full programme of cultural heritage assessment will be undertaken in order to confirm this, to identify any harm and to inform any necessary mitigation measures.

7.3 Water Environment & Flood Risk

7.3.1 Introduction

The site is situated adjacent to a watercourse called Mar Dyke, which is designated as an Environment Agency main river. There are also a number of smaller drainage ditches crossing the site, predominantly routing surface water from west to east across the site towards Mar Dyke. There are also several ponds located within the overall site boundary.

Without due consideration, the proposed development at the site could be impacted by and have an adverse effect on the water environment and flood risk.

7.3.2 Legislation, Policy & Guidance of Relevance

Legislation

On leaving the European Union, European Union Legislation as it applied to the UK on 31st December 2020 was transposed into UK domestic legislation. The key piece of European Legislation that protects the UK's water environment was the "*Water Framework Directive (2000/60/EC)*". This Directive protects all elements of the water cycle and seeks to enhance the quality of groundwaters, surface waters, estuaries and coastal waters. The Directive is transposed and implemented within England through "*The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017*". However, at time of writing the legislation, as available online, is indicated to be pending updates and therefore reference will be made to both documents.

The Groundwater Directive (2006/118/EC, including amendments to Annex II detailed under Directive 2014/80/EU) (the "GWD") is designed to combat groundwater pollution and sets out procedures for assessing

quality of groundwater. Further direction is provided within England through the Groundwater (Water Framework Directive) (England) Direction 2016. Aspects of the GWD are transposed and implemented through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, the Environmental Permitting (England and Wales) Regulations 2016 and the Groundwater (England and Wales) Regulations 2009;

The Floods Directive (2007/60/EC) requires assessment of all watercourses and coastlines to determine risk of flooding and action to take adequate and coordinated measures to reduce this flood risk. The Flood Risk Regulations 2009 transpose the EU Floods Directive into law in England and Wales

Other key national legislation, relevant to this discipline and the proposed development include:

- Environment Act 1995;
- Flood and Water Management Act, 2010;
- The Water Resources Act 1991 and amendment (England and Wales) Regulations 2009; and
- The Land Drainage Act 1991 and 1994.

Policy

The following national and local policy and guidance is considered relevant in relation to the water environment:

- National Planning Policy Framework including but not restricted to Chapter 14 *Meeting the challenge of climate change, flooding, and coastal change*. Footnote 50 of the National Planning Policy Framework outlines the requirement for a flood risk assessment;
- The London Plan 2021 Policy SI12 *Flood Risk Management* and SI13 *Sustainable Drainage* as well as information in the supplementary planning guidance *Sustainable Design and Construction (April 2014)*;
- Havering Core Strategy and Development Control Polices Plan Document (Adopted 2008) Policy DC48 *Flood Risk; and*
- Havering Draft Local Plan (2020) Policy 32 *Flood Management*

Guidance

Relevant UK guidance on good practice for construction projects and the water environment is detailed in the following documents:

- Control of Water Pollution from Construction Sites (C532), Construction Industry Research and Information Association (CIRIA) 2001;
- Environmental Good Practice on Site (C741), CIRIA 2015.
- The Environment Agency's approach to groundwater protection, version 1.2, February 2018
- The SuDS Manual (C753), CIRIA 2015

The CIRIA guidance provides help on environmental good practice for the control of water pollution arising from construction activities. It focuses on the potential sources of water pollution from within construction sites and

the effective methods of preventing its occurrence.

The EA guidance is part of a wider suite of documents and guidance relating to groundwater protection which sets out principles for assessing risk, protecting groundwater and permitting of abstractions and discharges from groundwater. The full suite can be found on the GOV.UK website[14].

The SuDS Manual incorporates the latest research, industry practice and guidance for design, delivery, and maintenance of Sustainable Drainage Systems (SuDS).

7.3.3 Establishing the Baseline

Mar Dyke is a main river and flows south along the east side of the northern half of the site and crosses the south east corner of the site. The catchment area[15] of Mar Dyke on the southern site boundary is estimated to be 30.9km^2. This catchment consists of predominantly agricultural land; however, the west of the catchment consists of Upminster urban area. The villages of Childerditch, Little Warely, Great Warley and the west side of West Horndon are also within the catchment. The areas of the site adjacent to the watercourse, are located within Flood Zones 2 and 3 however all the built development will be located within areas of site further from Mar Dyke and located within Flood Zone 1. The only elements of the development that would be within the flood extents are associated with the creation of the of the enhanced biodiversity habitat.

There are a large number of drainage ditches across the site and almost every field boundary has a drainage ditch along it. These channels are extremely straight and typically around 2m deep and circa 1m wide. These are artificial channels, constructed to maximise the agricultural potential of the site by draining the soils and conveying surface water from the west and south west of the site towards Mar Dyke. No connections between these ditches could be observed due to the high level of vegetation however, it is likely that these channels connect via buried pipework and discharge to Mar Dyke.

Additionally, there are several ponds located across the site. No obvious inflow or outflow to these ponds has been observed. These ponds are associated with the agricultural land use at the site.

The topography of the site, slopes towards the east and the course of Mar Dyke and away from an area of high elevation to the west and southwest of the site. As such any overland flow in the site following topographic gradients would flow to the north east in the western part of the site and to the east in the eastern part of the site.

The site is underlain by bedrock geology of the London Clay Formation[16]. This is part of the London Basin and therefore the London Clay Formation is underlain by White Chalk Formation. Across the majority of the site, the bedrock is overlain by superficial Head deposits consisting of clay, silt, sand, and gravel. In the east, adjacent to Mar Dyke are alluvium deposits consisting on clay, silt, sand, and gravel. All of this geology is low permeability and, as such, infiltration of rainwater and surface water flows will be limited (i.e. high levels of runoff). Approximately 80m west of the site (but upgradient of the site) there is indicated to be Black Park Gravel Member (sand and gravel).

The London Clay Formation is designated by the Environment Agency[17] as an “unproductive aquifer” defined as

[14] https://www.gov.uk/government/collections/groundwater-protection
[15] FEH Web Service, https://fehweb.ceh.ac.uk/GB/map [Accessed January 2021]
[16] British Geological Survey, Geology of Britain Viewer, http://mapapps.bgs.ac.uk/geologyofbritain/home.html?,[Accessed February 2021]
[17] Magic Map Application, DEFRA, https://magic.defra.gov.uk/MagicMap.aspx

"layers of rock with low permeability that have negligible significance for water supply or river base flow". The Alluvium and Black Park Gravel Member are designated as "Secondary A aquifers", defined as "permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases, forming an important source of baseflow to rivers". Additionally, the head deposits are designated a "Secondary (undifferentiated)" aquifer, which is assigned to heterogenous materials that contain both permeable and low permeability layers.

Groundwater vulnerability[17] across the site ranges from 'Medium-Low' and 'Low'. The site is also located in a total catchment (Zone III) Source Protection Zone (SPZ). This is defined as "the area around a source within which all groundwater recharge is assumed to be discharged at the source". This is associated with 2 abstractions located about 6km southwest and 8km southeast of the site. The abstraction is considered to most likely be from the Chalk aquifer which underlies the London Clay Formation (i.e. separated from water at the surface of the site).

7.3.4 Study Area & Sensitive Receptors

The assessment will initially consider all downstream / downgradient potential hydrological and hydrogeological receptors within 2km of the site boundary as well as the potential abstractions identified by the SPZ above.

This covers the area in which impacts could reasonably occur unless there is an intermediate water body. However, if the assessment identifies a significant potential risk at a water body that itself provides connection to outside of the 2km study area, the area would be extended to include these features. The key receptors identified at this time are:

- Mar Dyke (river) and drainage ditch network draining to Mar Dyke;
    - The Inner Thames Marshes SSSI is located a significant way downstream of the site and Mar Dyke bypasses the marsh rather than draining through it. Therefore, this is not considered further.
- Flood Risk on Fen Lane at crossing of Mar Dyke and due to changes to surface water conveyance at the south west corner of the site; and
- The Chalk Aquifer underlying the London Clay Formation and associated public water abstractions

7.3.5 Potential Effects

Construction Phase

Potential effects during the construction phase are summarised by the following:

- Increase in runoff rate and volume of surface water from the site resulting from the removal of vegetation and the compaction of the ground:
    - Increased downstream flood risk;
    - Impacts on channel morphology and ecology.
- Physical impacts and engineering works to the ditch network;
- Disruption of flows along the ditches to facilitate engineering works;

- Increase in sediment loading of water discharging from the site into Mar Dyke (including via the drainage system;
    - Blockage of infrastructure along Mar Dyke, or drainage infrastructure on Fen Lane;
    - Impacts on channel morphology and ecology; and
    - Blockage of drainage channels across the site resulting in increased flood risk to the
- Decrease in water quality of surface water leaving the site (including via the drainage system). Potential contaminants are:
    - Cementous material; and
    - Fuel, oils, and other hydrocarbons.
- Changes in water supply through the construction phase would be for the following key uses:
    - Wheel washing;
    - Sanitation and Hygiene.

Operational Phase

Potential effects during the operational phase are summarised by the following:

- Increase in runoff rate and volume of surface water from the site due to impermeable coverage:
    - Increased downstream flood risk;
    - Impacts on channel morphology and ecology.
- Changes to the conveyance of surface water across the site altering the flood risk both upstream and downstream of the site. This could result in long term morphological impact on remaining channels associated with surface water outfalls, physical structure and changes in flow patterns;
- Loss of ditches / culverting of ditches to facilitate vehicle access
- Decreases in the water quality of surface water being discharged from the site associated with;
    - Litter or debris entering the drainage system;
    - Hydrocarbons and metals particularly from vehicular access to the site;
    - Contaminates including lubricants etc. associated with the substations; and
    - Nutrient loading from the horticultural centre.
- Risk of spillages of fuel associated with the back-up generators;
- Risk of pollutants from maintenance of the substations. At this stage the substations are likely to be located within small bunded and secured cabins as is typical at industrial sites and therefore operational impacts

would be limited in relation to runoff contamination. Should this change then the scope would include assessment of the impacts from contaminants such as transformer oil.

- Changes in the water supply areas will be considered in relation to managing water as a natural resource. Key water uses at the site anticipated are:
    - Cooling water for the data centre;
    - Irrigation water at the greenhouses; and
    - Water and Sanitation requirements across the site including the Discovery Centre.

7.3.6 Elements Scoped Out

Due to the public abstractions from the Chalk to the south of the site being hydraulically separated from activities at the surface by the London Clay Formation, the risks of adverse effects on both the Chalk aquifer and the associated public abstractions is negligible particularly with mitigation to the greater risks to surface water.

7.3.7 Assessment Methodology

The Water Environment and Flood Risk Assessment will be undertaken in parallel with, and with due regard to the findings of both the Land Quality, and Ecology and Biodiversity assessments.

The Water Environment and Flood Risk ES chapter will also be informed by detailed technical assessments including (but not necessarily limited to):

- A Flood Risk Assessment undertaken in line with the requirements of the National Planning Policy Framework, associated Planning Practice Guidance, and local planning policy.
- A sustainable drainage strategy for the scheme that ensures that peak rates and volumes of storm water runoff are controlled, and which incorporates measures to manage water quality.

These detailed technical assessments with ensure where possible mitigation for effects to the Water Environment and Flood Risk are included within the development design.

The assessment will include a detailed baseline review. This will compile known information about the geology, topography and drainage of the site and the nature, value, and sensitivity of local hydrological and hydrogeological receptors. This baseline review will incorporate data obtained from:

- Observations from surveys and site walkovers (walkover already informed this report) including a detailed site topographic survey and biodiversity surveys.
- Publicly available mapping including data from Ordnance Survey, Environment Agency, British Geology Survey and Natural England.
- Other publicly data sets such as LiDAR topographic information and information relating to Water Framework Directive assessments of local water bodies and aquifers.
- Information obtained from data requests to the Environment Agency and the Local Authority including information on abstractions, licenced discharges and abstraction, private abstractions and historic pollution events and flood modelling outputs.

The Water Environment and Flood Risk ES chapter will initially use a source-pathway-receptor model. This will be used to consider whether individual elements of the construction process, or the final scheme, have the potential to give rise to adverse impacts to any local hydrological or hydrogeological receptors. Where a potential for impact is identified a risk-based approach for assessing this will be applied in line with standard industry best practice. This will be used to assesses the significance of the impact with regards to:

- the likelihood of the impact occurring and the scale of the potential change (magnitude of effect) and
- the sensitivity and importance of the receptor (receptor sensitivity).

If this process identifies potentially significant impacts associated with the scheme proposals for mitigating or managing the impact will be presented and levels of residual impact assessed. The assessment will also flag whether impacts identified are beneficial or adverse and if the associated changes are temporary or permanent in nature. This will occur for both the scheme in isolation and cumulatively with other approved (but not delivered) schemes locally.

7.3.8 Indicative Mitigation Measures

At this point the likely mitigation that will be incorporated in the design of the proposed development are:

- Siting the built development away from areas identified as being at risk from flooding from Mar Dyke;
- Setting finished floor levels to protect from internal flooding during more extreme flooding;
- Inclusion of attenuation features such as ponds and wetlands that will ensure that will assist in reducing runoff rates / volumes and manage potential changes in the quality of storm water runoff;
- Avoiding the loss of drainage ditches across the site, as far as is reasonably possible, and minimising the length of culverting; and
- Creating new ditches or swales to recreate the drainage function of any key ditches that will be lost.

7.3.9 Summary

We propose to undertake a comprehensive assessment of the potential impact of the scheme on local hydrological and hydrogeological receptors. This will be set out in the Water Environment and Flood Risk ES Chapter. Where potential adverse effects are identified, either during the construction phase or the operation of the scheme, the proposed measures for controlling these will be discussed. The assessment will then set out the level of residual risk posed to local hydrological and hydrogeological receptors.

A Flood Risk Assessment and Surface Water Drainage Strategy will also be undertaken for the scheme. This will assess the risk of flooding posed to the development and detail how storm water runoff from the site will be managed providing technical details of the key mitigation proposed to protect both the development and the water environment. This will form a technical appendix to the Water Environment and Flood Risk ES Chapter.

7.4 Noise and Vibration

7.4.1 Introduction

The noise and vibration assessment will consider the potential noise and vibration levels that could arise from the proposed construction and operation of the proposed Development. The assessment will be undertaken with

reference to the following Guidance and British Standards:

- National Planning Policy Framework (NPPF 2018).
- British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.
- British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.
- BS4142:2014+A1:2019: *Methods for rating and assessing industrial and commercial sound.*

7.4.2 Legislation, Policy & Guidance of Relevance

National Planning Policy Framework (2021)

The NPPF does not specify any noise limits to be applied to new development, rather in Paragraph 174 it states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by… preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans…".

In Paragraph 185 it states:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life…". b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason…".

Planning Practice Guidance

On 6 March 2014, the Department for Communities and Local Government (DCLG) launched the Planning Practice Guidance (PPG) web-based resource.

The section on noise includes a table that summarises "*the noise exposure hierarchy*" which offers "*examples of outcomes*" relevant to the '*No Observed Effect Level*' (NOEL), '*Lowest Observed Adverse Effect Level*' (LOAEL) and '*Significant Observed Adverse Effect Level*' (SOAEL) effect levels described in the NPSE and discussed below. These outcomes are in descriptive form, there is still no numerical definition of the NOEL, LOAEL and SOAEL and no reference to the further research that was identified as necessary in the NPSE in 2010.

