8 Climate Change & Greenhouse Gases

8.1 Introduction

8.1.1 This chapter of the ES reports the findings of an assessment of the likely significant effects of the Proposed Development on climate and the likely significant effects of future climate change impacts on the resilience of the Proposed Development, during construction, operation and decommissioning. For more details on the Site, refer to ES Volume I Chapter 01: Introduction, Chapter 02 Site and Local Context, Chapter 03 Proposed Development.

8.1.2 To align with the requirements of the EIA Regulations[1] and the Institute of Sustainable and Environmental Professionals (ISEP)[2] Guidance on Assessing Greenhouse Gas Emissions[3] and Climate Change Resilience and Adaptation[4], consideration has been given to aspects of climate change assessment as detailed in **Table 8.1**.

Table 8.1 Definition of the elements of the climate change assessment

Assessment Type	Definition
Lifecycle greenhouse gas (GHG) impact assessment	Impact of GHG emissions arising from the Proposed Development on the climate, including how it will affect the ability of the Greater London Authority (GLA) and the UK to meet carbon reduction targets[5].
Climate change risk assessment (CCRA)	The resilience of the Proposed Development to climate change impacts, including how the design will consider project impacts of climate change.

8.1.3 A standalone In-combination Climate Change Impact (ICCI) assessment is not included within this ES Chapter as detailed in the scoping Report. Effects of climate change in combination with the environmental effects of the Proposed Development will be considered within the relevant technical chapters. The topic-by-topic consideration of climate change effects can be seen in Chapter 6: Air Quality, Chapter 7: Archaeology, Chapter 9: Landscape, Townscape and Visual Impact and Chapter 10: Noise and Vibration.

8.1.4 The two assessments follow the stages of assessment methodology set out in **Chapter 05 Approach to Assessment** of this ES. For purposes of clarity for the reader, each individual assessment is presented separately following the stages of determining sensitivity of receptor, determining magnitude and attributes of impacts, and classifying significance of effects.

[1] UK Government. 2017. The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. https://www.legislation.gov.uk/uksi/2017/571 (Last accessed 08/10/2026)
[2] Formerly Institute of Environmental Management and Assessment (IEMA)
[3] ISEP, Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating Their Significance, Edition 2.1 (2022, updated 2026)
[4] ISEP, Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (2020).
[5] Greater London Authority (GLA) (2022), 'London Net Zero 2030: An Updated Pathway' [Online]. Available at: https://www.london.gov.uk/sites/default/files/london_net_zero_2030_-_an_updated_pathway_-_gla_response_1.pdf (Last accessed 25/08/2026)

Relevant Legislation and Policy

8.1.5 The following legislations and policies are relevant to the Proposed Development:

- National Planning Policy Framework (NPPF)[6] – Recent amendments to the NPPF recognise the need to support digital infrastructure and require local planning authorities to consider the locational needs of data centres when preparing development plans, reflecting their role in supporting economic growth, innovation and AI-enabled technologies.

- Critical National Infrastructure (CNI)[7] – Data centres were designated as UK Critical National Infrastructure in 2024, recognising their importance to economic activity, public services, digital connectivity and AI development.

- Nationally Significant Infrastructure Projects (NSIP)[8] – Government policy is evolving to allow certain large-scale data centre developments to enter the NSIP regime, acknowledging that some facilities are of national significance and should be considered as strategic infrastructure.

- Climate-Neutral Data Centres Pact (CNDCP)[9] – An industry-led, self-regulatory initiative aligned with the European Green Deal that commits signatories to achieving climate-neutral data centre operations by 2030. The Pact establishes recognised sustainability benchmarks for the design and operation of low-carbon data centres, including targets and best practice measures relating to energy efficiency, renewable energy procurement, water efficiency, resource management and waste heat recovery.

- The London Plan[10] – Spatial Development Strategy for Greater London that outlines policies to underpin London's response to climate change, covering mitigation and adaptation strategies. The London Plan describes the early planning stages of a development as the most effective time to incorporate relevant design and technological measures to ensure the full carbon reduction and climate change adaptation potential is realised. Policy SI 2 of the London Plan (2021) states: "Development proposals referable to the Mayor should calculate whole life-cycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions."

- Hillingdon Local Plan: Part 1[11] and Part 2[12] – The Local Plan set out policies to guide planning decisions across Hillingdon. It identifies climate change mitigation and adaptation as a core strategic objective, to be addressed at every stage of the development process,

[6] Ministry for Housing. Communities and Local Government (MHCLG), National Planning Policy Framework (2026)
[7] Department for Science, Innovation and Technology, "Data Centres Designated as Critical National Infrastructure," Written Statement HCWS89, UK Parliament, 12 September 2024, https://questions-statements.parliament.uk/written-statements/detail/2024-09-12/HCWS89. (Last accessed 25/08/2026)
[8] Adam Clark, Nuala Burnett, Iona Stewart, and John Woodhouse, Data Centres: Planning Policy, Sustainability, and Resilience, House of Commons Library Research Briefing CBP-10315 (London: House of Commons Library, May 27, 2026), https://researchbriefings.files.parliament.uk/documents/CBP-10315/CBP-10315.pdf. (Last accessed 25/08/2026)
[9] Climate Neutral Data Centre Pact, Climate Neutral Data Centre Pact, https://www.climateneutraldatacentre.net/ (Last accessed 25/08/2026)
[10] Greater London Authority, "The London Plan: The Spatial Development Strategy for Greater London" (London: Greater London Authority, 2021), https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf. (Last accessed 25/08/2026)
[11] London Borough of Hillingdon, "Hillingdon Local Plan: Part 1 – Strategic Policies" (Uxbridge: London Borough of Hillingdon, November 2012), https://modgov.hillingdon.gov.uk/documents/s14281/121108%20-%2007%20-%20local%20plan%20document.pdf. (Last accessed 25/08/2026)
[12] London Borough of Hillingdon, "Hillingdon Local Plan: Part 2 – Development Management Policies" (Uxbridge: London Borough of Hillingdon, January 2020), https://www.hillingdon.gov.uk/media/3084/Hillingdon-Local-Plan-Part-2-Development-Management-Policies/pdf/LPP2_Development_Management_Policies_-_ADOPTED_VERSION_JAN_2020_1.pdf. (Last accessed 25/08/2026)

including through the prioritisation of higher-density development in locations well served by sustainable transport. Policy DMEI 2 of the Part 2 requires all developments to minimise carbon dioxide emissions in line with London Plan targets, with major proposals supported by an energy assessment showing how this will be achieved.

Guidance and Best Practice

Lifecycle GHG Impact Assessment

8.1.6 The following standards and guidance are relevant to the lifecycle GHG impact assessment:

- The London Plan Guidance (LPG): An extension of the London Plan, providing detailed instructions on how to implement the policies outlined in the Plan across various aspects of city development, such as environmental sustainability, housing, economic development, and community welfare[13];
- RICS Whole life carbon assessment for the built environment (2nd Edition)[14] ;
- British Standards Institution (BSI), BS EN ISO 14064-1:2019 Greenhouse gases — Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals[15] ;
- BSI, BS EN ISO 14064-2:2019 Greenhouse gases — Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements[16] ;
- BSI, BS EN 15978:2011 Sustainability of construction works — Assessment of environmental performance of buildings — Calculation method[17] ;
- ISEP, Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating Their Significance (Edition 2.1, 2026)[18] ;
- World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised edition, 2015)[19] ; and
- BSI, PAS 2080:2023 Carbon Management in Buildings and Infrastructure[20].