British Standards and Guidance Documents

The National and Local Policies detailed above have been informed by a number of British Standards and Guidance documents. Those British Standards and Guidance Documents that will be referenced in each assessment are detailed in Table 7-2.

Table 7-2: British Standards and Guidance Documents to be Referenced

Assessment	British Standards	Guidance Documents
1: Construction noise incident existing off-Site Receptors	BS5228:2009:2014: Code of practice for noise and vibration control on construction and open sites. Noise.	-
2: Construction vibration incident existing off-Site Receptors	BS5228:2009:2014: Code of practice for noise and vibration control on construction and open sites. Vibration.	
3: Commercial/industrial noise incident existing off-Site Receptors	BS4142:2014: +A1:2019 Methods for rating and assessing industrial and commercial sound	-
4: The noise impact of development related traffic movements on transport existing sensitive receptors adjacent to links to and from the Site	-	Design Manual for Roads and Bridges Volume (DMRB) 11 Section 3 Part 7 *Noise and Vibration*

7.4.3 Establishing the Baseline

As part of the assessment baseline noise levels will be measured at locations representative of nearby Receptors.

At this stage it is hoped that the meters would be left unattended for at least 96-hours to include a weekend. If this is not possible SLR would undertake a weekday attended survey when the Site is not operational. If Site is operational on weekdays the attended survey would be completed on a Sunday.

7.4.4 Study Area & Sensitive Receptors

The Study Area and nearby sensitive receptors are shown on the Zone of Influence Plan for Noise provided within drawing 4.4 within Appendix 4. The Zone of Influence has been identified as a 500m buffer from the site boundary but this may be extended subject to the findings of the noise and vibration assessments undertaken.

7.4.5 Potential Effects

Construction Phase

A construction noise assessment would be completed with reference to BS5228:2009:2014: Code of practice for noise and vibration control on construction and open sites. Noise. Desktop predictions of vibratory compaction (steady state), vibratory compaction (start up and run-down) and piling will be completed in accordance with Table E.1 of BS5228:2009+A1:2015 BS5228-2:2009+A1:2014 *Part 2 Vibration*.

Operational Phase

An operational noise assessment would be completed with reference to BS4142:2014: +A1:2019 *Methods for rating and assessing industrial and commercial sound.*

7.4.6 Assessment Methodology

Construction Phase

Construction noise has been assessed in accordance with BS5228-1:2009+A1:2014. This standard sets out a methodology for predicting noise levels arising from a wide variety of construction and related activities and contains tables of sound power levels generated by a wide variety of mobile and fixed plant equipment.

Compliance with BS5228-1:2009+A1:2014 is expected as a minimum standard when assessing the impact of construction noise upon the existing noise environment at nearby sensitive receptors.

Noise levels generated by construction operations and experienced at local receptors will depend upon a number of variables, the most significant of which are likely to be:

- The amount of noise generated by plant and equipment being used at the development site, generally expressed as a sound power level;
- The periods of operation of the plant at the development site, known as the "on-time";
- The distance between the noise source and the receptor, known as the "stand-off";
- The attenuation due to ground absorption or barrier screening effects; and
- of noise due to the presence of hard vertical faces such as walls.

BS5228-1:2009+A1:2014 gives several examples of acceptable noise limits for construction or demolition noise. For this assessment, as baseline noise data will be available, the 'ABC method' will be used to determine the threshold value at the receptor locations.

Using the ABC method, a threshold value noise level is determined by establishing the existing ambient noise level at each location. This measured ambient noise level is then rounded to the nearest whole 5dB(A) and the threshold noise value for each receptor is then established from Table E.1 of BS5228-1:2009+A1:2014. This threshold value is the $L_{Aeq,T}$ noise level that should not be exceeded at the receptor location by operations at the site.

If the threshold value is exceeded, then the effect of construction noise upon nearby receptors may be significant. BS5228-1:2009+A1:2014 states that the significance of the effect will depend upon "*other project-specific factors, such as the number of receptors affected and the duration and character of the impact*."

The impact of construction noise upon residential receptors will be determined with reference to the ABC method presented in BS5228-1:2009+A1:2014. In accordance with this method the threshold noise levels for a potentially significant effect are as detailed in Table 7-3.

Table 7-3: Construction Noise Residential Receptors – Example Threshold Values

Assessment category and threshold value period (L_{Aeq})	Threshold value, in decibels (dB)		
	Category A [A)]	Category B [B)]	Category C [C)]
Night-time (23.00-07.00)	45	50	55
Evenings and weekends [D)]	55	60	65
Daytime (07.00-19.00) and Saturdays (07.00-13.00)	65	70	75
NOTE1 A significance effect has been deemed to occur if the total L_{Aeq} noise level, including construction, exceeds the threshold level for the Category appropriate to the ambient noise level. **NOTE 2** If the ambient noise level exceeds the threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a significant effect is deemed to occur if the total L_{Aeq} noise level for the period increases by more than 3 dB due to construction activity. **NOTE 3** Applied to residential receptors only.			
[A)] Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values. [B)] Category B: threshold values to use when the ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values. [C)] Category C: threshold values to use when the ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values. [D)] 19.00-23.00 weekdays, 13.00-23.00 Saturdays and 07.00-23.00 Sundays.			

The impact of construction noise upon nearby noise sensitive receptors will be determined with reference to BS5228:2009+A1:2014, as detailed in Table 7-4.

Table 7-4: Impact – Construction Noise

Magnitude	$L_{Aeq,T}$ Threshold Noise Level
Major	Threshold value exceeded by more than 5dB
Moderate	Threshold value exceeded between 3.0 and 4.9dB
Minor	Threshold value exceeded between 1.0 and 2.9dB
Negligible	Threshold value exceeded between 0.1 and 0.9dB
None	Threshold value not exceeded

Construction vibrations will be assessed in accordance with BS5228-2:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites - Part 2: Vibration*. This standard gives recommendations for basic methods of vibration control relating to construction and open sites where work activities/operations generate significant vibration levels.

BS5228-2:2009+A1:2014 provides guidance on the effects of vibration as shown in Table 7-5**.**

Table 7-5: Construction Vibration Residential Receptors – Example Threshold Values

Vibration Level, mms^{-1}	Effect
0.14	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.30	Vibration might be just perceptible in residential environments.
1.00	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10.00	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

The impact of construction vibration upon existing residential receptors will be determined with reference to Table 7-8 of BS5228-2:2009+A1:2014. The impact of construction vibration upon residential receptors is as detailed in **Table 7-6.**

Table 7-6: Construction Vibration – Magnitude of Change (Impact)

Magnitude	Increase in the mms^{-1} Vibration Level
High	Threshold value exceeded by 10.0mms^{-1} or more
Moderate	Threshold value exceeded between 1.0 to 9.9mms^{-1}
Minor	Threshold value exceeded between 0.3 to 0.9mms^{-1}
Negligible	Threshold value of 0.3 mms^{-1} not exceeded

Operational Phase

British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* is intended to be used to assess the potential adverse impact of sound, of an industrial and/or commercial nature, at nearby noise-sensitive receptor locations within the context of the existing sound environment.

Where the specific sound contains tonality, impulsivity and/or other sound characteristics, penalties should be applied depending on the perceptibility. For tonality a correction of either 0, 2, 4 or 6dB should be added and for impulsivity a correction of either 0, 3, 6 or 9dB should be added. If the sound contains specific sound features which are neither tonal nor impulsive, a penalty of 3dB should be added.

In addition, if the sound contains identifiable operational and non-operational periods, that are readily distinguishable against the existing sound environment, a further penalty of 3dB may be applied.

The assessment of impact contained in BS4142:2014+A1:2019 is undertaken by comparing the sound rating level, i.e. the specific sound level of the source plus any penalties, to the measured representative background sound level immediately outside the noise-sensitive receptor location. Consideration is then given to the context of the existing sound environment at the noise-sensitive receptor location to assess the potential impact.

Once an initial estimate of the impact is determined, by subtracting the measured background sound level from

the rating sound level, BS4142:2014+A1:2019 states that the following should be considered:

- typically, the greater the difference, the greater the magnitude of the impact;
- a difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- a difference of around +5dB is likely to be an indication of an adverse impact, depending on the context; and
- the lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. It is an indication that the specific sound source has a low impact, depending on the context.

BS4142:2014+A1:2019 notes that:

"Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

BS4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact including consideration of the existing residual sound levels, location and/or absolute sound levels.

To account for the acoustic character of proposed sound sources, BS4142:2014+A1:2019 provides the following with respect to the application of penalties to account for *"the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention".*

- **Tonality** – *"For sound ranging from not tonal to predominantly tonal the Joint Nordic Method gives a correction of between 0dB and +6dB for tonality. Subjectively, this can be converted to a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible and 6dB where it is highly perceptible;*
- **Impulsivity** – *A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible;*
- **Intermittency** – *When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied; and*
- **Other Sound Characteristics** – *Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied."*

Finally, BS4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact including consideration of the existing residual sound levels, location and/or absolute sound levels.

Based on the guidance presented in BS4142:2014+A1:2019 the impact of commercial/industrial noise upon proposed residential receptors will be discussed with reference to Table 7-5.

Table 7-7: Commercial/Industrial Noise Upon Residential Receptors – Impact Magnitude

Magnitude	Description
High	Rating level is 10dB(A) or more above the background
Moderate	Rating level is between 6 and 9dB(A) above the background
Minor	Rating level is between 1 and 5dB(A) above the background
Negligible	Rating level is below the background

7.4.7 Indicative Mitigation Measures

Indicative mitigation measures may include bunding / acoustic fencing at the perimeter of the site.

7.4.8 Summary

The noise assessment will consider the potential noise levels that could arise from the proposed construction and operation of the development.

The noise assessment will be undertaken with reference to relevant guidance and British Standards and will be informed by a baseline noise survey.

7.5 Transport

7.5.1 Introduction

The proposed development access strategy will be designed to promote sustainable transport access for staff and visitors.

Access for pedestrians (including public transport users) and cyclists is proposed via a street-lit traffic-free desirable landscaped route, accessed direct from the B186 Ockenden Road which routes to the development. Vehicular access will be via a new access served off Fen Lane which junctions with the B186 Ockenden Road. The new access will be designed to modern standards with the necessary parameters in terms of visibility splays and service vehicle requirements.

The primary function of the scheme is a Data Centre. Proposed alongside the Data Centre is a horticultural facility (which potentially makes use of the residual Data Centre heat energy generated), battery storage or grid balancing infrastructure, renewable energy technology/green energy production, a nature reserve open to the public and a visitor centre.

Nature reserve activity would be light and visitor centre trips would be ad-hoc group excursions. Therefore, the operational trip generation forecast will focus on the Data Centre, horticulture use and any other development related maintenance requirements.

A Data Centre generates a relatively light level of traffic relative to the size of the development, with trips mainly

associated with servicing/maintenance (including fuel deliveries for back up generators), office and security staff.

It is anticipated that the Data Centre would employ up to 100 full time security staff. These employees would operate three 8-hour shifts over a 24-hour period, equating to 33 FTE's per shift. There would then be approximately 100-150 technician/admin staff who would work more typical office hours.

The horticulture use, by its nature, would likely comprise large areas of intensive plant/crop farming which would only require a low number of staff. The proposals are also anticipated to be technology led which would further reduce the number of people required on the site. It is assumed that up to ten staff would be employed on site for the horticulture use.

A key consideration will be the impacts of the construction phase which, whilst temporary, may coincide with the construction of the Lower Thames Crossing (LTC).

The potential transport implications will be considered within a Transport Assessment (TA), with the support of a Travel Plan (TP) and Construction Logistics Plan (CLP), and an ES Transport Chapter which will reference the TA and consider the potential impacts of the proposed development on the environment.

7.5.2 Legislation, Policy & Guidance of Relevance

Analysis of the potential environmental effects of the construction and completed development stages will be undertaken in accordance with the document 'Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)' and the Institute of Environmental Management and Assessment (1993), 'Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic (IEMA Guidelines)'.

The TA will be produced in accordance with industry standard methodology and in consultation with the relevant local highway authorities where the scope of transport assessment will be determined.

The overall transport strategy design and assessment will be produced with particular consideration of the following planning policy documents:

- National Planning Policy Framework – with particular consideration of Section 9 'Promoting Sustainable Transport';
    - London Plan 2021;
    - Policy T1 - Strategic approach to transport;
    - Policy T4 - Assessing and mitigating transport impacts;
- Havering Local Plan 2016-31 (2021);
    - Policy 23 - Transport Connections; and
    - Policy 24 - Parking provision and design.

7.5.3 Establishing the Baseline

A detailed site audit will be undertaken to establish the latest local transport conditions. A detailed review of sustainable transport infrastructure will be undertaken, particularly links between existing transport hubs and

the proposed scheme, to determine suitability and potential to enhance.

Local committed development and planned highway schemes will be included within the baseline. This will include a core scenario which features the Lower Thames crossing, which is planned to route within relatively close proximity of the site. A planning search will confirm local committed developments which are likely to affect the baseline traffic conditions.

Personal Injury Accident data has been obtained to determine any existing highway safety issues. This data extends along Fen Lane between the B186 and Dunnings Lane and covers the B186 between South Ockendon and the B187.

Fen Lane and surrounding links will be assessed in detail to determine suitability for operation and construction traffic requirements. Initial reviews indicate that Fen Lane would be appropriate to serve the proposals, however the construction phase may require consideration of appropriate mitigation measures.

The scope of traffic surveys required for assessment will be discussed with the Local Highway Authority. Traffic baseline data will be determined utilising TEMPRO growth factors.

7.5.4 Study Area & Sensitive Receptors

The transport study area for the ES will be informed by the following two rules, as set out in The IEMA Guidance Notes No. 1 'Guidelines for the Environmental Assessment of Road Traffic'.

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles [HGVs] will increase by more than 30%; and
- Rule 2: include any other specifically sensitive areas where traffic flows have increased by 10% or more.

The completed development traffic assessment will be limited to the roads immediately adjacent to the development site and any roads further afield where Rule 1 is breached.

It is anticipated that traffic surveys will be required on Fen Lane and the B186 Ockendon Road in the form of 7 day classified Automatic Traffic Counts (ATC). The scope of traffic surveys will need to be discussed with the Local Highway Authority for the TA.

7.5.5 Potential Effects

IEMA guidelines state that the effects considered should comprise:

- Pedestrian delay;
- Severance;
- Driver delay;
- Pedestrian amenity; and
- Accidents and safety.

Construction Phase

The transport effects of the construction phase will be associated with construction traffic for the importation of materials, plant and equipment, and construction workers travelling to site.

Other than site setup/infrastructure works, the proposed units will be prefabricated, assembled off site and hauled which will minimise construction traffic. The effects arising from construction works are therefore not expected to be significant and would be temporary.

Appropriate management/mitigation measures should be agreed in collaboration with the Lower Thames Crossing (LTC), which will include construction vehicle scheduling/routing restrictions, site operative travel planning and car parking measures. Details on construction traffic will be included within the Transport Assessment and supporting Construction Logistics Plan.

The following potential transportation & access related impacts and effects could arise as a result of the proposed development construction at the development site:

- Temporary disruption to pedestrians, cyclists, and road vehicle users, and to the servicing and access facilities of nearby properties during the demolition and construction works;
- Temporary generation of heavy goods vehicle (HGV) traffic during the demolition and construction works;

Fen Lane is a standard two-way rural road. Whilst temporary, the implications of additional HGV traffic using this route, the B186, and the wider highway network, will need to be assessed.

The potential for cumulative impacts of the construction of the LTC and the construction of the proposed scheme will be assessed.

Operational Phase

The transport effects of the operational phase will be associated with staff travel, visitor travel, and site servicing requirements. The effects of additional vehicular traffic and other transport mode activity on the local area and highway network will need to be assessed.

The following potential transportation and access related impacts and effects could arise as a result of the proposed development at the site:

- Changes to traffic flows on the local highway network upon completion of the proposed development;
- Changes to pedestrian and cycle facilities, including safety issues;
- Changes to public transport accessibility;
- Changes to road safety risks;
- Changes to pedestrian amenity (including fear and intimidation; severance; delay);
- Parking supply and demand at the proposed development; and
- Access and servicing arrangements at the proposed development and nearby properties.

In accordance with the EIA Regulations consideration should be given to the need for the EIA to include an assessment of any direct and indirect cumulative effects arising from the inter-relationships between development. The objective is to identify whether combined effects from the scheme or impacts from several developments when considered together, cause a further significant direct or indirect and cumulative impact requiring mitigation. A cumulative assessment will therefore be undertaken which has regard to relevant schemes that are 'reasonably foreseeable' (i.e. usually those under construction or with planning permission).

7.5.6 Elements Scoped Out

The level of proposed operational traffic, once dispersed from Fen Lane, is unlikely to result in a perceptible impact on the junctions for the M25, A13, and A127. Therefore, analysis of these junctions and links will not be required. Evidence supporting this conclusion will be provided within the TA.

7.5.7 Assessment Methodology

Analysis will be completed in accordance with the document 'Guidance on the preparation of the Environmental Impact Assessment Report' and the Institute of Environmental Management and Assessment (1993), 'Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic' (IEMA Guidelines). In the absence of guidance or thresholds, e.g. public transport and cycling impacts, professional judgement will be applied.

The TA will be produced in accordance with industry standard methodology and in consultation with the relevant local highway authorities where the scope of transport assessment will be determined.

Construction Phase

The transport requirements of the construction process will be reviewed in detail within the TA, with predicted traffic volumes and vehicle sizes specified.

Access to the site for construction vehicles will be a key consideration. Measures will be taken to prevent any detrimental impacts on the local or wider highway network in terms of highway safety and/or operation as a result of HGV traffic accessing the site.

The cumulative impacts of the construction of the LTC will also be a key consideration and management / mitigation measures will be proposed, where necessary.

Given the temporary nature of the construction phase, and with the implementation of appropriate management/mitigation measures, the effects arising from construction works are expected to be non-significant and temporary.

It is expected that no detrimental effects to the local highway network are expected in terms of capacity or operation, and sustainable transport modes such as cycle, bus, and rail are also expected to remain un-affected by the works.

Operational Phase

A detailed trip generation forecast will be undertaken within the TA which considers the various elements of the proposed scheme. This will comprise vehicular traffic generated by staff/visitors associated with the Data Centre and agricultural use, and trips associated with the nature reserve and visitor centre.

The ES Chapter will draw on design and assessment undertaken within the TA. The impacts of the proposed trips will be assessed on the basis of the IEMA Methodology & Significance Criteria. Mitigation measures will be

proposed as necessary and residual impacts concluded.

7.5.8 Indicative Mitigation Measures

It is anticipated that the following measures will be required to mitigate/minimise the transport impacts of the proposal:

- Potential access route improvements;
- Travel Plan;
- Construction Traffic Management Plan; which considers
    - HGV routeing;
    - HGV restrictions/scheduling;
    - Construction operative car parking; and
    - Measures to prevent detritus on the highway.

7.5.9 Summary

The potential transport implications in terms of highway safety and operation will be determined within a Transport Assessment (TA) with the support of a Travel Plan (TP).

An ES Transport Chapter will be produced which references the TA and considers the potential impacts of the proposed development on the environment. The residual effects will be considered and concluded on the basis of the IEMA Methodology & Significance Criteria.

7.6 Landscape & Visual

7.6.1 Introduction

The Landscape and Visual Impact Assessment (LVIA) is being carried out by experienced landscape architects at SLR Consulting. It will identify and assess the potential effects of the Proposal on the landscape and visual resource of the study area. It will focus on potentially significant effects, and accordingly the LVIA will also outline the approach taken to the design of the proposed development, as well as mitigation measures that would be implemented, to prevent, reduce or offset potential adverse landscape and visual effects.

7.6.2 Legislation, Policy & Guidance of Relevance

Key policy is established at a national level by the National Planning Policy Framework (NPPF). At a local level the site lies within the London Borough of Havering and the local plan documents set out the key local policy context. The site lies close to the boundaries with Thurrock Council and Brentwood Borough Council the local plan documents for these local authorities will also be relevant to the LVIA.

The following sections describe the policy context in more detail, together with outlining the key guidance documents that will inform the LVIA.

National Policy: National Planning Policy Framework (NPPF)

Paragraph 11 sets out the fundamental principle of this document: that there is a presumption in favour of sustainable development. All development that is in accordance with the development plan should be approved *"without delay"* and that *"where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date"* permission should be granted for development *"unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the Framework taken as a whole."*

In relation to landscape, the NPPF defines sustainability as including the protection and enhancement of the *"natural, built and historic environment"* (paragraph 8).

Paragraph 98 relates to rights of way and access, stating that these should be *"protected and enhanced"*. It is noted that better facilities should be provided for users of rights of way, for example by *"adding links to existing rights of way".*

Paragraphs 124, 128 and 130 relate to the need for good design in new developments. Paragraph 124 states that *"good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities".* Paragraph 128 states that applicants should work closely *"with those directly affected by their proposals to evolve designs which take account of the views of the community".* Paragraph 130 states that *"permission should be refused for development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions".*

Paragraph 170 of the NPPF states that the planning system, *"should contribute to and enhance the natural and local environment by [inter alia] …protecting and enhancing valued landscapes"* and by *"recognising the intrinsic character and beauty of the countryside".* Paragraph 171 states that the planning system should *"distinguish between the hierarchy of international, national and locally designated sites".*

In paragraph 172 it is stated that *"great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty".*

Local Policy

The local policy context is set out in the London Borough of Havering Local Plan 2016-2031. Review of the adopted Policies Map identifies that the site for proposed development lies within the Green Belt, a Countryside Conservation Area and Thames Chase Community Forest. These are discussed in more detail in the baseline section below.

The adopted Local Plan sets out a number of strategic objectives, which include objectives that relate to local character. Several Core Policies will be applicable to the LVIA, including:

- Policy 18 – Open Space, Sports and Recreation, due the potential effects the Public Right of Way through the site and potential contribution of the development to green infrastructure and open space;
- Policy 26 – Urban Design, due to the need to maintain or improve the character of the local area;
- Policy 27 – Landscaping, due to the need to ensure the site is sensitively landscaped; and
- Policy 29 – Green Infrastructure, with the site lying within the All London Green Grid and Thames Chase Community Forest.

The Havering Local Plan 2016 – 2031 includes objectives for the protection and enhancement of the character of the local area. There are also objectives that relate to access and artificial lighting. Policies 26 – Urban Design and 27 – Landscaping both have relevance to the LVIA due to the references to local character of the site and surroundings, the protection of landscape features and the opportunities that can be presented by landscape proposals that form part of a proposed development. Policy 29 Green Infrastructure relates to the Council's objective the maintain and enhance the network of green spaces within the Borough.

As the site is located entirely within the London Borough of Havering the analysis focusses on the policy context associated with that Borough, where relevant to the LVIA. However, it is recognised that the site lies close to the boundaries with both Thurrock Council and Brentwood Borough Council. The review of the local policy, relevant to LVIA considerations, for these neighbouring local authorities has been focused on designations, as these may influence landscape value judgements.

There are no landscape character-based designations within Thurrock in close proximity to the site. However, it is noted that the land to the east and south of the site is defined as being part of Thames Chase, with the associated planning policies being focussed on recreation, together with forest creation and management.

The Brentwood Local Plan 2016 – 2033 (Adopted March 2022) includes the Writtle Ancient Landscape in the southern part of the borough (approximately 3km to the north east of the site). The Writtle Ancient Landscape is not covered by any specific policies, but it is referred to as a *"designated Ancient Landscape"* and also a *"natural asset"* with the Brentwood Local Plan. In addition, the part of Brentwood Borough to the north of the site forms part of Thames Chase Community Forest and is covered by Policy NE04. The aims of the Thames Chase Plan overlap include landscape specific principles, particularly the aims to *"conserve, improve and expand the woodland character of the Community Forest"* and *"to sustain the natural integrity of the Community Forest's air, land and water including wildlife"*.

Guidance

The LVIA methodology will follow good-practice guidance and advice on the assessment of the impacts of development on, landscape and visual resources. The key source of guidance is the Guidelines for Landscape and Visual Impact Assessment (Third Edition, 2013) (GLVIA 3). Other guidance documents, including those specific to photography and visualisation techniques such as Visual Representation of Development Proposals (Landscape Institute Technical Guidance Note 06/19, September 2019), will also inform the assessment.

7.6.3 Establishing the Baseline

The establishment of baseline conditions relating to the landscape and visual resource will involve a combination of desk study, preparation, and review of mapping and aerial photography as well as field work. This is described in more detail in Section 7.6.7 (Assessment Methodology) below. Key sources of information that would be used to inform the analysis of the baseline include published landscape character assessments. Preliminary review of designations and landscape character assessments that are expected to be most relevant has been undertaken and is described in Section 7.6.5 below. The LVIA will concentrate on those baseline receptors within the study area that are anticipated to incur significant effects.

7.6.4 The Site

The site for the proposed Data Centre predominately comprises agricultural land used for growing arable crops. In addition, a small number of fields are set to pasture and there is a small area of woodland within the northern part of the site. The fields are divided by hedgerows, with hedgerow trees in places. The field pattern is generally relatively intact, although some sections of hedgerow have been removed or become fragmented. Home Farm

is located adjacent to the southern edge of the site. One Public Right of Way, which extends northwards from Home Farm, is located within the boundary.

7.6.5 Study Area & Sensitive Receptors

it is proposed that the study area will comprise 5km from the boundary of the proposed development. The extent of the proposed Study Area is based on knowledge of the potential characteristics of the proposed Data Centre, the local landscape, the key changes that are likely to occur and experience of other similar scale developments. The potential height of the permanent structures within the data centre (anticipated to be up to 21m above ground level) has also informed the extent of the proposed Study Area. This would be reviewed as the LVIA progresses based on the findings of a zone of theoretical visibility (ZTV) analysis and preliminary assessment judgements to identify the likely extent of significant effects. It also intended to discuss and agree this proposed study area as part of more detailed LVIA specific consultation.

The site is not within or close to any national designations for valued landscapes, such as AONBs or National Parks. Other landscape-related designations in the locality are summarised below, these would be considered in more detail in the LVIA:

- The site lies within the Thames Chase Community Forest;
- As described in the local policy section above, parts of Brentwood Borough to the north form part of a Landscape Improvement Area and a Special Landscape Area;
- Two Registered Parks and Gardens lie within the landscape surrounding the site: Thorndon Hall approximately 3.2km to the north east and Belhus Park approximately 3.8km to the south west;
- Conservation Areas at North Ockendon and Cranham Hall lie approximately 500m and 2km to the west of the site;
- There are several Listed Buildings and Scheduled monument within the landscape surrounding the site, together with one Grade II Listed Building (Bullens and Herds – a Late C17 early C18 timber-framed farmhouse) within the site. However, the Bullens and Herd building has been de-listed;
- Land within the northern part of the site lies within a Site of Nature Conservation Area, with similarly designated sites located in the surrounding landscape; and
- A Public Right of Way (footpath) crosses the eastern part of the site, extending northwards from Fen Lane past Home Farm.

Note that while the above heritage and ecological designations covered above will be addressed more specifically in other technical assessments, they can also be used to help inform judgements in relation to landscape value and sensitivity.

Landscape Character

National Landscape Character

At a national scale the site is included within Natural England's National Character Area (NCA) 111: Northern Thames Basin. NCA111 is described as "an area rich in geodiversity, archaeology and history and diverse landscapes ranging from the wooded Hertfordshire plateaux and river valleys, to the open landscape and predominantly arable area of the Essex heathlands, with areas of urbanisation mixed in throughout". It notes

the development pressure associated with the proximity to London and consequences this has had for the landscape. Landscape opportunities noted which are of relevance to the site include the following:

- *"Restoring the connectivity of key habitats as well as expanding and creating new habitats which will maintain and enhance their attraction for visitors. Also, working to increase species diversity and density to increase this attraction for the community.*
- *Preserving the open landscape, enhancing geodiversity and biodiversity, for example the iconic species and habitats that attract visitors, to preserve their appeal to the wider community.*
- *Promoting the establishment of a coherent and resilient network of treescapes (native woodland, wood pasture, parkland, coppice, scrub, field trees and hedgerows) through expanding and linking existing woodland with areas of new planting.*
- *Creating new woodlands, taking into account natural processes, and bringing them into wood production management. Sensitively incorporating them into and around new developments to enhance landscape character. Community woodlands should be maintained and increased where possible for this purpose as well as for recreation."*

Local Landscape Character

At local level the most up to date and relevant landscape character assessment for the site and surrounding area has been published by The Thames Chase Trust; Land of the Fanns Landscape Character Assessment (August 2016). Analysis of this a landscape character assessment identifies that that the site lies almost entirely within, and on the western edge of the Thurrock Reclaimed Fen landscape character area. This is described as *"low lying inland basin which contrasts with the rising land of Brentwood Wooded Hills to the North, Ockendon Rolling Farmland to the west, Langdon Hills to the east and Orsett Lowland Farmland to the south"*. The landscape character assessment identifies that this landscape lies within the Greater London Green Belt and partly within the Thames Chase Community Forest area. The key characteristics of the Thurrock Reclaimed Fen are identified as follows:

- *"London Clay geology with alluvial deposits associated with the upper reaches of the Mardyke and tributaries;*
- *Flat, open and exposed landscape with expansive views extending to the 15-20m contour at its fringes;*
- *Land use is predominately arable in large to medium sized fields but formerly extensive areas of fen;*
- *Within the lowest lying areas there are few field boundaries and fields are drained by ditches;*
- *Hedgerows of mainly blackthorn and elm occur mainly in the outer fringes of the area;*
- *Woodland blocks are infrequent and rectilinear and recently planted with the exception of Clay Tye Wood;*
- *Willow and poplar are prevalent along ditches and watercourses;*
- *Place names reflect former areas of marsh and fen landscape which are steeped in history and folklore;*
- *Sparse settlement comprising dispersed pattern of farms and village of Bulphan and more recent development at West Horndon associated with the railway;*

- *There are numerous waterbodies in this landscape including field ponds and also reservoirs which are not visually significant;*
- *Strong rectilinear patterns as a result of field divisions, drainage ditches, hedgerows (often gappy) and causeway lanes; and*
- *Settlement is dispersed and sparse and restricted to slight rising land or fen edges."*

The landscape character assessment identifies a number of key changes that are taking place in this character area, including:

- *"Intensive agriculture resulting in loss of wet pasture/fen to arable land use, significant field aggregation and loss of infield ponds;*
- *Loss of traditional boundary features such as hedges impacts on the pattern of the landscape and visual cohesion;*
- *Development of large farms and associated large scale buildings with planting of conifer wind breaks;*
- *Growth of settlement and in particular West Horndon with associated industrial estate due to location on railway line;*
- *Urbanisation adjacent to this landscape can cause visual intrusion on the flat and open character; and*
- *Recreational uses, such as golf courses impact upon the agricultural character of the landscape."*

Notable changes above, in the context of the proposed development, are the references to loss of field boundaries, development of large-scale buildings and influence of urbanisation.