[13] Mayor of London, "London Plan Guidance" (London: Greater London Authority, 2021), https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/london-plan-guidance. (Last accessed 25/08/2026)
[14] Royal Institution of Chartered Surveyors (RICS), Whole Life Carbon Assessment for the Built Environment, 2nd ed. (RICS, 2024).
[15] British Standards Institution (BSI), BS EN ISO 14064-1:2019 Greenhouse Gases — Part 1: Specification with Guidance at the Organisation Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals (2019).
[16] BSI, BS EN ISO 14064-2:2019 Greenhouse Gases — Part 2: Specification with Guidance at the Project Level for Quantification, Monitoring and Reporting of Greenhouse Gas Emission Reductions or Removal Enhancements (2019).
[17] BSI, BS EN 15978:2011 Sustainability of Construction Works — Assessment of Environmental Performance of Buildings — Calculation Method (2011).
[18] ISEP, Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating Their Significance Edition 2.1, 2026.
[19] World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, rev. ed. (2004).
[20] BSI, PAS 2080:2023 Carbon Management in Buildings and Infrastructure (2023).

CCRA

8.1.7 The following standards and guidance are relevant to the CCRA:

- ISEP (2020), 'Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation[21] ;
- ISEP (2022), 'ISEP Climate Change Adaptation Practitioner Guidance'[22] ; and
- European Commission (2021), 'Technical Guidance on the climate proofing of infrastructure in the period 2021-2027'[23].

8.2 Assessment methodology

Baseline study

Lifecycle GHG Impact Assessment

Basis of Assessment

8.2.1 The GHG Assessment seeks to assess the impact of the Proposed Development on the climate. To do this, emissions relating to the construction and operation of the Proposed Development have been calculated, and their significance assessed in regards to their alignment with the GLA and the UK's net-zero trajectories.

Extent of the Study Area

8.2.2 The study area for the Lifecycle GHG Impact Assessment includes:

- Direct GHG emissions arising through the construction, operation and decommissioning works within the Site as described in Chapter 03 Proposed Development.
- Indirect GHG emissions occurring offsite, encompassing embodied carbon in materials, transportation, upstream activities (e.g. well-to-tank (WTT) processes), and the processing and disposal of waste.

Assessment Scenarios

8.2.3 The GHG Assessment considers a single scenario where construction of the Proposed Development is completed, followed by an assumed operational period of 60 years for the purposes of assessment.

Methodology for Determining Baseline Conditions and Sensitive Receptors

8.2.4 The receptor for the lifecycle GHG impact assessment is the global climate.

8.2.5 For the GHG assessment, the baseline is the 'business as usual' scenario where the Proposed Development is not implemented. The baseline for the GHG assessment considers the GHG emissions associated with the existing Site. As the current site is not in operation, it is expected that current GHG emissions from the Site are zero. By treating the baseline as zero emissions,

[21] ISEP, Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation 2020.
[22] ISEP, ISEP Climate Change Adaptation Practitioner Guidance (2022).
[23] European Commission, Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021–2027 (2021).

a worst-case analysis is provided, whereby all emissions from the Proposed Development are additional. This represents a precautionary approach.

Methodology for Determining Construction and Operational Effects

8.2.6 The GHG impact assessment followed a project lifecycle approach to calculate estimated GHG emissions arising from the construction, operation (including maintenance) and decommissioning of the Proposed Development. It further identifies GHG 'hot spots' (i.e. emissions sources likely to generate the largest amount of GHG emissions). This enabled the identification of priority areas for mitigation in line with the principles set out in the ISEP guidance[18].

8.2.7 To identify the magnitude of GHG impact over the lifecycle of the Proposed Development, GHG emissions are calculated in line with the PAS 2080:2023 Guidance and the principles set out in the GHG Protocol. GHG emissions from construction activities, embodied carbon in materials, and the operation of the Proposed Development have been quantified using a calculation-based methodology, in line with the GHG Protocol:

Activity data x GHG emissions factor = GHG emissions value

8.2.8 In line with the World Business Council for Sustainable Development and World Resources Institute GHG Protocol guidelines, the GHG assessment will be reported as tonnes of carbon dioxide equivalent (tCO_2e) and will consider the seven Kyoto Protocol gases:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Sulphur hexafluoride (SF_6);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Nitrogen Trifluoride (NF_3).

8.2.9 The Whole Life Carbon Assessment (WLCA) used in this chapter was developed by Savills using RIBA Stage 2 information provided by AECOM and the current One Click LCA model.

8.2.10 To calculate embodied carbon emissions in construction materials, relevant emissions factors from the OneClick LCA EPD database were used. The OneClick default lifespans were used for the majority of materials. Where these were unavailable, the RICS expected lifespan for that building element was assumed. In the absence of more detailed information, steel with a 60% recycled content was modelled.

8.2.11 **Table 8.2** summarises the key anticipated GHG emissions sources associated with the Proposed Development, in line with the Publicly Available Specification (PAS) 2080:2023 modules:

Table 8.2 Potential GHG Emissions arising from the Proposed Development

Lifecycle Stage	PAS 2080:2023 Module	Scoped In/Out	Activity	Primary Emission Source
Product Stage	A1-3	In	Raw material extraction and manufacturing of products are required to build the equipment for the Proposed Development.	Embodied GHG emissions from energy use in the extraction of materials and manufacture of components and equipment.
			Transportation of materials for such processes/ manufacturing (where available).	GHG emissions from the transportation of products and materials during their processing and manufacture. Due to the nature of the equipment, this could require shipment of certain aspects over significant distances.
Construction process stage	A4	In	Transportation of construction materials to the Proposed Development. Due to the nature of equipment required, this could require shipment of certain aspects over significant distances.	Transport of construction materials is included under the construction process stage, where these are not included in embodied GHG emissions. Fuel consumption from transport of materials to site (where these are not included in embodied GHG emissions).
	A5	In	On-site construction activity.	GHG emissions arising from energy (electricity, fuel, etc.) consumption for plant and vehicles, and generators on site.
			Transport of construction workers.	GHG emissions from fuel use for worker commuting.
			Disposal of any waste generated during the construction processes.	GHG emissions from disposal of waste.
			Land Clearance/Enabling Works.	GHG emissions associated to land disturbance.
Operation stage	B1-7	In	Operation of the Proposed Development.	GHG emissions from energy consumption, water use and the treatment of wastewater.

Lifecycle Stage	PAS 2080:2023 Module	Scoped In/Out	Activity	Primary Emission Source
			Maintenance of the Proposed Development.	GHG emissions arising from energy consumption, material use and waste generation from the Proposed Development's maintenance.
			User emissions.	GHG emissions arising from increased HGV transportation. The number of flights is not expected to increase by the Proposed Development and therefore is not assessed.
End-of-life	C1-4	In	Deconstruction activities	On-site energy (electricity, fuel) consumption from plant, vehicles, and generators required during the deconstruction of the Proposed Development. In addition, impacts from the waste processing of deconstructed materials.
Benefits and loads beyond the system boundary	D	In	Reuse, recycling, and recovery potential	The external benefits include emission benefits from recycling recyclable building waste. Benefits for re-used or recycled material types include positive impact of replacing virgin-based material with recycled material and benefits for materials that can be recovered for energy cover positive impact for replacing other energy streams based on average impacts of energy production.

CCRA

Basis of Assessment

8.2.12 The CCRA evaluates the potential impacts to the Proposed Development that may result due to climate change, determining their significance on the basis of likelihood and consequence of climate impacts occurring.