Surrounding landscape character areas, which are the most likely to be relevant to the LVIA, include the Belhus Lowland Quarry Farmland to the east, together with the Langdon Hills and Farmland to the north. These areas would be included in the fieldwork and analysis of sensitivity to the proposed development and the assessment of potential effects.

Visual Baseline

Potential viewpoints will be identified and agreed with the local planning authority. Key visual receptors for inclusion in the LVIA include:

- Residential receptors within North Ockendon, together with dispersed residential properties and farms within the landscape surrounding the site, consideration will also be given to the residents of more distant settlements including the edges of South Ockendon and Bulphan;
- Public Rights of Way: including the effects on people that walk on the footpath through the site, together with routes in the wider landscape;
- Golfers and visitors to Top Meadow Golf Club and hotel, which lies immediately to the south of the site (on the opposite side of Fen Lane); and
- Vehicular Users: the views experienced by vehicular users, particularly along Fen Lane, North Road (B186), Dunnings Lane and St Mary's Lane, also potentially people travelling on the M25.

7.6.6 Potential Effects

Construction Phase

The construction phase would result in loss and disturbance of landscape features and elements, within the site itself, together with potential impacts on the perception of landscape character and visual amenity. Key activities that would cause this include vegetation removal and soil stripping, together with the construction of new structures within the data centre.

The assessment of construction phase effects will concentrate on changes to landscape fabric and the consequence of these. This will include the loss of landscape features and elements, the importance of these and the contribution they make to local character.

Operational Phase

The presence of the operational Data Centre would have potential effects on the perception of landscape character. It would also affect views experienced by people living in, visiting, or travelling through the study area. Potential visual effects could result from visual intrusion or obstruction of existing views.

The nature and level of these effects could vary over time, with the key influencing factor being incorporated mitigation such as woodland planting. As the woodland planting matures it is likely to aid the integration of the proposed development and reduce its relative prominence.

The LVIA will consider the potential effects of the operational phase on landscape and visual receptors. It is anticipated that assessment will be focussed on the 5km area surrounding the proposed development. This will include desk based and field survey work. A ZTV will be prepared to inform evaluation of the extent of potential effects on landscape character and visual amenity. Viewpoint photography will be undertaken at agreed locations to record the baseline and inform the prediction of potential effects. Whilst the viewpoints are more specifically linked with the assessment of effects on visual receptors they will also help inform and illustrate the landscape impact assessment work.

7.6.7 Elements Scoped Out

Landscape and visual receptors that are located beyond the proposed 5km study area will generally be scoped out unless any specific issues are identified during the consultation process.

It is intended that the proposed Data Centre would comprise a permanent development. Therefore, it is not proposed to include a detailed assessment of potential effects associated with decommissioning.

7.6.8 Assessment Methodology

The assessment will be based on recognised guidelines, principally the 3rd edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA 3) (Landscape Institute and Institute of Environmental Management and Assessment, 2013). The process followed will conform to the recommendations of GLVIA 3 as well as the landscape assessor's own professional experience, focusing on likely significant impacts, rather than assessing all potential impacts. This will allow determination of the key residual impacts resulting from the proposed development. Viewpoint photography will be undertaken and presented based on the Landscape Institute's Visual Representation of Development Proposals (September 2019).

The key assessment stages will be:

- Confirming the scope of the assessment, in terms of study area extent, key viewpoints and LVIA content, including cumulative considerations;
- An iterative approach to the mitigation of potentially significant adverse impacts through the assessment process;
- Preparation of the LVIA and accompanying drawings and visualisations; and
- The LVIA will include judgements in relation to the susceptibility, value and sensitivity of landscape and visual receptors, the predicted magnitude of change and the predicted level of effect, and whether these predicted effects will be significant.

We anticipate that the LVIA will concentrate upon a 5km study area. However, if necessary, important receptors beyond this area will also be considered. This study area is based on knowledge of the characteristics of the proposed development, the local landscape, the key changes that are likely to occur and experience of other similar scale developments.

Landscape

The assessment of potential landscape effects will concentrate on the proposed study area for the LVIA. A character assessment will establish the baseline landscape conditions and examine the sensitivity of the context of the site and surrounding study area to the potential changes associated with the proposed development. The potential landscape effects of lighting associated with the proposed Data Centre will be assessed as part of the LVIA. This is likely to concentrate on receptors closer to the proposed Data Centre and the exact scope would be agreed through consultation during the preparation of the LVIA.

The assessment will require a combination of desk study and fieldwork. The desk study and baseline assessment will include analysis of published information on landscape character and landscape designations. This will inform judgements in relation to the value, susceptibility, and sensitivity of landscape receptors.

The landscape assessment will use the published landscape character assessments, refined through fieldwork, to establish the existing baseline landscape character of the study area and identify distinct landscape character types. The location, use, landscape elements, scale, nature of views and landscape quality of character areas/types will be described. Landscape character will be assessed, and potential impacts identified based on the principles set out in GLVIA 3. A review of published information has identified several key documents that inform this, as set out above in relation to policy and baseline context. The LVIA will take into consideration the potential impacts of the proposal on relevant landscape designations.

The assessment will identify key characteristics of the landscape and visual context that may inform the design of the proposed development. The emphasis of the baseline study will be the recording and describing of existing features that are important in the local context and their contribution to character.

The significance of potential landscape impacts will be determined using professional judgement and a robust method. The evaluation of potential impacts will focus on impacts on landscape features and elements, and the perception of landscape character.

Visual

Potentially sensitive visual receptors are located within the LVIA study area. These include residents, users of PROW, road users and tourists/visitors to the coast and surrounding landscape. The visual assessment will be based on:

- The analysis of the ZTV for the proposed development;
- Field survey to review potential visibility and the changes that will occur; and
- Views from agreed viewpoints representing sensitive visual receptors within the study area at a range of distances and directions from the proposed development.

The viewpoint assessment will be carried out to determine the potential impacts of the proposed development on specific receptors and viewpoints within the LVIA study area. However, important viewpoints beyond this will also be considered if appropriate. Viewpoints proposed for inclusion in the assessment will be agreed through consultation with relevant consultees. The viewpoints will allow an assessment of the key elements of the proposed development to be made from a range of locations within the study area. Viewpoints could also be selected to support the assessment of impacts on the cultural heritage assets, these may be specific to the cultural heritage assessment or used in both this and the LVIA.

The existing and predicted view of the proposed development will be described and illustrated using photography. A 35mm equivalent camera (i.e. a full frame digital single lens reflex camera) with a 50mm lens is the chosen format for recording the viewpoint photography, which is endorsed as the most suitable camera combination/focal length for landscape and visual impact assessment work. For each viewpoint the photography will be presented showing the existing view and, if required, visualisations (e.g. wireline or photomontage as appropriate) to illustrate the predicted view of the proposed development can be prepared. The visualisations will be prepared in accordance with relevant good-practice guidance e.g. the Landscape Institute's Visual Representation of Development Proposals (September 2019). The need for photography that reflects views seen in different seasons at certain locations will be agreed with key consultees as part of the viewpoint selection process.

The potential visual effects of lighting associated with the proposed Data Centre would be considered as part of the LVIA. This is likely to concentrate on receptors located closer to the proposed Data Centre and would be reviewed as more information is known about the likely worst case requirement for lighting. This aspect of the LVIA would be agreed in more detail with consultees whilst the LVIA is being undertaken.

As with the assessment of landscape impacts, the significance of the potential visual impacts will be determined using professional judgement and a robust method. The evaluation of potential impacts will focus on how changes resulting from the proposed development are predicted to affect visual amenity within the study area.

The potential effects on residential visual amenity (RVA) would be considered as part of the LVIA. The approach to this would be based on guidance published by the Landscape Institute (Technical Guidance Note 02/19 Residential Visual Amenity Assessment). The extent of the area in which RVA is assessed would draw on the findings of the LVIA and also the ZTV analysis. At this stage it is expected that such work would be focussed on a 2km area surrounding the site, although this would be agreed through consultation undertaken during the LVIA.

7.6.9 Indicative Mitigation Measures

As part of the design process for the proposed Data Centre, a number of designed-in measures are proposed to reduce the potential for impacts on landscape and visual receptors. Potential measures are presented below and will evolve over the development process as the EIA progresses and in response to consultation.

Reef Estates are committed to implement these measures and also various standard sectoral practices and procedures. It is therefore considered that these measures will form part of incorporated mitigation i.e. the LVIA will describe the predicted effects of the proposed development based on their inclusion where possible

Potential measures adopted as part of the proposed development could include:

- Development of, and adherence to, a Code of Construction Practice (CoCP);
- Reinstatement and restoration of construction compounds following the construction phase;
- Design of the buildings within the Data Centre including, for example, the placement of certain components where possible to simplify the appearance of the development, the materials selection, colouring of specific structures or elements;
- Careful consideration of fencing such as materials, colouring and placement in relation to any screen planting;
- Consideration of screening options such as planting and earthworks; and
- Reducing and/or careful design of permanent artificial light sources within the Data Centre, including limiting any lighting to be sensor activated or use infrared cameras for security lighting where possible.

7.6.10 Summary

The LVIA will establish the landscape and visual baseline conditions using a combination of desk-based work and field studies. The assessment will consider all elements of the proposed development, with an emphasis on the larger structures. The assessment will concentrate on a study area extending 5km from the proposed development.

A number of sensitive landscape and visual receptors within this study area have been identified for potential inclusion in the assessment. Viewpoints would be selected to represent visual receptors at a range of distances and directions from the site, and it is anticipated that these would be agreed with the local planning authority. The sensitivity to change of receptors identified within the proposed study area and magnitude of the change to the baseline conditions, as a result of the proposed development, will be predicted based on professional judgement. The significance of these changes will be assessed and stated.

7.7 Land Quality & Ground Conditions

7.7.1 Introduction

The land quality chapter of the ES will assess the potential for contamination to be present at the site. It will be based on the findings of a standalone Preliminary Land Quality Risk Assessment (PLQRA) report which will be appended to the ES.

7.7.2 Legislation, Policy & Guidance of Relevance

This project falls under the remit of the Town and Country Planning Act 1990 and is subject to both local and national planning policies. The National Planning Policy Framework (NPPF) July 2021 has a core aim to:

- encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value.

The NPPF states the planning system should contribute to and enhance the natural and local environment by:

  - Clause 120c - giving substantial weight to the value of using sustainable brownfield land within

settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land; and

- Clause 174e - preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and

Furthermore, the NPPF says that planning policies and decisions should also ensure that:

- Clause 183a - a site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation; and that

- Clause 183b - after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990 (meaning Category 3 or 4).

- Clause 183c – adequate site investigation information, prepared by a competent person, is able to inform these assessments.

The national planning policy directs those involved in development to ensure sites are suitable for use and not be capable of being determined as contaminated land under Part 2A – which means that the category of land, post remediation (if required) should be considered.

The London Plan 2021, Policy SD1 Opportunity Areas "encourages the strategic remediation of contaminated land" and states Boroughs should "take appropriate measures to deal with contamination that may exist".

London Borough of Havering has a Contaminated Land Inspection Strategy (rev 2 November 2016). It refers to Development Control Policy (DC53) which states planning permission for development will only be granted where both of the following criteria are met:

- Where the development is on or near a site where contamination is known, or expected to exist, a full technical assessment of the site's physical stability, contamination and/or production of landfill gas must be undertaken. Where the assessment identifies an unacceptable risk to human health, flora or fauna or the water environment, the applicant will be required to agree acceptable long term remediation measures before any planning permission is granted to ensure there is no future harm with regard to the future use of the site. Where feasible, on-site remediation, especially bio-remediation, is encouraged.

- The development does not lead to future contamination of the land in and around the site.

However, this policy has now been superseded by Policy 34 Managing Pollution of the London Borough of Havering Local Plan 2016-2031, which states:

"The Council will support development proposals that:

i. Do not unduly impact upon amenity, human health and safety and the natural environment by noise, dust, odour and light pollution, vibration and land contamination;
ii. Do not pose an unacceptable risk to the quality of the water catchment, groundwater or surface water; and
iii. Optimise the design, layout and orientation of buildings and the use of green infrastructure to

minimise exposure to the above pollutants."

The approach to land quality assessment should be consistent with Government / Environment Agency Guidance: 'Land Contamination Risk Management' (LCRM) (Environment Agency, 2020).

7.7.3 Establishing the Baseline

The site is owned and operated as agricultural land associated with four working farms. The site comprises land used for arable farming, associated field boundaries, ditches and ponds and vehicular access tracks/roads. The site is accessed from a track entering the centre of the southern boundary off Fen Lane. Two storage areas are located adjacent to the end of the access track. These include stockpiles of waste materials and bulk above ground storage tanks. An animal shelter is also located in this area.

The site is located within a predominantly agricultural area with a number of nearby farms and residential housing within 50m of the development boundary. There is an existing sewage works located adjacent to the northern site boundary. There are no other industrial areas or recorded historical landfills located within 500m of the site.

7.7.4 Study Area & Sensitive Receptors

This study area which will be assessed as part of the PLQRA will be the proposed site boundary, plus a buffer of 500m to include a review of potentially contaminative sources and sensitive receptors within 500m of the site boundary. There are working farms, a sewage works, a golf course, residential properties and surface water drains and Mar Dyke (watercourse) within 500m of the site. British Geological Survey records indicate the site is underlain by superficial deposits of Head and Alluvium, overlying solid deposits of London Clay on Chalk at significant depth. The site is located within a Zone 3 Source Protection Zone for groundwater.

7.7.5 Potential Effects

Potential impacts are generally associated with the possible presence of contamination on the site within soil, groundwater, surface water and soil gas.

Construction Phase

Our assessment will consider the potential for mobilisation of contaminants during excavation and movement of the stockpiled materials and below ground soils at the site. The impact on potentially sensitive receptors such as surface water and groundwater will be considered. Temporary storage of fuels for use within construction equipment, or use of other hazardous substances during the construction phase will also be considered.

Operational Phase

SLR will consider the potential impacts to ground conditions from any proposed storage of fuels e.g. for backup generators. Once the site is operational and any appropriate mitigation measures are implemented it is not considered that there will be any potentially significant pollutant linkages which require further consideration.

7.7.6 Elements Scoped Out

No intrusive site investigation works are proposed at this stage as a PLQRA is likely to be sufficient to define the baseline site conditions. Future mitigation measures including significant soil or groundwater remediation are not likely to affect the design or phasing of the scheme. If further works of intrusive investigation are required based on the findings of a PLQRA it is envisaged that they would be a condition as part of any subsequent consent.

7.7.7 Assessment Methodology

Construction Phase

To assess the potential risks associated with contamination a Phase 1 Preliminary Land Quality Risk Assessment will be undertaken. The scope of work for a Phase 1 PLQRA will include:

- site walkover to observe the presence of potential sources of contamination on and adjacent to the site;
- assessment of sensitivity and environmental setting through a review of geological and hydrogeological data and records regarding the quality of nearby surface waters and underlying groundwater;
- review of land use history through examination of historical Ordnance Survey maps;
- review of free online public register information including information on potential sources of contamination, such as landfills or industrial activities; and
- development of a conceptual site model (CSM), identification of potential pollutant linkages using a source-pathway -receptor approach and qualitative assessment of potential risks to the proposed development.

The output from the above review will be a Phase 1 Preliminary Land Quality Assessment Report on the potential environmental (ground contamination) issues identified that may require consideration. It will include a conceptual site model identifying potential pollutant linkages and a qualitative risk assessment.

Overall, this “precautionary” approach is designed to give confidence to the local authority that the development site, in accordance with the National Planning Policy Framework, is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation.

It is also our objective to show that Reef Estates’ redevelopment will leave the site / the land in a condition where it is not capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990.

Operational Phase

SLR will consider the potential impacts to ground conditions from any proposed storage of fuels e.g. for backup generators. Once the site is operational and any appropriate mitigation measures are implemented it is not considered that there will be any potentially significant pollutant linkages which require further consideration.

7.7.8 Indicative Mitigation Measures

We will use the mitigation hierarchy (Avoid, Minimise, Reduce and Offset) to suggest mitigation where necessary in accordance with that hierarchy. Such measures could include intrusive site investigation, removal or treatment of any contamination, or implementation of appropriate storage and containment measures. The extent of hard cover associated with proposed buildings, hardstanding and access roads will limit contact with underlying ground and infiltration in operational areas.

7.7.9 Summary

We propose to undertake a PLQRA in order to provide a conceptual model of potential pollutant linkages and assessment of risks from contamination to the proposed development.

7.8 Ecology & Biodiversity

7.8.1 Introduction

The Biodiversity Chapter of the EIA will include an Ecological Impact Assessment undertaken with reference to current good practice guidelines for Ecological Impact Assessment (EcIA) (CIEEM, 2019). This EcIA will provide decision-makers with information about the predicted ecological effects and their likely significance associated with the proposed development. The EcIA will be undertaken using baseline ecological data collected from published sources and up to date field survey information for species and habitats. Field data will be collected in accordance with current good practice guidance. Field survey reports will be provided as technical appendices to the main ES.

The EcIA will be supported by a Biodiversity Net Gain technical appendix, which will describe the approach taken to design a development that delivers Biodiversity Net Gain in the long term.

7.8.2 Legislation, Policy & Guidance of Relevance

Legislation

A summary of legislation relevant to biodiversity in England is provided below. Note that the summary provided here is intended for general guidance only and the original legislation should be consulted for definitive information.

Environment Act (2021)

The Environment Act has wide ranging provisions including those around:

- Environmental governance;
- Environmental regulation;
- Waste and resource efficiency;
- Air quality and environmental recall;
- Water;
- Nature and biodiversity; and
- Conservation covenants.

Of particular relevance is Part 6 of the Act which introduces “biodiversity gain in planning” and will apply in England to planning applications under the Town & Countryside Act and the Planning Act. Schedule 14 now requires that biodiversity gain of 10% (according to calculations undertaken in a government-sponsored Metric) be a condition of planning permission in England. These changes will be enacted through subsequent secondary legislation or regulations, which are expected to be brought in between 2023 and 2025. The Act also changes the

responsibilities of Government and other public bodies by strengthening the existing NERC Act 2006 biodiversity duty (see below). Public authorities are now required to seek to conserve and enhance biodiversity in the exercise of their functions.

Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. Under the Habitats Regulations it is an offence to deliberately capture, kill or disturb[1] wild animals listed under Schedule 2 of the Regulations as well as damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time). European Sites, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), are also protected under the Habitat Regulations, and any project or plan that is likely to have a significant effect upon the interest features of a European Site will require a Habitats Regulations Assessment (HRA).

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

Part 3 of the regulations provide for the protection of areas of habitats or species where maintenance of the status of water is an important factor. Under the regulations additional consideration may need to be given to sites in the form of a Water Framework Directive (WFD) assessment where a project lies in proximity to a water body or to linked water bodies which could be affected. This includes consideration of whether water bodies are WFD receptors in particular those of high status or have high status morphology.

Natural Environment & Rural Communities (NERC) Act 2006

Section 40 of the NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity in the exercise of their functions. Public authorities include government departments, local authorities and statutory undertakers. Section 41 of the Act requires the publication of a list of habitats and species publish which are of principal importance for the purpose of conserving biodiversity. The Section 41 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.

Protection of Badgers Act 1992

The Protection of Badgers Act 1992 makes it illegal to kill, injure or take a badger or to intentionally or recklessly interfere with a badger sett. Sett interference includes disturbing badgers whilst they are occupying a sett or obstructing access to it.

Wildlife & Countryside Act 1981

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way (CRoW) Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting;
- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act;

- intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act;
- intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection;
- Pick or uproot any wild plant listed under Schedule 8 of the Act; or
- Plant or cause to grow in the wild any plant species listed under Schedule 9 of the Act.

Planning Policy

A summary of national planning policy relevant to biodiversity in England is provided below. Note that the summary provided here is intended for general guidance only and the original policy documents should be consulted for definitive information. For local planning policy relevant to biodiversity the relevant local plans have been consulted.

National Planning Policy (England)

The National Planning Policy Framework (NPPF) sets out guidance for local planning authorities and decision-makers in how to apply planning policies when drawing up plans and making decisions about planning applications. Along with Government Circular 06/05[2], the broad policy objectives in relation to the protection of biodiversity and geological conservation in England through the planning system are set out. Specific policies relating to habitats and biodiversity are set out in paragraphs 174 and 179-182 of the NPPF.

Paragraph 174 states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:
a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development f) should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
F) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate".

Paragraph 179 states that:

"To protect and enhance biodiversity and geodiversity, plans should:
a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity;

wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity."

Paragraph 180 states that:

"When determining planning applications, local planning authorities should apply the following principles:
a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."

Paragraphs 181-182 relate to European sites (referred to as habitats sites) and state:

"The following should be given the same protection as habitats sites:
a) potential Special Protection Areas and possible Special Areas of Conservation;
b) listed or proposed Ramsar sites; and
c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."

Local Planning Policies

A summary of local planning policy relevant to biodiversity in England and Wales is provided below. Note that the summary provided here is intended for general guidance only and the original policy documents should be consulted for definitive information.

London Plan 2021

Policy G6 Biodiversity and access to nature

A Sites of Importance for Nature Conservation (SINCs) should be protected.

B Boroughs, in developing Development Plans, should:

1) use up-to-date information about the natural environment and the relevant procedures to identify SINCs and ecological corridors to identify coherent ecological networks

2) identify areas of deficiency in access to nature (i.e. areas that are more than 1km walking distance from an accessible Metropolitan or Borough SINC) and seek opportunities to address them

3) support the protection and conservation of priority species and habitats that sit outside the SINC network, and promote opportunities for enhancing them using Biodiversity Action Plans

4) seek opportunities to create other habitats, or features such as artificial nest sites, that are of particular relevance and benefit in an urban context

5) ensure designated sites of European or national nature conservation importance are clearly identified and impacts assessed in accordance with legislative requirements.

C Where harm to a SINC is unavoidable, and where the benefits of the development proposal clearly outweigh the impacts on biodiversity, the following mitigation hierarchy should be applied to minimise development impacts:

1) avoid damaging the significant ecological features of the site

2) minimise the overall spatial impact and mitigate it by improving the quality or management of the rest of the site

3) deliver off-site compensation of better biodiversity value.

D Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.

E Proposals which reduce deficiencies in access to nature should be considered positively.

Policy G7 Trees and woodlands

A London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest – the area of London under the canopy of trees.

B In their Development Plans, boroughs should:

1) protect 'veteran' trees and ancient woodland where these are not already part of a protected site[18]

2) identify opportunities for tree planting in strategic locations.

[18] Forestry Commission/Natural England (2018): Ancient woodland and veteran trees; protecting them from development, https://www.gov.uk/guidance/planning-applications-affecting-trees-and-woodland

C Development proposals should ensure that, wherever possible, existing trees of value are retained.[19] If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

Havering Local Plan 2016-2031

Policy 29 Green infrastructure

The Council will seek to maintain and expand the network of green spaces and natural features in Havering and optimise the benefits of green infrastructure to the environment, economy and community.

The Council will support development which includes green infrastructure on-site which is multifunctional and integrates into the wider green infrastructure network.

Developers are expected to work with existing partnerships to support and enhance green infrastructure provision including:

- *The All London Green Grid*
- *Thames Chase Community Forest*
- *Rainham Wildspace*
- *Land of the Fanns Landscape Partnership*
- *Roding, Beam & Ingrebourne Catchment Partnership*

Policy 30 Biodiversity and geodiversity

The Council will protect and enhance the borough's natural environment and seek to increase the quantity and quality of biodiversity in Havering by:

- *Ensuring developers demonstrate that the impact of proposals on protected sites and species have been fully assessed when development has the potential to impact on such sites or species. Appropriate mitigation and compensation measures will also need to be identified where necessary. If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission will normally be refused;*
- *Not permitting development which would adversely affect the integrity of Specific Scientific Interest, Local Nature Reserves and Sites of Importance for Nature Conservation except for reasons of overriding public interest, or where adequate compensatory measures are provided; If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning*

[19] Category A, B and lesser category trees where these are considered by the local planning authority to be of importance to amenity and biodiversity, as defined by BS 5837:2012

permission will normally be refused;

- *Supporting proposals where the primary objective is to conserve or enhance biodiversity;*
- *Encouraging developments where there are opportunities to incorporate biodiversity in and around the development;*
- *Supporting developments that promote the qualitative enhancement of sites of biodiversity value, (by supporting proposals that improve access, connectivity and the creation of new habitats. Measures include maintaining trees, native vegetation, and improving and restoring open spaces and green infrastructure for the benefit of wildlife;*
- *Working with partners and local conservation groups to improve conditions for biodiversity in the borough.*

Policy 31 Rivers and river corridors

Havering's rivers and river corridors fulfil important biodiversity, recreation, placemaking, amenity, freight transport and flood management functions which the Council will seek to optimise.

The Council will seek to enhance the river environment by requiring major developments in close proximity to a river to investigate and, where feasible, secure opportunities to restore and enhance rivers and their corridors in line with the Thames River Basin Management Plan (RBMP). This should, wherever possible, include the integration of flood defences into new developments. Where enhancements or restoration are financially viable but not feasible a financial contribution will be sought.

To protect and enhance the biodiversity and amenity value of river corridors while accommodating future adaptations to flood defences, the Council will require development to be set back by 8 metres from main rivers, ordinary watercourses and other flood assets, and 16 metres from tidal rivers or defence structures, including tie rods and anchors.

In the Thames Policy Area (as identified on the Policies Map) the Council will support development which:

i. Establishes a link with the river, preserves and enhances views to and from the river and creates a high quality built and natural environment;
ii. Contributes towards the enhancement and extension of a riverside path to enable local communities to enjoy the riverside providing the appropriate life-saving equipment such as grab chains, access ladders and life buoys are provided along the river edge;
iii. Facilitates and acts on the recommendations of the Thames Estuary 2100 Plan;
iv. Contributes to the safeguarding of Halfway Wharf and Phoenix Wharf from redevelopment for other purposes which would prejudice their use for river based freight related purposes.

Good Practice Guidance

The EcIA, BNG assessment and field survey work will be informed by current good practice guidance documents, as recommended by the Chartered Institute of Ecology and Environmental Management. A full list of survey methods and guidance will be provided in the final report, but key documents are listed below:

- Chartered Institute of Ecology and Environmental Management (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine;

- CIRIA-CIEEM-IEMA (2016) Biodiversity Net Gain: Good Practice Principles for Development
- Baker, Hoskin and Butterworth (2018) Biodiversity Net Gain. Good Practice Principles for Development. A Practical Guide. CIRIA 2019 Ref: C776a and C776b;
- The UK Habitat Classification v1.1 (UKHab Ltd, 2020). http://www.ukhab.org

7.8.3 Establishing the Baseline

A desk-top study would be undertaken for existing biological records, through a request to the local Ecological Records Centre, Greenspace Information for Greater London and other relevant local data centres. This search would cover statutory and non-statutory wildlife sites within 2km and the recorded presence of protected and notable species within the vicinity of the proposed development site. Digital biodiversity data would be collected from various sources, including HM Government and associated departments, e.g. DEFRA and Natural England.

Field habitat survey would provide habitat information for each parcel of land, classified using the UKHab classification and supported by a colour habitat plan prepared in GIS. In addition to the recording of habitats, a search for evidence of protected, rare and notable species that could occur in such habitats would be undertaken. More detailed field surveys would be undertaken for a range of protected, notable and priority species where considered likely to be present and where there is potential for the populations to be affected by the proposed development.

In order to inform BNG assessment, we propose to assess habitat condition of UKHab land parcels using DEFRA published guidance. It is expected that DEFRA Guidance would be updated early in 2023 and, if possible, the most recent published version available will be used for this study. SLR will complete a UKHab survey and Habitat Condition Assessment, with hedgerow and river condition assessments undertaken in accordance with Natural England Guidance (July 2021). A walkover survey targeted at identification of suitable habitats and presence of arable weed species, including loose silky-bent (*Apera spica-venti*) would be undertaken. Condition assessment, arable weed and habitat surveys would be undertaken in late spring 2021, which is consistent with the appropriate season for field survey for the habitats and species present on the site.

Fauna surveys would be scoped in more detail following initial field assessment. It is expected that detailed field surveys for the following groups would be required:

- Wintering bird surveys commenced in 2021. Winter surveys conducted to date are: January and February 2021. SLR proposes to cover a full winter season (December 2022 – February 2023)
- Breeding bird surveys commenced in 2021. A survey was conducted in each month: March – June 2022. . SLR proposes additional bird surveys in the 2023 breeding season. To date, bird surveys have been conducted each month between August 2022 – November 2022 and will continue to April 2023
- Great crested newt presence/absence survey. We have undertaken GCN eDNA and Habitat Suitability Index (HSI) surveys for ponds within the development site in 2021. These results will be used to assess the likely presence/absence of this species from within the site. SLR proposes to update the HSI of ponds in 2023 to assess whether baseline remains the same and whether additional GCN surveys are required.
- SLR has undertaken reptile surveys within the development site in 2021. Common lizard and grass snake were recorded. The results showed that the site supports a low population of common lizard. It was not possible to assess the grass snake population against the criteria as only juveniles were found. SLR proposes to undertake a walkover assessment of the habitats within the site in 2023 to highlight any changes to the baseline and whether additional surveys, or changes to the assessed baseline populations,

may be required.