Extent of the Study Area

8.2.13 The study area for the CCRA consists of built and human assets (including workforce) within the Site.

Assessment Scenarios

8.2.14 As the CCRA assesses potential climate impacts to the Proposed Development, the only scenario assessed is that where the Proposed Development is constructed.

Methodology for Determining Baseline Conditions and Sensitive Receptors

8.2.15 The receptor for the CCRA is the Proposed Development itself and the future users (including workers and visitors) and its vulnerability to future climate conditions.

8.2.16 The baseline for the CCRA comprises the current climate conditions at the Site. The current baseline for the CCRA is based on historic climate data obtained from the Met Office United Kingdom Climate Projections 2018 (UKCP18)[24], recorded for the 12 km^2 grid cell in which the Proposed Development is located, for the period 1981-2010. The baseline climate variables are presented in Appendix 8.1.

Methodology for Determining Construction and Operational Effects

8.2.17 A CCRA has been undertaken for the Proposed Development to identify potential climate change impacts.

8.2.18 A staged approach has been used to assess the impacts of climate change on the Proposed Development, as follows:

- Identify potential climate hazards and associated climate risks;
- Identify climate adaptation measures incorporated into design;
- Identify likelihood of climate impact occurring;
- Identify consequence of climate impact on the Proposed Development; and
- Identify significance of the climate impact (likelihood of impact occurring x consequence of impact).

8.2.19 The following key terms and definitions relating to the CCRA have been used:

- Climate Risk - a weather or climate related event, which has potential to do harm to environmental or community receptors or assets, for example, increased winter precipitation;

[24] Met Office (2018) United Kingdom Climate Projections 2018. Available at: https://ukclimateprojections-ui.metoffice.gov.uk/

- Climate Impact - an impact from a climate hazard which affects the ability of the receptor or asset to maintain its function or purpose; and
- Climate Consequence – any effect on the receptor or asset resulting from the climate hazard having an impact.

8.2.20 The types of receptors considered vulnerable to climate change are:

- Construction phase receptors, e.g. workforce, plant and machinery; and
- Development assets and their operation, maintenance and refurbishment, e.g. electrical equipment, heating and cooling facilities, pavements and structures, earthworks and drainage technology.

Predicting effects

Lifecycle GHG Impact Assessment

Significance Criteria

8.2.21 As per ISEP guidance[3], all GHG emissions are considered capable of being significant. To contextualise the level of significance, emissions have been compared to corresponding GLA carbon budgets[28] (**Table 8.4**). A further perspective is provided by considering the emissions in the context of the UK carbon budgets[25,26,27]. The method that has been used to determine the significance of GHG emissions arising from the Proposed Development is summarised in **Table 8.3**.

8.2.22 The ISEP Guidance[3] is considered best practice and is used in the assessment, It states that the crux of assessing significance is “not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050". The trajectory of GHG emissions associated with the Proposed Development has therefore been factored into the assessment criteria. **Table 8.3** states the significance criteria that will be applied to the Proposed Development.

8.2.23 A 'Minor Adverse' or 'Negligible' non-significant effect conclusion does not necessarily refer to the magnitude of GHG emissions being carbon neutral (i.e. zero on balance) but refers to the likelihood of avoiding severe climate change, aligning project emissions with a science-based 1.5 °C compatible trajectory and achieving net zero by 2050.

8.2.24 A project's impact can shift from significant adverse to non-significant effects by incorporating mitigation measures that substantially improve on the business-as-usual approach and meet or exceed the science-based emissions trajectory of ongoing but declining emissions towards net zero.

[25] Department for Business, Energy and Industrial Strategy (2019); ‘The Climate Change Act 2008’ [Online]. Available at: https://www.legislation.gov.uk/ukpga/2008/27/contents [Accessed 27/08/2026]
[26] Department for Business, Energy and Industrial Strategy (2019); ‘The Climate Change Act 2008 (2050 Target Amendment)’. [Online]. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654/signature?view=plain [Accessed 27/08/2026]
[27] Committee on Climate Change (2017); ‘UK Carbon Budgets’.

Table 8.3 ISEP Criteria Used to Determine the Significance of GHG Emissions

Significance Level	Effects	Description	Example in the Guidance
Significant	Major Adverse	A project that follows a 'business-as-usual' or 'do minimum' approach and is not compatible with the UK's net zero trajectory or accepted aligned practice or area-based transition targets. It is down to the practitioner to differentiate between the 'level' of significant adverse effects e.g. 'moderate' or 'major' adverse effects.	The project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
	Moderate Adverse		The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to UK's trajectory towards net zero.
Not Significant	Minor Adverse	A project that is compatible with the budgeted, science based 1.5°C trajectory (in terms of rate of emissions reduction) and which complies with up-to-date policy and 'good practice' reduction measures to achieve that.	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
	Negligible	A project that achieves emissions mitigation that goes substantially beyond the reduction trajectory, or substantially beyond existing and emerging policy compatible with that trajectory and has minimal residual emissions. This project is playing a part in achieving the rate of transition required by nationally set policy commitments.	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Significant	Beneficial	A project that causes GHG emissions to be avoided or removed from the atmosphere. Only projects that actively reverse (rather than only reduce) the risk of severe climate change can be judged as having a beneficial effect.	The project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

Determining the Magnitude of Impact

8.2.25 The magnitude of impact considers the output of the GHG quantification process, i.e. the Proposed Development's GHG lifecycle footprint, and has been compared to the corresponding GLA carbon budgets[28] in the context of the UK carbon budgets[29,30,31].

8.2.26 The ISEP guidance on assessing GHG emissions in EIA[3] states: "GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit, as such any GHG emissions or reductions from a Project might be considered to be significant."

8.2.27 Currently, carbon budgets are available for the GLA through to 2032. The GLA's carbon budgets are in place to track London's pathway to being carbon neutral by 2050. Progress against these budgets is reviewed annually, and future budgets are set 10 years in advance, and the GLA's budgeting period aligns with the UK national budgets, described below. **Table 8.4** details the GLA's carbon budgets.

8.2.28 Construction of the Proposed Development is assumed to last from 2027 to 2029, with operations commencing in 2030 for the purposes of this assessment. This means the construction period will fall into both the 4th and 5th GLA carbon budgets and the 4th and 5th UK Carbon budgets (see **Table 8.4** and **Table 8.5** below). The operational period of the Proposed Development will fall within the 5th GLA Carbon Budget. However, as GLA budgets do not currently extend beyond 2032, the UK carbon budgets, and any relevant local sectoral budgets have been used as the benchmark for assessing emissions significance beyond 2032.

Table 8.4 GLA Carbon Budgets

GLA Carbon Budget	Total Budget ($MtCO_2e$)
4th (2023-2027)	22.4
5th (2028-2032)	18.0

8.2.29 As local (GLA) carbon budgets exist, the UK carbon budgets will be used as a secondary measure to contextualise the impact of the Proposed Development. The UK is currently in the 4th Carbon Budget period, which runs from 2023 to 2027, as detailed in **Table 8.5**. The 3rd, 4th, and 5th Carbon Budgets reflect the previous 80% reduction target by 2050. The 6th Carbon Budget is the first to align with the legislated 2050 net zero commitment, whilst the 7th budget was published in 2026.

8.2.30 In order to illustrate the Proposed Development's trajectory towards net zero by 2050, it is recommended that the CCC's Balanced Net Zero Pathway[32] is used post-2042 in the absence of any nationally legally binding carbon budgets after using the 7th Carbon Budget.