- Bat surveys, principally focussed upon bat foraging and commuting routes across the site and potential for roosting in trees. Preliminary Roost Assessment (PRA) was conducted in 2022 for individual trees and woodland within the site and were followed up by Potential Roost Feature (PRF) Assessment by climb and inspection surveys in 2022. Trees with High, Moderate and Low potential to support roosting bats were recorded including a tree with a confirmed bat roost. SLR proposes bat activity surveys of trees in 2023. Surveys of buildings may be scoped in, depending upon the likelihood of impacts to buildings within and adjacent to the site.

- Badger surveys were undertaken in 2021 and 2022. Limited field signs were recorded in 2021, with badger setts identified on site in 2022. SLR proposes update walkover surveys in 2023 to provide additional context for assigning sett 'types' and whether any additional setts have been excavated.

- Water vole and otter surveys were undertaken in 2022. To date no signs of either species have been identified. Artificial water vole rafts were placed within the tributary of Mardyke in 2022 and surveys of these rafts are being conducted alongside the remaining bird surveys until end of the bird survey. These results will be used to assess the likely presence/absence of this species from within the site.

- Habitat surveys were conducted in 2021 and 2022 and included; UK Habitat Classification Survey, Condition Assessment including River Condition Assessment and Hedgerow Regulations survey. SLR proposes the additional tree and botanical surveys; BS5837:2015 tree surveys, lower plants, hedgerows and detailed botanical surveys, as required to inform the baseline conditions.

- Additional surveys for other notable or priority species, e.g. targeted terrestrial invertebrate survey, stream and aquatic macrophytes and fauna surveys. may be commissioned in the event that further information about the likely presence of sensitive biodiversity receptors comes to light during other surveys.

7.8.4 Study Area & Sensitive Receptors

A survey area for field survey work will be the proposed development boundary, i.e. Red Line boundary, focussed upon areas of suitable habitat for the species concerned. A broader Zone of Influence will be established for individual sensitive receptors that have potential to be affected by the proposed development. For example, a potential Zone of Influence of 10km will be referred to for International Sites, i.e. SPA, SAC and Ramsar sites and 2km for Sites of Species Scientific Interest. Potential impacts upon locally designated sites will be considered up to 1km from the site boundary.

Baseline work completed to date has highlighted the following sensitive receptors:

- Thames Estuary and Marshes SPA, which is approximately 9.5km to the south-east.

- Fairplay Farm, Havering Borough Grade 1 Site, Ref: HvBI09. This 82.14ha site supports arable fields with arable flora, including loose silky-bent (*Apera spica-venti*), harvest mouse, brown hare, hedges with ancient trees and ditches. This site occurs partially within the proposed development site, to north-west.

- hedgerows, veteran and ancient trees in field boundaries and field margins,

- Long-established broadleaved woodland,

- rivers and ditches,

- Populations of protected and notable fauna and flora, which may include those species proposed for further survey above, if present. Known species receptors that will be considered in the impact assessment are:
    - breeding and wintering birds,
    - badgers,
    - bats – foraging and commuting habitat and roosting bats in trees,
    - common lizard and grass snake populations within the study area,

7.8.5 Potential Effects

Construction Phase

The construction phase of the proposed development would directly impact upon habitats within the footprint of the site, this could adversely affect populations of species associated with these areas. In addition to direct adverse impacts, the creation of new habitats in retained areas of the site and the conversion of arable land to land managed specifically for biodiversity will represent a positive benefit for biodiversity. During construction phase, the avoidance or mitigation for adverse impacts upon biodiversity would be prioritised. Indirect impacts to biodiversity receptors both within and outside the proposed development site are also possible, e.g., as a result of changes in hydrology, increased traffic or air quality impacts.

Operational Phase

During operation, there is potential for on-going impacts to biodiversity resources, including for example:

- Adverse effects to bat commuting routes as a result of operational lighting;
- Positive effects as a result of the introduction of long-term management to retained and enhanced habitats within and adjacent to the site.

7.8.6 Elements Scoped Out

Impacts to designated sites beyond the Zones of Influence identified earlier have been scoped out of further assessment. Impacts to other ecological receptors will be considered on a precautionary basis, however, where there is no pathway for an impact to occur, or no evidence that a particular species or receptor is present, these elements will be scoped out of further survey. Impacts upon receptors that are less than local importance (using the geographical context approach described in CIEEM, 2019) will also be scoped out. In the latter case, it is considered that the effects upon widespread biodiversity and ecosystem services of less than local importance, would be captured by the quantified BNG approach proposed.

7.8.7 Assessment Methodology

Construction Phase

Ecological Impact Assessment will follow standard industry good practice approach, as described in CIEEM, 2019.

Operational Phase

Ecological Impact Assessment will follow standard industry good practice approach, as described in CIEEM, 2019. During the operational phase, monitoring and management of biodiversity features created and enhanced through the BNG process will be undertaken. At pre-agreed stages of the management plan, biodiversity audits will be undertaken to report back on the success, or otherwise, of biodiversity enhancement measures and, in the event that particular measures are failing to meet their objectives, adaptive management would be implemented to address the shortcomings.

7.8.8 Indicative Mitigation Measures

We will use the mitigation hierarchy (Avoid, Minimise, Reduce and Offset) to suggest mitigation where necessary in accordance with that hierarchy.

Mitigation for ecological receptors would follow established good practice and focus upon recommending measures where there is good evidence to demonstrate that they are likely to be effective.

7.8.9 Biodiversity Net Gain

The approach to BNG will follow the established Good Practice Principles of Biodiversity Net Gain (CIRIA, CIEEM and IEMA, 2016) and associated Good Practice Guidance (Baker, Hoskin and Butterworth, 2018). BNG will be defined as a specific, quantifiable outcome of project activities that delivers demonstrable benefits to biodiversity compared to the baseline situation. BNG approach will use an agreed Biodiversity Metric, expected to be the DEFRA Metric 3.1. BNG assessment will be supported by a Biodiversity Management Plan sufficient to monitor the success of BNG activities proposed at the site. All BNG-related activities will be fully costed and committed to as part of the proposed development in accordance with good practice guidance published at the time of preparation.

7.8.10 Summary

The Biodiversity Chapter of the EIA will include an Ecological Impact Assessment, supported by baseline ecological data collected from published sources and field survey for species and habitats.

The EcIA will be supported by a Biodiversity Net Gain technical appendix, which will describe the approach taken to design a development that delivers Biodiversity Net Gain in the long term.

7.9 Socio-Economics

7.9.1 Introduction

The assessment of the potential socio-economic effects will include consideration of the following:

- demographic and labour market characteristics (covering the occupational profile and the availability of skills within the labour force);
- employment, economic activity and unemployment trends;
- commuting and travel to work relationships;
- business demography: the number, size profile and sectoral representation of the business base;

- recreational and tourism receptors including footpaths and cycle routes; and
- land use of the site.

7.9.2 Legislation, Policy & Guidance of Relevance

Legislation

There is limited guidance available on undertaking assessment of socio-economic effects of development, but the following are relevant and will inform the assessment:

- measuring the economic impact of an intervention or investment (Office for National Statistics, 2010);
- relevant national standards; and
- Green Book (HM Treasury, 2003, updated July 2011).

In addition, the socio-economic assessment will provide a summary of relevant planning policy and guidance at the national, regional and local level. Where appropriate, relevant standards set out in regional and local policy and guidance will inform the assessment.

7.9.3 Establishing the Baseline

The assessment of socio-economic baseline conditions and potential impacts will utilise a number of methodologies, data sources and assumptions to identify the key receptors to be considered in the socio-economic assessment. The socio-economic baseline will be established through utilisation of:

- the most up to date Census Data available;
- Business Register and Employment Survey (BRES); and
- London Borough of Havering employment and recreation data.

The key receptors considered to be impacted during the construction and operational phases are:

- local and national GVA during the project lifetime;
- local and national employment during the project lifetime;
- local supply chain effects during the project lifetime; and
- land use of the site, including recreational assets, such as attractions or footpaths.

7.9.4 Study Area & Sensitive Receptors

A two-tiered Study Area is proposed for the assessment comprising:

- a Wider Study Area (WSA); and
- a Local Area of Influence (LAI).

Wider Study Area (WSA)

The WSA is the study area within which effects on economic conditions could occur. The WSA is required for certain receptor groups, such as the labour market because the majority of effects that could occur in relation to these receptors would be experienced by population and business centres over a relatively wide area. We propose that the WSA would focus on LBoH but, where appropriate, would also consider effects extending into the Greater London area as a whole given the Sites location to neighbouring London Boroughs.

Local Area of Influence (LAI)

The LAI forms the focus for assessment of both direct and indirect effects on those land use and recreational receptors that are likely to experience effects at a more local level. This is considered to be the development boundary, together with an area extending to 1km from the site.

7.9.5 Potential Effects

The development will have a range of socio-economic effects during the construction and occupation phases. The key impacts arising from the proposed development will be associated with the increase in employment on the site. In broad terms, the likely sensitive receptors in the local area are considered to be:

- existing local businesses and employees;
- existing local residents; and
- recreational facilities, such as footpaths and cycle routes.

Employment

The assessment would consider the number and type of jobs likely to be created within the development and the resulting supply chain effects. In terms of permanent phase effects, we will calculate permanent full-time equivalent using job density estimates based on standard guidance such as that published by HCA. These estimates can also be converted into additional local labour supply using local labour market information obtainable via the ONS (employment and activity rates).

The assessment will also consider construction phase effects on local employment and the supply chain. Although construction phase impacts are by their very nature temporary, for large-scale schemes such as this, these construction phase effects can be both sizeable and extend over a period of many months or years. The data used to estimate these jobs are based on ONS and construction industry data.

Recreation

The assessment will consider how:

- access to existing open space and recreational facilities will be impacted; and
- the availability and provision of recreational space within the proposed development.

7.9.6 Elements Scoped Out

The EIA Regulations require the consideration of the potential effects on climate change and human health where significant effects are likely to occur. However, the relevance of such factors is proportionate to the nature

and scale of the project being considered. The prevailing baseline environment is likely to experience variations in the future due to climate change. Where relevant to the proposed development, such as the potential to increase the risk of flooding, these matters are addressed elsewhere within the EIA. However, at a site-specific scale, these changes are unlikely to have a significant effect upon the socio-economic receptors. Therefore, potential effects related to climate change are not considered to be relevant to the assessment of socio-economics effects in this instance.

The socio-economic aspects of the scheme (provision of jobs and demand on community infrastructure) could potentially give rise to indirect beneficial effects on human health and wellbeing. However, such effects are difficult to quantify are likely to be very widely dispersed through marginal changes to the wider employment markets, and so the effect would not be significant at this level. It is therefore proposed that this socio-economic assessment will scope out effects on the health and wellbeing of residents and workers.

7.9.7 Assessment Methodology

There is no industry standard guidance for this assessment. The proposed method for assessment, based on experience on similar projects, is detailed below and will take into consideration any matters raised in this scoping exercise. The assessment will:

- consider the social and economic policy context at the local, regional and national level;
- review socio-economic and recreation baseline conditions within the relevant study areas;
- assess the likely scale, scope, permanence and significance of identified effects;
- recommend mitigation measures, where appropriate; and
- assess cumulative effects of the scheme with other proposed schemes.

It is proposed that the assessment will consider construction and operational effects. Effects associated with the construction phase of the proposed development are considered to be temporary and short-term. Effects associated with the operational phase of the proposed development are considered to be long-term effects.

The assessment will use desk-based information sources to assess the likely effects, supplemented by consultation with relevant stakeholders if relevant, and professional judgement based on previous experience.

There are no published standards that define receptor sensitivity relating to socio-economic assessment. As a general rule the sensitivity of each receptor or receptor group is based on its importance or scale and the ability of the baseline to absorb or be influenced by the identified effects. For example, a receptor (such as the local construction supply chain or a right of way) is considered less sensitive if there are alternatives with capacity within the relevant study area. In assigning receptor sensitivity, consideration has been given to the following:

- importance of the receptor e.g. local, regional, national, international;
- availability of comparable alternatives;
- ease at which the resource could be replaced;
- capacity of the resource to accommodate the identified impacts over a period of time; and
- level of usage and nature of users (e.g. sensitive groups such as people with disabilities).

The level of effect of an impact on socio-economic receptors is initially assessed by combining the magnitude of the impact and the sensitivity of the receptor. Where an effect is classified as Major, this is considered to represent a 'significant effect' in terms of the EIA Regulations. Where an effect is classified as Moderate, this may be considered to represent a 'significant effect' but would be subject to professional judgement and interpretation, particularly where the sensitivity or impact magnitude levels are not clear or are borderline between categories or the impact is intermittent.

Impacts and effects can be beneficial, neutral or adverse and these would be specified where applicable. It should be noted that significant effects need not be unacceptable or irreversible.

7.9.8 Indicative Mitigation Measures

Many of the socio-economic effects of the proposed development are likely to be beneficial in that the proposed development would contribute positively to the local economy and recreational facilities. One of the key objectives of the site design will be to provide necessary services and infrastructure within the proposed development as far as possible. However, if it is deemed appropriate off-site mitigation to meet any additional demand, through financial contributions via the Community Infrastructure Levy (if adopted following the Local Plan) and/ or the Section 106 agreement would be utilised.

7.9.9 Summary

The assessment would address effects on the local economy and social infrastructure using established methodology for such assessments. The assessment would draw on published data sources and take guidance from national and local standards and policy guidance to establish the likely significance of effects, which are expected to be beneficial as well as adverse. Mitigation would be considered for any adverse effects identified.

8.0 Environmental Issues to be 'Scoped Out'

8.1 Utilities

8.1.1 Introduction

Reef Estates has appointed SLR to advise on the existing infrastructure and provision of utilities for the development proposals; the current key findings of which are outlined in brief below. Nevertheless, it is relatively standard for utilities to be scoped out of the EIA, as it is anticipated that the development will not produce a significant impact on the existing infrastructure (including from cumulative impact).

8.1.2 Legislation, Policy & Guidance of Relevance

The London Plan 2021 Policy D2 (Infrastructure requirements for sustainable densities) gives policy and guidance to ensure developments are designed for the provision of future planned levels of infrastructure and are proportionate to the site's connectivity and accessibility. Where insufficient capacity currently exists boroughs should work with applicants and infrastructure providers to ensure sufficient capacity exists at the right time and is phased accordingly.

The policy continues when a development is acceptable but exceeds the capacity in a site allocation, then the additional proportionate infrastructure capacity should be provided as part of the development. A site-specific infrastructure assessment (or utilities assessment) should be prepared. This assessment should establish what additional impact the proposed development will have on current and planned infrastructure, and how this can be appropriately mitigated on the site.

8.1.3 Methodology

Utilities search information compiled by Groundwise Searches Ltd has been received from the client dated December 2020. Enquiries were all the relevant utility companies, statutory undertakers and authorities. Internet queries and searches were also performed through various website companies such as LineSearch and Sitefinder. The information in this section is based on the responses received to date from the following service providers.