[28] Mayor of London (2018); 'London Environment Strategy' [Online]. Available at: https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf [Accessed 27/08/2026]
[29] Department for Business, Energy and Industrial Strategy (2019); 'The Climate Change Act 2008' [Online]. Available at: https://www.legislation.gov.uk/ukpga/2008/27/contents [Accessed 27/08/2026]
[30] Department for Business, Energy and Industrial Strategy (2019); 'The Climate Change Act 2008 (2050 Target Amendment)'. [Online]. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654/signature?view=plain [Accessed 27/08/2026]
[31] Committee on Climate Change (2017); 'UK Carbon Budgets'.
[32] Climate Change Committee Net Zero – The UK's contribution to stopping global warming. Available at: https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/ [Accessed 27/08/2026]

8.2.31 The CCC Balanced Net Zero Pathway is recommended to be divided into five-year periods post-2037 to match the previous six legally binding UK national carbon budgets. The proposed carbon budget periods derived from the net zero pathway encompass the 8th and 9th indicative budget periods up to 2050 in line with the UK's 1.5°C trajectory as detailed in **Table 8.5**.

Table 8.5 UK Carbon Budgets

UK Carbon Budget	Total Budget ($MtCO_2e$)	Indicative Carbon Budgets based upon the CCC's Balanced Net Zero Pathway ($MtCO_2e$)
3rd (2018-2022)	2,544	-
4th (2023-2027)	1,950	-
5th (2028-2032)	1,725	-
6th (2033-2037)	965	-
7th (2038-2042)	535	-
8th (2043-2047)	-	220
9th (2048-2050)	-	22

8.2.32 It is noted that the supplementary carbon budgets beyond 2042 have not been formally adopted by the UK Government or ratified by Parliament and can only be used as an indicative measure to contextualise the Proposed Development's progress toward the national net zero trajectory.

Sensitive Receptors

8.2.33 The global climate is the receptor for the purposes of the GHG emissions assessment and the sensitivity of the climate to GHG emissions is 'high'. However, for the purposes of this assessment, the National Emissions Trajectory has been used as a proxy for the global picture. The rationale for this approach is in alignment with the Paris Agreement, which sets to strengthen the global response to the threat of climate change by keeping global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.

8.2.34 To support the Paris Agreement's climate targets, it requires countries to substantially reduce GHG emissions which support a trajectory that leads to net-zero emissions this century. This commitment is formalised through Nationally Determined Contributions (NDCs), where committed countries outline their specific emissions reduction targets. Hence, the UK's National Emissions Trajectory (which inform the UK Carbon Budgets) has been used as a proxy for the global climate to contextualise emissions from the Proposed Development.

CCRA

Significance Criteria

8.2.35 The significance of CCRA effects has been determined as a function of the likelihood of a climate change impact occurring and the consequence to the receptor if the impact occurs. Effect significance criteria have been assigned in accordance with the matrix detailed in Table 8.6. The assessment takes into account committed design and mitigation measures (referred to as embedded mitigation).

Table 8.6 Significance Matrix of Climate Impact

		Likelihood of Climate Impact Occurring				
Consequence of a Climate Impact		Rare	Unlikely	Moderate	High	Almost Certain
	Insignificant	Low (NS)	Low (NS)	Low (NS)	Medium (NS)	High (S)
	Minor	Low (NS)	Low (NS)	Medium (NS)	High (S)	High (S)
	Moderate	Medium (NS)	Medium (NS)	High (S)	High (S)	Extreme (S)
	Major	High (S)	High (S)	Extreme (S)	Extreme (S)	Extreme (S)
	Catastrophic	Extreme (S)	Extreme (S)	Extreme (S)	Extreme (S)	Extreme (S)
*S = Significant, NS = Not Significant						

Determining the Magnitude of Impact

8.2.36 Once potential climate hazards have been identified (e.g. heatwaves), the likelihood of their occurrence during each project phase (i.e. construction and operation) is categorised.

8.2.37 The criteria which have been used to determine the likelihood of a climate hazard occurring are detailed in Table 8.7. These are in line with the definitions presented in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report[33]. For example, a climate hazard could be increased summer temperatures, leading to the climate risk of a heatwave, while the climate change impact is the impact on the Proposed Development, e.g. overheated electrical equipment.

Table 8.7 Likelihood of a climate hazard occurring

Likelihood	Qualitive	Quantitative
Almost certain	Likely that the event will occur many times (reoccurs frequently)	>90-100% probability that the impact will occur
Likely	Likely that the event will occur sometimes (reoccurs infrequently).	>66-90% probability that the impact will occur
Moderate	Possible that the event will occur (has occurred rarely)	>33-66% probability that the impact will occur
Unlikely	Unlikely that the event will occur (not known to have occurred).	>10-33% probability that the impact will occur
Rare	Almost inconceivable that the event will occur.	0-10% probability that the impact will occur

[33] Intergovernmental Panel on Climate Change (2023) Sixth Assessment Report. Available at: Sixth Assessment Report — IPCC

8.2.38 Following the identification of climate hazards, the consequences of climate impacts have been assessed according to **Table 8.8**. The categories and descriptions are based on the ISEP Climate Change Resilience and Adaptation guidance[34] and the EC Technical Note on Climate Proofing Infrastructure[35].

Table 8.8 Consequences of climate impacts

Risk Area	Magnitude of Consequence				
	Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Asset damage, engineering, operational	Impact can be absorbed through normal activity.	Adverse event that can be absorbed by taking business continuity actions.	A serious event that requires additional emergency business continuity actions.	A critical event that requires extraordinary/ emergency business continuity action.	Disaster with the potential to lead to shut down or collapse or loss of the asset/ network.
Health and safety	First aid case.	Minor injury, medical treatment.	Serious injury or lost work.	Major or multiple injuries, permanent injury or disability.	Single or multiple fatalities.
Environment	No impact on baseline environment. Localised in the source area. No recovery required.	Localised within the Site. Recovery measurable within one month of impact.	Moderate harm with possible wider effect Recovery in one year.	Significant harm with local effect Recovery longer than one year. Failure to comply with environmental regulations/ consent.	Significant harm with widespread effect. Recovery longer than one year. Limited prospect of full recovery.
Social	No negative social impact.	Localised, temporary social impacts.	Localised, long term social impacts.	Failure to protect poor or vulnerable groups. National, long term social impacts.	Loss of social licence to operate. Community protests.
Financial	< 2% of turnover.	2-10% of turnover.	10-25% of turnover.	25-50% of turnover.	> 50% of turnover.

[34] ISEP, ISEP Climate Change Adaptation Practitioner Guidance (2022).
[35] European Commission, Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021–2027 (2021).

Risk Area	Magnitude of Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Reputational	Localised, temporary impact on public opinion.	Localised, short-term impact on public opinion.	Local, long-term impact on public opinion with adverse local media coverage.	National, short-term impact on public opinion. negative national media coverage.	National, long-term impact with potential to affect the stability of the government.
Cultural heritage and cultural premises	Insignificant.	Short term impact. Possible recovery or repair.	Serious damage with wider impact to tourism industry.	Significant damage with national and international impact.	Permanent loss with resulting impact on society.

Consultation

8.2.39 A Scoping Report was prepared and submitted to London Borough of Hackney (LBH) the week commencing the 10 August 2026 (LPA Ref. 67666/APP/2023/3721) (Appendix 5.1). A subsequent Scoping Opinion was received from Hillingdon London with an accompanying independent review of EIA Scoping Opinion Report from Burro Happold on the 12 October 2026 (Ref. 67666/APP/2026/2056) (Appendix 5.2). The following sections detail how the EIA Scoping Opinion has been addressed within the relevant sections of this chapter.

8.2.40 Additional consultation in relation to the scope and the methodology of the Lifecycle GHG Impact Assessment and CCRA are not anticipated.

Lifecycle GHG Impact Assessment

8.2.41 The 2026 update to the NPPF has been included as a relevant legislation to the Proposed Development within paragraph 8.1.5. In addition, key regional and local legislation and policy relevant to this chapter have also been included in the aforementioned paragraph.

8.2.42 The WLCA included as part of this chapter has been completed quantitatively, ensuring all key emissions hotspots are captured, using construction material quantities and operational energy use data specific to the Proposed Development. This quantitative lifecycle GHG assessment methodology is detailed in Section 8.2, and includes the whole lifecycle of the Proposed Development inclusive of upstream and downstream indirect emissions. In instances of uncertainty, conservative industry benchmarks have been used, as detailed in paragraph 8.2.51. Justification for any emissions sources scoped out of the WLCA have been provided in paragraph 8.2.49.

8.2.43 The Proposed Development's emissions have been contextualised against the UK and the GLA carbon budgets, which together provide sufficient context for the assessment, in line with ISEP guidance[3]. The local authority carbon budgets cover only territorial, energy-related emissions arising within the administrative boundary, whereas the majority of the Proposed Development's GHG emissions are predominantly associated with embodied carbon in construction materials and equipment and operational electricity consumption. These emissions arise predominantly from material processing and manufacturing and electricity supplied by the National Grid, which occur outside the administrative boundary of the Local

Authority. On this basis, a local authority carbon budget is not considered a more meaningful comparison for the Proposed Development than the UK and the GLA carbon budgets and has not been included for contextualisation.

8.2.44 In addition to assessing the significance of Module A, B and C individually, the cumulative emissions have been combined and compared against the GLA and UK carbon budgets, with the exception of Module C as emissions would occur after the stated budget periods. Details of this can be seen in Table 8.17 and Table 8.18.

8.2.45 Whilst the EIA Regulations do require the assessment of cumulative effects with other existing and/or approved projects, the effects of GHG emissions occur at the global level and not the local level (i.e. the effects occur irrespective of where the emissions occur). It is not considered applicable to assess cumulative effects within the Lifecycle GHG Impact Assessment. As explained further in Section 8.8, due to the global nature of GHG emission impacts there is no basis for selecting individual projects in a geographical location to undertake cumulative assessment as stated in the best practice guidance published by ISEP on undertaking climate assessment for EIA .

CCRA

8.2.46 The CCRA within this chapter has adopted the RCP 8.5 emissions scenario, using the 10th, 50th and 90th percentile, based on a timescale appropriate to the lifetime of the proposed development. This is detailed in paragraph 8.2.56 and Appendix 8.1.

8.2.47 The assessment evaluates physical climate risks to the Proposed Development itself. It is not considered applicable to assess cumulative effects within the CCRA. Further details of this can be seen in Section 8.8.

In-combination Climate Change Impact (ICCI)

8.2.48 A standalone ICCI has not been provided within this chapter, as effects of climate change in combination with the environmental effects of the Proposed Development are considered within the relevant technical chapters. The topic-by-topic consideration of climate change effects can be seen in Chapter 6: Air Quality, Chapter 7: Archaeology, Chapter 9: Landscape, Townscape and Visual Impact and Chapter 10: Noise and Vibration.

Impacts scoped out of assessment

Lifecycle GHG Impact Assessment

8.2.49 The following lifecycle modules have been scoped out of the WLCA and are therefore not assessed within the lifecycle GHG impact assessment:

- A0 Pre-construction activities – all carbon emissions associated with land purchase and fees/advice for the Proposed Development have been scoped out of the assessment as the emissions are considered to provide a de minimis contribution to the overall GHG footprint of the Proposed Development.

- B7 Operational water use – all carbon emissions related to water supply and wastewater treatment, over the lifecycle of the Proposed Development (excluding water use during maintenance, repair, replacement and refurbishment that are reported elsewhere). Lifecycle Module B7 has been scoped out of the assessment as potable water demand is predicted to be low due to the use of air-cooled chillers to provide cooling to IT infrastructure, as opposed to water-cooled chillers. This is detailed within Section 3.2.1 (Development Demand Assessment) of the Utility Statement.

- B8 Other operational processes – all carbon emissions associated with downstream activities undertaken by third parties outside the direct control and operational boundary of the Proposed Development (e.g. energy consumption of end users from services provided by the Proposed Development) have been scoped out of the assessment.

CCRA

8.2.50 The following lifecycle modules have been scoped out of the CCRA due to lack of relevance to the Proposed Development:

- Coastal flooding
- Sea Level Rise
- Sea Surface Temperature

Table 8.9 Impacts scoped out of the CCRA assessment

Potential impact	Justification
Construction phase	
Sea Level Rise, Sea Temperature Increase, Coastal Flooding	These climate variables and associated impacts have been scoped out of the CCRA due to the location of the Proposed Development away from significant waterbodies that may be affected.
Operation phase	
Sea Level Rise, Sea Temperature Increase, Coastal Flooding	These climate variables and associated impacts have been scoped out of the CCRA due to the location of the Proposed Development away from significant waterbodies that may be affected.

Assumptions and Limitations

Lifecycle GHG Impact Assessment

8.2.51 The assessments presented in this chapter are subject to the following assumptions and limitations as detailed in the WLCA prepared by Savills:

- The assessment is based on the current stage of project design and will be subject to refinement as further detailed design information becomes available.
- Construction materials (modules A1-A4) were calculated using the OneClick LCA EPD database. The OneClick default lifespans were used for the majority of materials. Where these were unavailable, the RICS expected lifespans for that building element was assumed. In the absence of more detailed information, steel with a 60% recycled content was modelled.
- As exact products/specifications have not been finalised, the emissions resulting from the transport of building products from the manufacturers to site (Module A4) have been estimated based on typical average transport distances provided by OneClick LCA.
- Emissions from the construction and installation process have been estimated using the OneClick LCA average based on the location and size of the development.

- It is assumed that all timber used on site will be sustainably sourced (FSC, PEFC or equivalent) therefore the sequestered (biogenic) carbon has been considered as a benefit within the assessment.

- Data sources used in the OneClick LCA model were received through an RFI completed by AECOM. These documents contained estimated measurements and material types with approximate materials quantities and volumes based on the design proposal for the outline application.

- OneClick Carbon Designer was used to provide estimates for areas of the development where specific material quantities or types were not available at this stage.

- Operation stage (module B) is modelled under the decarbonised scenario, which applies electricity carbon factors that reflect anticipated decarbonisation of the UK electricity grid based on the National Grid Future Energy Scenarios (FES) Falling Short pathway, as required by RICS[14].

8.2.52 The Proposed Development is a strategic digital infrastructure asset that is expected to operate for the foreseeable future, with equipment, plant and building components refurbished, upgraded, replaced and maintained throughout its operational life as required. Whilst decommissioning is not anticipated within the assessment period, Module C and D end of life impacts remains part of the asset's whole life carbon performance and have therefore been included within the assessment boundary.

CCRA

8.2.53 The methodology for the CCRA has been developed in line with appropriate industry guidance for assessing climate change resilience and adaptation, including ISEP (2020) and in accordance with the EU Commission Notice (2021/C 373/01) Technical Guidance (European Commission, 2021d). Following desk-based research to obtain qualitative and quantitative baseline climate data and future climate change projections data, a risk assessment has been undertaken to identify potential physical climate risks that could pose a threat to the Proposed Development during its construction and operation.