Table 8-1: Summary of Main Utility Providers

Utility	Service Provider with Services on or adjacent to site
Water (Mains)	Essex & Suffolk Water
Drainage & Sewerage	Essex & Suffolk Water
Electricity	UK Power Networks (UKPN) / National Grid Transmission
Gas	Cadent Gas Limited
Telecommunications	BT / Virgin Media / Vodafone

The proposals are set within a rural context with multiple significant utility providers in proximity to the site.

8.1.4 Key findings

Telecommunications

Existing services, Vodafone and Virgin Media, have been identified to the west of the Site along Ockendon Road. Should planning consent for the development proposal be granted, future connections on site would need to be costed and a specification of works determined to serve the proposed development.

ITS Technology Group, who has built new fibre infrastructure across Havering and South Essex, has provided a report into 'Connecting London Data Freeport'. This report identifies that their infrastructure currently reaches to within 4.6km and 2.5km from the proposed site. Extending the infrastructure to the site can be achieved relatively easily by utilising existing Openreach infrastructure, with a short dig section across farmland (subject to survey). Figure 14 below identifies the indicative connection routes to the two nearest points of the existing ITS fibre network infrastructure.

Figure 14: ITS Technology Group – Indicative Fibre Connection Routes

As such, connection to the existing fibre network is not considered likely to result in likely significant effects and can be appropriately dealt with outside of the EIA.

Power

Warley Substation is situated approximately 450 m to the north-west of the Site. Associated apparatus serving the area, such as the overhead lines and supporting pylons/poles, would be required to be removed and relocated. Furthermore, any existing HV and LV cables would not need to be diverted or lowered to facilitate the development proposal.

Based on the upper quantum of development identified within Section 4.0, it has been identified by Noveus (January 2023) that reinforcement works will be required at the Warley GSP to connect the development site to

the network whilst additional capacity requirements will be delivered on site (i.e. substations and green energy as described in Section 4).

Gas

Gas lines servicing the existing area would possibly need to be disconnected at the site boundary. It would need to be assessed whether the existing network will have sufficient capacity to serve the proposed development. Since the area is served by both National Grid Transmission (Gas) and Cadent Gas Limited, the chance of requiring external reinforcement works is very low.

Foul Drainage

An overview of the proposed development plan (July 2022) indicated that diversionary works may be required. An assessment would be required to determine if the existing drainage system would have sufficient capacity to facilitate the proposed development. It should be noted that surface water drainage is dealt with separately within Section 7.3 above.

Water

The water distribution network has been identified on the southern exterior of the Site in an easement along Fen Road. Therefore, the likelihood of requiring diversionary works or capping of the potable water supply and/or fire hydrants to accommodate the proposed development is very low.

Figure 15: Proposed development area and existing utilities layout plan

Note that surface water drainage is not shown, and that the layout plan is based on a utilities search conducted in December 2020.

Any proposed utility infrastructure will be checked and taken in to account during the design of the proposed development. If, as expected, there is no significant equipment within the site boundary, then no significant

effects on infrastructure are likely and this topic will be scoped out of the assessment. In the unlikely event that significant infrastructure, such as major gas pipelines of overhead power lines are proposed, then agreement with the relevant providers on appropriate mitigation will be sought to provide full and effective mitigation.

8.1.5 Summary

It is expected that there is no significant infrastructure proposed within the site boundary, and no significant effects on infrastructure are likely. It is recommended that this topic should be scoped out of the ES and dealt with under a standalone assessment/report.

8.2 Tree Survey & Arboricultural Impact Assessment

Whilst potentially cross referenced by other technical reports and ES Chapters, the Tree Survey and Arboricultural Impact Assessment is factual in nature and will be submitted as a standalone report. As such, the document will not be contained within the EIA, nor will a technical chapter be prepared as part of the ES.

Should the Tree Survey and Arboricultural Impact Assessment form part of the baseline information or technical evidence to one of the chapters of the ES, it will be provided as a Technical Appendix within Volume 2 of the EIA.

8.3 Minerals Safeguarding Assessment

Whilst potentially cross referenced by other technical reports and ES Chapters, the Minerals Safeguarding Assessment will be factual in nature and will review the quantum of minerals resource which would be sterilised as a result of the development. As such, this will be submitted as a standalone report in support of the planning submission and will not be contained within the EIA, nor will a technical chapter be prepared as part of the ES.

Should the Minerals Safeguarding Assessment form part of the baseline information or technical evidence to one of the chapters of the ES, it will be provided as a Technical Appendix within Volume 2 of the EIA.

8.4 Agricultural Land Classification

Whilst potentially cross referenced by other technical reports and ES Chapters, the Agricultural Land Classification Report will be factual in nature and will be submitted as a standalone report. As such, the document will not be contained within the EIA, nor will a technical chapter be prepared as part of the ES.

Should the Agricultural Land Classification form part of the baseline information or technical evidence to one of the chapters of the ES, it will be provided as a Technical Appendix within Volume 2 of the EIA.

8.5 Health Impact Assessment

As outlined within Section 7.9 above, the proposed Socio-Economic chapter is seeking to 'scope out' matters relating to human health and wellbeing given that such effects are difficult to quantify are likely to be very widely dispersed through marginal changes to the wider employment markets, and so the effect would not be significant at this level.

However, LBoH may wish for a Health Impact Assessment (HIA) to be undertaken in support of the proposed development. If an HIA is required, this would be undertaken in accordance with appropriate methodology (to be agreed with LBoH) but will not be contained within the EIA, nor will a technical chapter be prepared as part of the ES.

Should the Health Impact Assessment form part of the baseline information or technical evidence to one of the chapters of the ES, it will be provided as a Technical Appendix within Volume 2 of the EIA.

8.6 Other Environmental Issues

A number of new environmental issues topic matters were recently introduced into EIA requirements through the EIA Regulations. These 'Other Environmental Issues' include the potential assessment of:

- Infrastructure;
- Waste;
- Population and Human Health;
- Climate and Carbon Balance; and
- Risks of Major Accidents and/or Disasters.

None of these topics are considered likely to result in significant effects for a development of this nature at this location during either the construction or operational phases of the development. Therefore, it is proposed that these are 'scoped out' of the assessment.

Notwithstanding, the table below seeks to provide further details regarding the consideration of the above topics and justification as to why they should be 'scoped out' of the ES:

The development proposals include for the provision of up to 50,000 square metres of battery storage or grid balancing infrastructure across the site to support Greater London and UK's electrical network at peak periods, support renewable energy technology on and off site together with the achieving the development future Zero carbon targets.

8.7 Green Energy

The development provides for up to 50,000 square metres of green energy power generation technology such as gas or hydrogen generators, fuel cell, battery storage, green micro grid or other technology to achieve on site renewable energy and future Zero carbon targets.

Table 2: Other Environmental Issues

Topic	Considerations	Justification
Infrastructure	The site contains both overhead power lines and a high pressure gas pipeline. However, the necessary development standoff to the overhead power lines has been allowed for within the development build zone design, whilst the gas pipeline is located within the area to be utilised for Parkland / Enhanced Biodiversity Habitat. The proposed development will require	Given that no physical alterations are proposed to the existing gas pipeline infrastructure, and the necessary easements can be accommodated within the design, the risk of major accidents and/or disasters is inherently low. As such, likely significant effects are considered unlikely with regard to existing infrastructure.

Topic	Considerations	Justification
	improvements to utilities infrastructure, including electricity connections, battery storage, grid balancing infrastructure and green energy power generation on site. These items will be considered within the utilities assessment rather than in a standalone ES chapter on infrastructure.	The improvements to other utilities infrastructure, including electricity connections, battery storage, grid balancing infrastructure and green energy power generation will support both the site, Greater London and UK's electrical network at peak periods and contributing toward future Zero carbon targets. On this basis, any likely significant effects would be positive in nature. Any offsite works to the grid infrastructure at Warley GSP would be located outside of the remit of the development proposals and should be considered separately to the content of this submission.
Waste	Given the agricultural nature of the site, it is unlikely that there would be significant levels of contaminated soils and materials which would need to be removed from site and disposed of at appropriately licenced sites. Furthermore, material excavated in creating the necessary development platforms is intended to be re-utilised elsewhere on site to re-engineer the landform and create bunds along the most sensitive boundaries. There will be limited wastes associated with the operation of the development.	Given that the site is not anticipated to result in significant levels of waste during both the construction and operational phases of the development, no significant effects are anticipated.
Population and Human Health	The proposed development will not change the population in the geographic location of the site. The construction and subsequent operation of the development could result in land quality, noise, air quality and transport related effects that could impact upon human health. Residential and human receptors will be considered within the associated technical chapters of the ES, whilst the 'Other Environmental Effects' chapter will bring these considerations together..	There are no population related effects to be considered beyond those associated with employment generated during the construction and operational phases. With regard to human health, these are suitably considered within the individual technical chapters of the ES including; land quality, noise, air quality and transport. These can be suitably addressed within the individual technical chapters, whilst any in-combination effects will be considered within the Cumulative chapter of the ES. If required, an HIA would be prepared but would not form part of the EIA.
Climate and	Emissions associated with the construction	Given that construction phase effects are

Topic	Considerations	Justification
Carbon Balance	phase of the development will be predominantly short term and temporary in nature. Furthermore, as detailed above, construction is not anticipated to result in likely significant effects associated with the wastes generated during this phase. The proposals include for a range of sustainable and beneficial energy related elements, including electricity connections, battery storage, grid balancing infrastructure and green energy power generation on site. Furthermore, waste heat created by the data centre operations is proposed to be utilised within the heated horticulture.	not considered to result in likely significant effects, and the operational phase is likely to result in beneficial effects for the wider area, these matters can be suitably dealt with as part of the wider submission and do not need to be considered further within the ES. Matters relating to climate change and greenhouse gases would be dealt with under Water Environment & Flood Risk and Air Quality. As such, there would be no requirement for a standalone Climate and Carbon Balance Chapter within the ES.
Risk of Major Accidents and/or Disasters	The site contains both overhead power lines and a high pressure gas pipeline. However, the necessary development standoff to the overhead power lines has been allowed for within the development build zone design, whilst the gas pipeline is located within the area to be utilised for Parkland / Enhanced Biodiversity Habitat. The site is not located in an area which is subject to likely environmental factors which could lead to such an event; i.e. flood zones, earthquake zones, contamination, unexploded ordinance or alike. Whilst it is not possible to confirm the level of fuel storage on site at this stage, this is unlikely to exceed the quantums identified within the COMAH Regulations 2015, whilst these will all be stored within appropriate double skinned tanks and within bunded enclosures.	Given that no physical alterations are proposed to the existing gas pipeline infrastructure, and the necessary easements can be accommodated within the design, the risk of major accidents and/or disasters is inherently low and likely significant effects are not anticipated. Furthermore, the level of fuel storage proposed on site is below the trigger levels for needing a Hazardous Substance Consent associated with the COMAH Regulations 2015. Any offsite works to the grid infrastructure at Warley GSP would be located outside of the remit of the development proposals and should be considered separately to the content of this submission.

The above approach is considered entirely proportionate to the Scoping of the EIA for this site and proposed quantum of development.

9.0 Closure

The above Scoping Request Report and the associated appendices are submitted pursuant to The Town and Country Planning (Environmental Impact Assessment) Regulations in request of formal Screening and Scoping Opinions being adopted by LBoH regarding the development proposals described herein.

As outlined above, the proposed development could fall to be considered as 'EIA Development' under Schedule 2 Class 10(b) – 'Urban Development Projects' – of the regulations. Further consideration of Screening is contained within Section 5 of this report.

It is therefore requested that LBoH formally adopts a Screening Opinion under Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

The Scoping Request element of this report (Sections 6-8) has sought a proportional approach to the EIA, detailing what topics will be 'Scoped In' to the ES (Section 7) and those which are to be 'Scoped Out' of the ES given that they are not likely to raise significant effects (Section 8).

For those topics to be 'Scoped In' to the ES, Section 7 has sought to detail key legislative, guidance, planning policy or background information that has informed the methodology proposed. The report also details the baseline and methodology of the assessments considered necessary to assess the environmental impact of the proposed development.

In addition to the above, Section 6 of this report also details the 'Approach to the EIA', including overarching methodological approaches relating to the structure and format of the Environmental Statement, consideration of alternatives and the assessment of cumulative impacts.

Notwithstanding, it should be noted that other information pertinent to the consideration of the development proposals will be submitted outside of the remit of any Environmental Statement, such as the Planning Statement and Development Drawings.

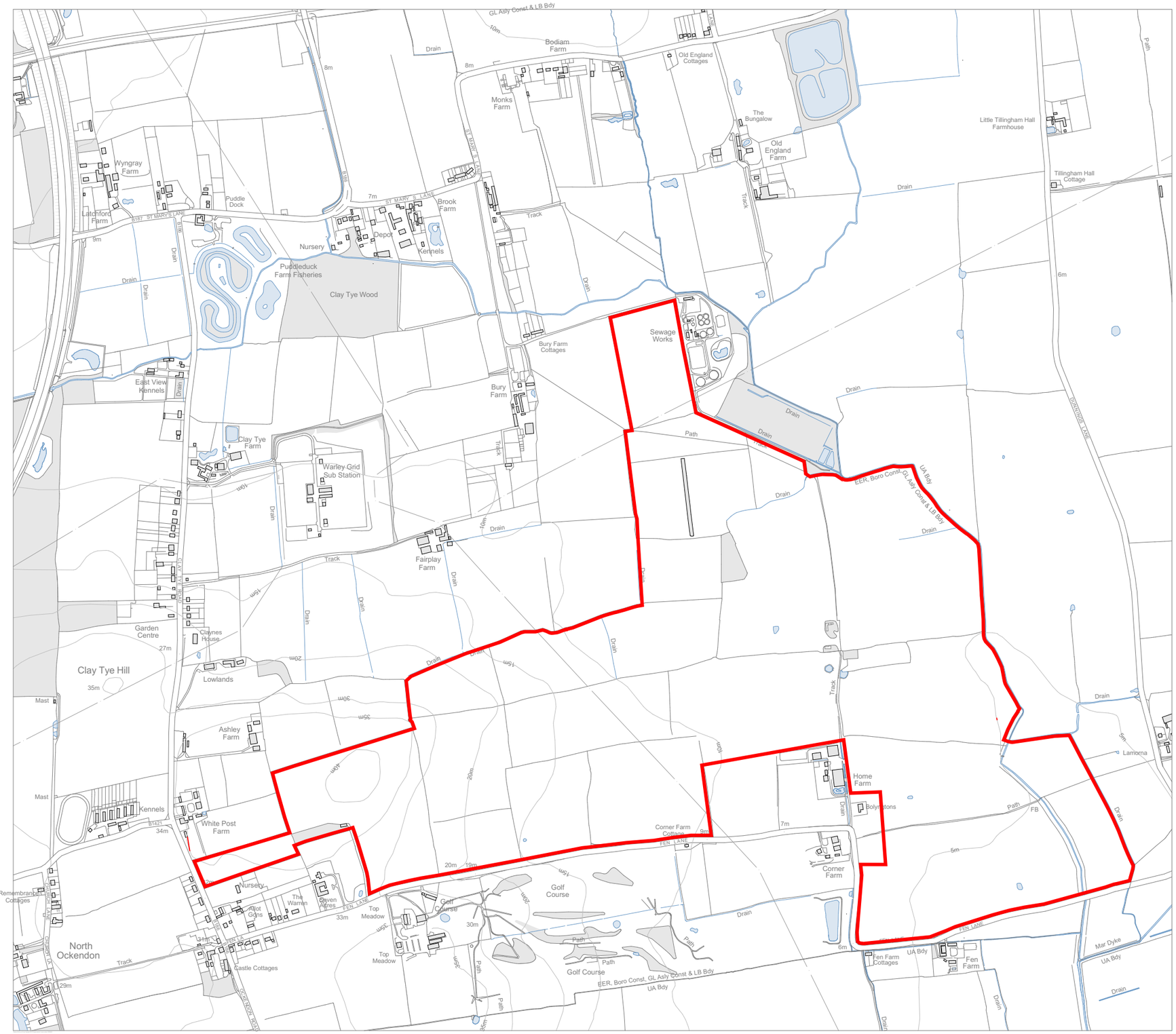
It is therefore formally requested that LBoH formally adopts a Scoping Opinion for the proposed development under Regulation 15 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