8.2.54 The CCRA includes all infrastructure and assets associated with the Proposed Development during its construction and operational phase, as well as human receptors. This assessment considers the resilience against both gradual climate change, i.e. chronic climate-related hazards, and the risks associated with an increased frequency of severe weather events, i.e. acute events.

8.2.55 At this stage of the Proposed Development, the drainage strategy and MEP layout has yet to be finalised. This has resulted in limited description of planned controls to increase climate resilience and a worst-case rating of potential climate impacts.

8.2.56 In order to understand how the global climate may change in the future, the IPCC's fifth Assessment Report (AR5) (IPCC, 2014) developed Representative Concentration Pathways (RCPs) that describe four different 21st Century pathways of GHG emissions depending on the level of mitigation action undertaken between now and the end of the century. The RCPs are based on global research and existing literature and comprise a stringent mitigation pathway (RCP2.6), two intermediate scenarios (RCP4.5 and RCP6.0) and a high emissions scenario (RCP8.5).

8.2.57 It is important to understand when using climate change projections, that they contain inherent uncertainty. This uncertainty is the result of limitations of available measurements and

challenges in evaluating causation in complex and multi-component processes. Uncertainty in climate change projections is derived from multiple sources including:

- Uncertainty in how GHG emissions will change over time due to key unknowns in the drivers of this change; such drivers include economic and population growth, lifestyle and behavioural changes, associated changes in energy use and land use, technology, and climate policy; and
- Variable confidence levels in how well the climate models predict different climate variables; for example, climate models perform less well in their simulation of large-scale precipitation patterns than for surface temperature.

8.2.58 For these reasons, it is best practice to use a range of projection scenarios when considering how the climate may change in the future. As a result, two RCP scenarios were used in this CCRA as they will provide decision-makers with a more holistic understanding of the range of potential climate futures possible, which is essential when understanding risk and developing appropriate adaptation measures.

8.3 Baseline conditions

Lifecycle GHG Impact Assessment

Current Baseline

8.3.1 For the lifecycle GHG impact assessment, the existing baseline is the current conditions at the Site. The existing baseline comprises the sources of GHG emissions within the boundary of the existing activities on-site.

8.3.2 The ISEP Guidance[3] for assessing GHG emissions recognises that it may not always be possible to report on current baseline emissions, and in such cases a conservative approach should be taken. The baseline conditions are therefore considered zero and all emissions from the Proposed Development are considered as additional.

Future Baseline

8.3.3 As there are no expected GHG changes to the current Site in the absence of the Proposed Development, the future baseline is treated as the same as the current baseline for the purpose of the lifecycle GHG impact assessment.

CCRA

Current Baseline

8.3.4 The baseline for the CCRA is the climate in the location of the Proposed Development for the 30-year period 1981 to 2010 (the standard baseline for climate data). Historic climate data was obtained from UKCP18 and is summarised in Appendix 8.1.

Future Baseline

8.3.5 The future baseline is expected to differ from the present-day baseline climate described above. UKCP18 provides probabilistic climate change projections for at annual, seasonal, monthly and daily resolution to describe changes to mean climatic conditions over land areas. Projected climate variables collected for the purpose of this CCRA are presented in Appendix 8.1.

8.3.6 Construction risks are assessed against the 2021 to 2050 projection data while the operation of the Proposed Development is assessed against the 2041 to 2070 and 2071 to 2100 projection data as a conservative, worst case scenario.

8.4 Inherent design mitigation

8.4.1 This section identifies any mitigation and best practice measures that have been designed into the Proposed Development to reduce the potential for impacts to GHG emissions resulting from the construction, operation and decommissioning of the Proposed Development.

8.4.2 Measures to increase the resilience of the Proposed Development in relation to climate change risks are also described within this section.

Lifecycle GHG Impact Assessment

Construction

8.4.3 An Outline Construction Management Plan (oCMP) has been prepared for the Proposed Development. This oCMP identifies the potential effects from construction activities and identify the implementation of effective management controls. During site clearance and construction, the approach to working will seek to optimise construction methods and material use, retain excavated material within the development area, and implement best practice waste management. These measures will help to reduce Module A emissions.

8.4.4 A number of additional GHG mitigation measures are proposed for implementation during construction, as detailed in the Energy and Sustainability Statement:

- A Circular Economy Statement (CES) has been prepared for the Proposed Development at this stage and the Applicant has committed to undertake a detailed CES at RMA Stage. The following construction-stage opportunities will form the basis of the circular economy strategic approach for the Proposed Development:
    - Explore the use of breakout material from existing hardstanding as secondary aggregates;
    - Minimise excavation waste through elimination of basements and use of alternative piling; and
    - Explore the use of Modern Methods of Construction to reduce construction waste generation on site.
- Materials made available through excavation (for example, fill soil and gravels) will be reused directly onsite, where feasible. This will help to minimise embodied carbon and other emissions associated with the production and import of materials to site, and the removal of excavation waste from site.

Operation

8.4.5 The Energy and Sustainability Statement produced for this outline planning application proposes to follow the energy hierarchy by considering three key steps:

- Reducing energy demand through energy efficient design and specification;
- Considering connection to nearby networks to supply low carbon heat where feasible; and

- Seeking to maximise opportunities for low and zero carbon energy.

8.4.6 A number of additional GHG mitigation measures are proposed for implementation during operation, as detailed in the Energy and Sustainability Statement:

- Consideration has been given to the passive design, fabric and services of the buildings, including the following key measures:
    - Optimised glazing ratio to reduce heat loss and limit unwanted solar gains in administration spaces; and
    - High efficiency lighting and ventilation systems including heat recovery.
- Given the scale of waste heat generated from the IT cooling process, the potential to export this waste heat off-site is being considered for use by third-party heat consumers or connection to a future decentralised energy network. This is in line with the London Plan's support for maximising the recovery and reuse of waste heat from data centres.
- After demand reduction and efficient supply of heat, the remaining energy demand for the development should be met in a way which minimises carbon emissions. Currently identified Low and zero carbon (LZC) technology opportunities which are anticipated subject to detailed design include:
    - Air-source variable refrigerant flow (VRF) heat pumps to meet the heating demands of the development's administration space and it's ancillary areas and.
    - PV arrays on the roofs of the administration spaces.
- Smart meters and sub-metering will ensure data is being monitored and can be used to address the performance gap and gather data. The metering strategy will be developed during detailed design.
- Cycle parking will be provided to encourage non-motorised travel by staff and visitors.
- A Circular Economy Statement (CES) has been prepared for the development at this stage and the Applicant has committed to undertake a detailed CES at RMA Stage. The following operation-stage opportunities will form the basis of the circular economy strategic approach for the Proposed Development:
    - Adopt optimised structural systems to ensure a lean design and maximise potential for adaptability;
    - Specify materials which are robust or easy to maintain to support longevity; and
    - Allow adequate storage provision and separation of waste streams to allow maximisation of recycling opportunities in operation.
- To reduce the need to repair and replace materials resulting from damage to exposed elements of the non-domestic building and its surrounding landscape, vulnerable areas will be identified and appropriate protection measures incorporated into the building and landscape design for these areas.
- A Travel Plan (TP) has been developed to be submitted alongside this application; the TP identifies an overarching framework for minimising the impacts of travel, ensuring access for all and allowing site users to make informed travel choices. It also sets out a range of key objectives, potential measures relevant to users and processes for the management

and review of travel behaviour. At this stage, the TP includes initial site wide targets (based on baseline travel patterns), which will be used to assess progress over the five-year period following occupation.

Decommissioning

8.4.7 The following end-of-life opportunities and strategies are included within the CES to reduce the carbon impact during the decommissioning stage:

- The substructure and superstructure (hot-rolled steel frame, composite metal deck, cold-rolled purlins and roof deck, open-mesh gantry steelwork and RC substructure), designed for a 60-year life, are built to be recoverable at the end of life for reuse and/or recycling. The structure will be robust and will permit future interventions to be considered without the need for demolition.
- The building façade (insulated metal wall panels, pre-cast panels, glazing, aluminium mesh screens and powder-coated steel doors) are all recoverable as metals and aggregates. Standardised design and mechanical fixings will be preferred where possible to enable disassembly.
- The interior fit-out of the ancillary office will be specified as durable and demountable, allowing components and materials to be recovered and reused.
- The emerging MEP specification (e.g. chillers, air-source VRF units, heat-recovery AHUs, generators with belly-tank fuel storage, photovoltaic panels and lifts) are all modular, individually replaceable units that can be disconnected and removed without disturbing the building fabric, and recovered via manufacturer take-back and WEEE routes.
- Cataloguing of materials and building elements, including the use of material passports, will be investigated at RMA stage and kept in digital form to assist with disassembly at the end of life. Demolition contractors at the end of life of the scheme will be responsible for disassembling the buildings and redirecting materials for reuse, recycling, downcycling or disposal.

CCRA

Construction

8.4.8 An Outline Construction Management Plan (oCMP) has been prepared for the Proposed Development. This oCMP identifies the implementation of effective management controls. During site clearance and construction, the approach to working will seek to reduce environmental risks to construction workforce, plant and materials. These measures will assist in increasing climate resilience during the construction phase.

Operation

8.4.9 The following design measures have been specified within the Energy and Sustainability Statement to increase resilience to flood related impacts during the operational phase:

- Development site levels will be adjusted in this area with proposed buildings to have falls away from building thresholds. The flood risk from surface water is therefore considered to be low.

- A Surface and Foul Water Drainage Strategy has been completed and outlines the proposed drainage strategy for the site, including a detailed Sustainable Drainage Systems (SuDS) assessment, and has been developed in line with The London Plan (2021) requirements.
- The SuDS techniques suitable for this development have been identified in order to achieve source control, attenuation, and pollution control. SuDS proposed for the development include green roofs, permeable paving, rain gardens and tree pits.
- Surface water run-off will be managed in line with the West London Strategic Flood Risk Assessment and The London Plan drainage discharge hierarchy. The SuDS measures will be supported by below ground attenuation systems. In accordance with Lead Local Flood Authority guidance, the system has been designed to accommodate all storms up to and including the 100-year plus 40 per cent climate change storm event.
- Surface water runoff from the site is to be managed to greenfield runoff rates for all rainfall events up to and including the 100-year plus 40 per cent climate change event. Subject to intrusive ground investigation, it is expected that infiltration systems will be used to release runoff to the gravel ground strata that has been identified using historic borehole records. If infiltration is not feasible, then a pumped route to the local watercourse could be considered, as there are no nearby surface water sewers that have been identified. The site is surrounded by green belt land therefore planting will also improve water absorption from surrounding soils.
- 'The Environment Agency (EA) Flood Risk Map shows the site located within Flood Zone 1, and in an area benefiting from flood defences. The residual risk of a breach is low. Therefore, the site is at low risk from watercourse flooding.
- 'Buildings and structures will be built in line with design standards, such as Eurocode EN 1991-1-4, for wind loading.

8.4.10 The following measures have been specified within the Energy and Sustainability Statement to increase resilience to extreme heat and drought conditions during the operational phase:

- 'The following requirement from the Building Regulations Part L will be considered in design to limit solar gains and extreme temperatures in summer. *"The building must have appropriate passive control measures to limit solar gains during the summer period in order to reduce the need for, or installed capacity of, air-conditioning systems. For each zone that is either occupied or mechanically cooled, the solar gains through the glazing are calculated over the period from April to September and must be no greater than for a particular reference glazing system"*[36]
- Although at this stage, the detailed heating, ventilation, and air conditioning (HVAC) system design has not yet been finalised, the HVAC system efficiency calculations have been based on the assumption that the Proposed Development is served by a range of HVAC systems, including air-cooled chillers that provide chilled water to fan wall units serving the data halls. A dedicated outdoor air system supplies fresh air to the data hall areas, dependant on the ambient conditions. Additionally, there are Variable Refrigerant Flow (VRF) systems with a

[36] UK Government, Ministry of Housing, Communities and Local Government (2023). Building Regulations, Conservation of fuel and power: Approved document L. Available at: Conservation of fuel and power: Approved Document L - GOV.UK

centralised air handling unit (AHU) supplying and extracting areas such as the office and admin areas. There is also dedicated extract only for the WC areas at 6 air changes per hour (ACH) with a SFP of 0.5 W/l/s. The final system performance will be confirmed through detailed design development.

- Affinity Water will be supplying the site with a mains water supply from an existing connection, which is unlikely to impact the overall water supply to the area. The design of the Proposed Development will aim to minimise internal potable water consumption. This will be achieved through the specification of water-efficient sanitary fittings such as WCs, urinals and taps. In addition, automated controls and flow control devices will aim to be specified. A water meter is to be provided for the water supply of the building and connected to the Building Management System (BMS).
- A centralised Air Handling Unit (AHU) to supply and extract air in office and administrative areas and ensure a suitable environment.

8.5 Potential effects prior to additional mitigation

Lifecycle GHG Impact Assessment

Construction Phase

8.5.1 To assess the magnitude of climate change impacts through GHG emissions associated with the construction phase of the Proposed Development, the results of the WLCA of the Proposed Development are shown in **Table 8.10** alongside the corresponding PAS2080 lifecycle module.

8.5.2 The expected impact from the construction stage of the Proposed Development is 24,788 tCO_2e.

Table 8.10 GHG Emissions resulting from the Construction stage of the Proposed Development

Lifecycle module	Construction stage emissions (tCO_2e)
A1-3: Product stage	22,836
A4: Transportation to site	1,402
A5: Construction site operations	550
Total construction stage	**24,788**

[Source: Savills Earth Former Sipson Garden Centre Whole Life-Cycle Carbon Assessment, September 2026]

8.5.3 Under ISEP Guidance[3], it is down to the practitioner's professional judgement on how best to contextualise a project's GHG impact. All GHG emissions are considered to be significant. To contextualise the level of significance, emissions have been compared to corresponding GLA carbon budgets for regional perspective and UK carbon budgets for national perspective.

8.5.4 The annual GHG emissions arising during the construction stage of the Proposed Development have been compared to the GLA and UK carbon budgets as detailed in **Table 8.11** and **Table 8.12**. The annualised GHG emissions have been estimated based on an overall construction

period of 2 years, expected to commence in late 2027 and anticipated to be completed by late 2029. For the purpose of comparison to the relevant carbon budget, it is assumed that construction starts from December 2027 and ends in November 2029.