If you wish to discuss matters contained in this report in greater detail prior to responding to the Combined Screening and Scoping exercise, please contact:

Edward Bright
Technical Director
+44 117 906 4280
+44 7964 016568
ebright@slrconsulting.com

SLR Consulting Limited
3rd Floor, Brew House, Jacob Street, Bristol, BS2 0EQ

APPENDIX 1



N

SITE PLAN

Scale 1:12000

Key:

Key Plan

Revision	Date	Comments

FOR INFORMATION

URBANR

51 Welbeck Street, London, W1G 9HL

T 020 7637 0601
E mail@reefgroup.co.uk
W www.reefgroup.co.uk

project: **Foundry London, Havering,** North Ockendon, Upminster

client: REEF GROUP

drawing number: 01

size	date	scale
A3	07/05/2021	1:12000

drawing title: **EXISTING SITE**

revision: A

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APPENDIX 2

N

PROPOSED BUILD ZONES PLAN

SCALE 1:12000

0 250m 500m 750m 1000m

Key:

Key Plan

Revision	Date	Comments

RESERVED MATTERS

Urban R

51 Welbeck Street, London, W1G 9HL

T 020 7637 0601
E mail@reefgroup.co.uk
W www.reefgroup.co.uk

project	client
Foundry London, Havering North Ockendon, Upminster North Ockendon	Reef Group

drawing number: 01

size	date	scale
A3	07/06/2023	

drawing title: PROPOSED BUILD AREAS

revision: B

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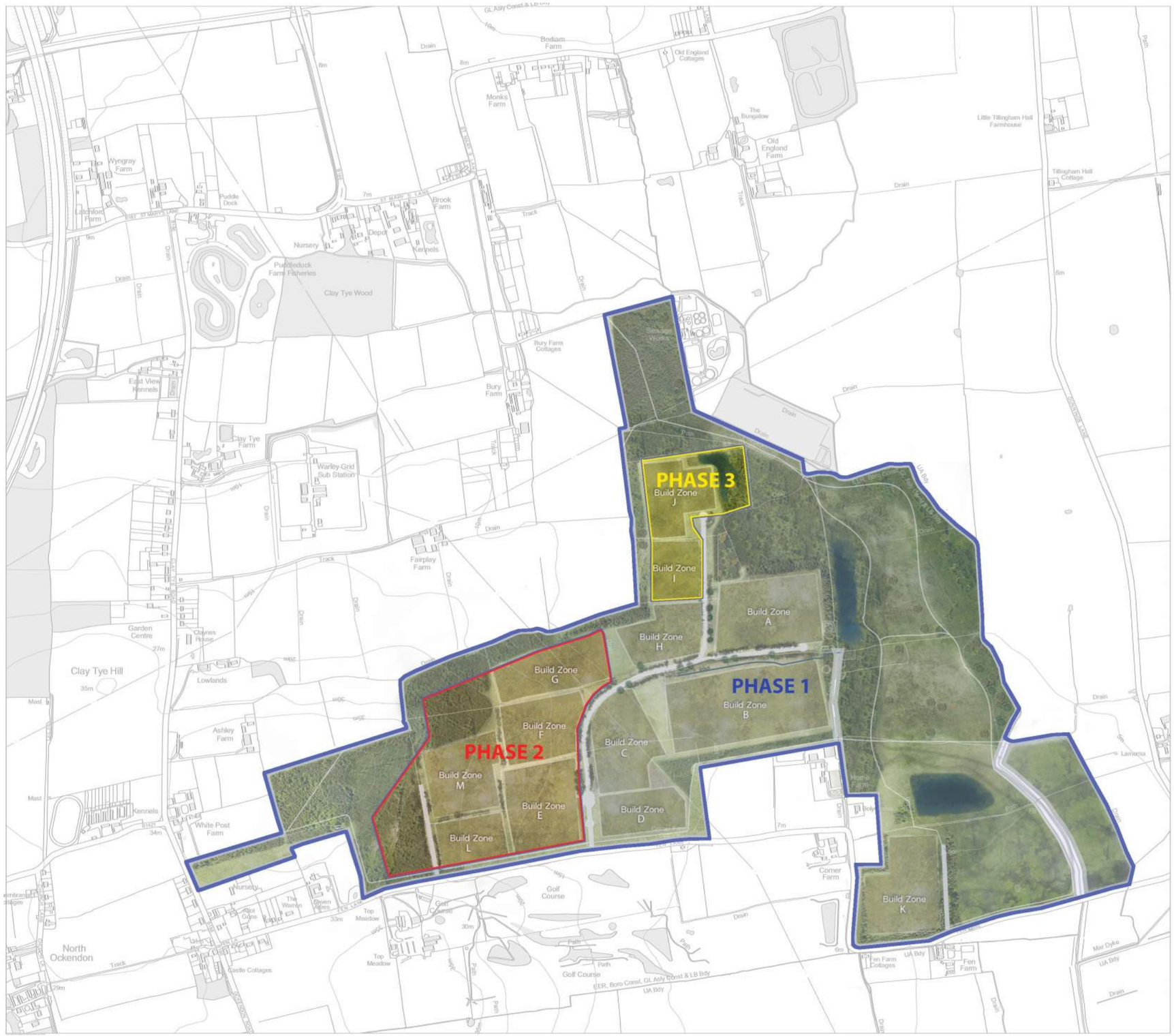
N



PROPOSED PHASING PLAN

SCALE 1:12000

0 250m 500m 750m 1000m

Key:

Key Plan

Revision	Date	Comments

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Urban R

51 Welbeck Street, London, W1G 9HL

T 020 7637 0601
E mail@reefgroup.co.uk
W www.reefgroup.co.uk

project	client
Foundry London, Havering North Ockendon, Upminster North Ockendon	Reef Group

drawing number: 02

size	date	scale
A3	07/06/2023	

drawing title: PROPOSED PHASING

revision: B

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APPENDIX 4

550000 555000 560000 565000 570000

195000 190000 185000 180000

LEGEND

- Site Boundary
- Main Site Entrance
- Site Boundary 50 m Buffer
- Site Boundary 350 m Buffer
- 2 km Screening Buffer for Nationally and Locally Designated Sites
- 10 km Screening Buffer for Internationally Designated Sites
- Main Site Entrance 500 m Buffer

N

0 2.5 5
Kilometres

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SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
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INFORMAL SCREENING AND SCOPING REQUEST

AIR QUALITY ZOI

APPENDIX 4.1

Scale 1:80,000 @ A3

Date JUNE 2023

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560000

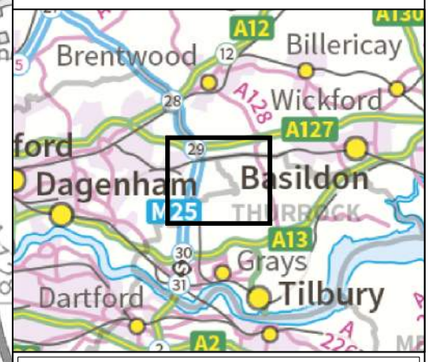
185000

LEGEND

- Site Boundary
- Main Site Entrance
- 2 km Search Area for Designated Heritage Assets

N

0 1 2 Kilometres



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4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
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CULTURAL HERITAGE ZOI

APPENDIX 4.2

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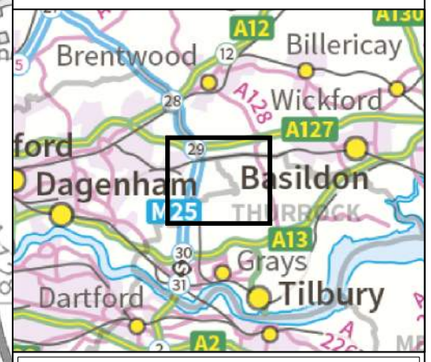
LEGEND

- Site Boundary
- Main Site Entrance
- Site Boundary 2 km Buffer

N



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SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
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WATER ENVIRONMENT ZOI

APPENDIX 4.3

Scale 1:25,000 @ A3

Date JUNE 2023

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Kilometres

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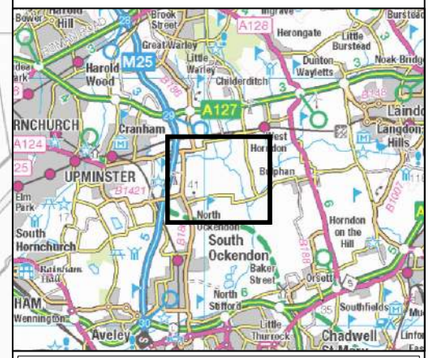
LEGEND

- Site Boundary
- Main Site Entrance
- Site Boundary 500 m Buffer

N

Bodiam Farm
Old England Cottages
Little Tillingham Hall Farmhouse
Brook Farm
Latchford Farm
Old England Farm
Tillingham House
B186
Clay Tye Road
Bury House
Clay Tye Farm
Dummings Lane
Fairplay Farm
Clay Tye Hill
Ashley Farm
Blankets Farm
Mar Dyke
North Ockendon
Corner Farm
Corner Farm Cottage
Stone Hall
Fen Lane
Fen Farm
Judd's Farm
Home Farm Cottage
Bulphan Fen
Groves Farm Cottages
Groves Cottages

0 1 2
Kilometres



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4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
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NOISE ZOI

APPENDIX 4.4

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555000 560000 565000

190000 185000

LEGEND

- Site Boundary
- Main Site Entrance
- Main Site Entrance 5 km Buffer

N

0 2.5 5

Kilometres

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EH12 9DH
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TRANSPORT ZOI

APPENDIX 4.5

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555000 560000 565000

190000 185000

LEGEND

- Site Boundary
- Main Site Entrance
- 5 km Study Area

N

0 2.5 5
Kilometres

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EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
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LANDSCAPE & VISUAL ZOI

APPENDIX 4.6

Scale 1:50,000 @ A3

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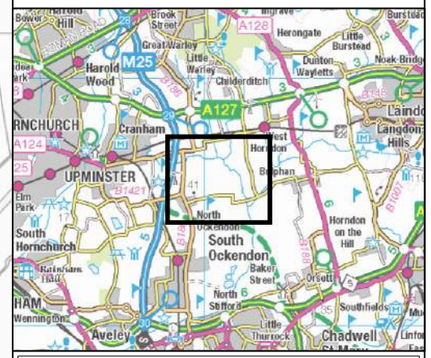
Bodiam Farm
Old England Cottages
Little Tillingham Hall Farmhouse
Brook Farm
Latchford Farm
Old England Farm
B186
Clay Tye Road
Tillingham House
Bury House
Clay Tye Farm
Dunnings Lane
Fairplay Farm
Clay Tye Hill
Ashley Farm
Blankets Farm
Mar Dyke
North Ockendon
Corner Farm
Corner Farm Cottage
Stone Hall
Fen Lane
Fen Farm
Judd's Farm
Home Farm Cottage
Bulphan Fen
Groves Farm Cottages
Groves Cottages

N

0 1 2
Kilometres

LEGEND

- Site Boundary
- Main Site Entrance
- Site Boundary 500 m Buffer



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SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
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LAND QUALITY ZOI

APPENDIX 4.7

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550000 555000 560000 565000 570000

195000 190000 185000 180000

LEGEND

- Site Boundary
- Main Site Entrance
- 2 km Zone of Influence for Sites of Special Scientific Interest
- 10 km Zone of Influence for International Sites

N

0 2.5 5

Kilometres

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4/5 LOCHSIDE VIEW
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EDINBURGH
EH12 9DH

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ECOLOGY & BIODIVERSITY ZOI

APPENDIX 4.8

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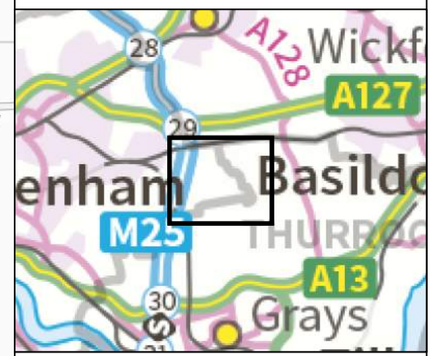
LEGEND

Site Boundary

Main Site Entrance

N

Franks Farm
Bodiam Farm
Old England Cottages
St Mary's Lane
Warley Street
Brook Farm
Latchford Farm
Youngs Farm
Little Tillingham Hall Farmhouse
Field House
Old England Farm
B186
Clay Tye Road
Tillingham House
Bury House
Clay Tye Farm
Dunnings Lane
Broadfields Farm Cottage
Fairplay Farm
Slough House
Clay Tye Hill
Ashley Farm
Blankets Farm
Mar Dyke
Caylock's Farm
M25
North Ockendon
Corner Farm
Corner Farm Cottage
Stone Hall
Fen Lane
Fen Farm
Judd's Farm
Home Farm Cottage
Bulphan Fen
The Downes
Pea Lane
Dennises Cottages
Groves Farm Cottages
Groves Cottages
Redcrofts Farm



0 1 2

Kilometres

REEF GROUP

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
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SOCIO-ECONOMIC ZOI

APPENDIX 4.9

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EUROPEAN OFFICES

United Kingdom

AYLESBURY
T: +44 (0)1844 337380

BELFAST
belfast@slrconsulting.com

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 9064280

CARDIFF
T: +44 (0)2920 491010

CHELMSFORD
T: +44 (0)1245 392170

EDINBURGH
T: +44 (0)131 3356830

EXETER
T: +44 (0)1392 490152

GLASGOW
glasgow@slrconsulting.com

GUILDFORD
T: +44 (0)1483 889800

LONDON
T: +44 (0)203 6915810

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER (Denton)
T: +44 (0)161 5498410

MANCHESTER (Media City)
T: +44 (0)161 8727564

NEWCASTLE UPON TYNE
T: +44 (0)191 2611966

NOTTINGHAM
T: +44 (0)115 9647280

SHEFFIELD
T: +44 (0)114 2455153

SHREWSBURY
T: +44 (0)1743 239250

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310

Ireland

DUBLIN
T: +353 (0)1 296 4667

France

GRENOBLE
T: +33 (0)4 76 70 93 41