Table 8.11 Contribution of construction stage GHG emissions to the GLA carbon budgets

Carbon budget	GLA carbon budget (tCO_2e)	Potential project emissions (tCO_2e)	Percentage contribution of construction emissions to the GLA carbon budget (%)
4th (2023-2027)	22,400,000	1,033	0.005%
5th (2028-2032)	18,000,000	23,755	0.13%

Table 8.12 Contribution of construction stage GHG emissions to the UK carbon budgets

Carbon budget	UK carbon budget (tCO_2e)	Potential project emissions (tCO_2e)	Percentage contribution of construction emissions to the UK carbon budget (%)
4th (2023-2027)	1,950,000,000	1,033	0.0001%
5th (2028-2032)	1,725,000,000	23,755	0.0014%

8.5.5 Based on the construction works running from 2027 to 2029, emissions from the Proposed Development's construction stage equate to approximately 0.005% of the 4th GLA carbon budget and 0.13% of the 5th GLA carbon budget (**Table 8.11**).

8.5.6 In relation to the UK carbon budgets, emissions from the Proposed Development's construction stage equate to approximately 0.0001% of the 4th UK carbon budget and 0.0014% of the 5th UK carbon budget (**Table 8.12**).

8.5.7 Furthermore, the embedded carbon emissions within the construction materials are not likely to be relevant to the GLA's carbon budgets as they may have occurred outside of the Greater London Authority area (e.g. emissions from extraction and manufacturing facilities outside of London, from sites elsewhere in the UK) and are not considered in the budget. Therefore, the true percentage contribution of the construction GHG emissions to the GLA budget is likely to be less than that stated in **Table 8.11**.

8.5.8 Based on **Table 8.11** and **Table 8.12**, it is assessed that the significance of construction GHG emissions when compared to both the GLA carbon budgets and the UK carbon budgets is Minor Adverse which is likely to result in a Not Significant effect. Suitable mitigation measures have been included in the Proposed Development to reduce construction-stage GHG emissions as detailed in **Section 8.4**. Although there will be a net increase in GHG emissions due to the construction of the Proposed Development (even when factoring in the inherent design mitigation), the level of mitigation included is considered to be acceptable based on the ISEP guidance stated in **Table 8.3**.

Operational Phase

8.5.9 As detailed in paragraph 8.2.52, the Proposed Development is expected to operate for the foreseeable future, with equipment, plant and building components refurbished, upgraded, replaced as a permanent installation. However, for the purpose of the assessing potential operational emission, a 60-year design life has been assumed in the WLCA. The operational phase of the Proposed Development is assumed to be from 2030 to 2089, following the completion of the construction phase. GHG emission sources within the scope of the operational emissions associated with the Proposed Development include replacement of materials and building components over the 60-year reference study period as assumed in the WLCA for assessment purpose, operational energy use, operational water use, and any associated transport or service activities.

8.5.10 The analysis carried out as part of the Energy and Sustainability Statement was used to inform the operational energy information used within the WLCA.

8.5.11 The total GHG emissions expected to arise throughout the Proposed Development's operational phase are detailed in **Table 8.13**. Total operation stage emissions equate to 2,716,007 tCO_2e over the Proposed Development's operation stage.

Table 8.13 GHG Emissions resulting from the operation stage of the Proposed Development

Lifecycle module	Operational stage emissions (tCO_2e)
B1-B5: Use, maintenance, repair, replacement and refurbishment*	29,819
B6: Operational energy use*	2,686,187
Total operation stage	2,716,007

**Under decarbonised scenario as modelled in the WLCA*

[Source: Savills Earth Former Sipson Garden Centre Whole Life-Cycle Carbon Assessment, September 2026]

8.5.12 The annual GHG emissions arising during the operational stage have been compared to the GLA and UK carbon budgets as detailed in **Table 8.14** and **0**. The annualised GHG emissions have been estimated based on an overall operational life of 60 years, expected to commence in 2030.

Table 8.14 Contribution of operation stage GHG emissions to the GLA carbon budgets

Carbon budget	GLA carbon budget (tCO_2e)	Potential project emissions (tCO_2e)	Percentage contribution of operation emissions to the GLA carbon budget (%)
5th (2028-2032)	18,000,000	135,800	0.75%

Table 8.15 Contribution of operation stage GHG emissions to the legislated and projected UK carbon budget

Carbon budget	UK carbon budget (tCO_2e)	Potential project emissions (tCO_2e)	Percentage contribution of operation emissions to the UK carbon budget (%)
5th (2028-2032)	1,725,000,000	135,800	0.01%
6th (2033-2037)	965,000,000	226,334	0.02%
7th (2038-2042)	535,000,000	226,334	0.04%
8th (2043-2047)	220,000,000	226,334	0.10%
9th (2048-2050)	22,000,000	135,800	0.62%

8.5.13 The completed development is expected to become operational in 2030. Given this, it should be noted that the GLA is yet to establish any carbon budgets beyond 2032. Consequently, it is only possible to contextualise operational emissions for the Proposed Development at a regional scale for the 5th GLA carbon budget; where operational emissions for the Proposed Development between 2030-2032 (3 years) represent 0.75% of the budget.

8.5.14 In terms of the UK Carbon Budgets, GHG emissions are estimated to contribute 0.01% of the 5th budget, 0.02% of the 6th budget and 0.04% of the 7th budget. Following this, the operational phase of the Proposed Development exceeds the current time boundary published by UK Carbon Budgets. Budget periods for the subsequent 8th and 9th UK Carbon Budgets, leading to 2050, have now been advised by the Climate Change Committee's (CCC) balanced pathway. Whilst these budgets are yet to be formally adopted by the UK government, they have been used for contextualisation because they cover a large proportion of the Proposed Development's operation. Given this, the Proposed Development's operational GHG impact is estimated to contribute 0.1%, and 0.6% of the indicative 8th and 9th UK Carbon Budgets respectively, leading up to the UK's 2050 net zero target. To illustrate the Proposed Development's trajectory towards net zero by 2050, the CCC's Balanced Net Zero Pathway will be utilised post-2042 in the absence of any formally published carbon budgets beyond the 7th Carbon Budget. Beyond 2050, the UK is legally required to maintain net-zero emissions.

8.5.15 Based on **Table 8.14** and **0**, it is assessed that the significance of operational stage GHG emissions when compared to both the GLA carbon budgets and the UK carbon budgets is Moderate Adverse which is likely to result in a Significant effect, where the operational emissions account for 0.75% of the 5th GLA carbon budget and 0.6% of the 9th UK carbon budget. Mitigation measures have been included in the Proposed Development to reduce operation-stage GHG emissions as detailed in **Section 8.4**. However, based on the ISEP guidance presented in **Table 8.3**, design mitigations shall comply with up-to-date policy and 'good practice' reduction measures relevant to data centres in order for the impacts to be classified as Minor Adverse and a Not Significant effect. Although not legally-binding, the CNDCP is an industry-led, self-regulatory initiative that commits its signatories to achieving climate-neutral data centre operations by 2030 and acts as an industry guide for good practice reduction measures for major data centres. The Pact is built on several key targets including:

- New data centres operating at full capacity will meet an annual energy efficiency target of 1.3 power usage effectiveness (PUE) in cool climates.

- Data centre electricity demand will be matched by 75% renewable energy or hourly carbon-free energy by December 2025 and 100% by December 2030.
- New data centres at full capacity in cool climates that use potable water will be designed to meet a maximum water use effectiveness (WUE) of 0.4 litres per kilowatt hour in areas with water stress.
- Data centre operators will increase the quantity of server materials repaired or reused and will create a target percentage for repair and reuse.

8.5.16 Therefore, if not mitigated in line with the CNDCP, the operation-stage GHG emissions are likely to result in a Moderate Adverse impact and a Significant effect. It is recommended that the Proposed Development consider sourcing energy supply from renewable energy sources by at least 75% and latter 100% by 2030 and set targets for the reuse of server materials, to demonstrate that up-to-date policy and good practice measures for data centres are being implemented.

Decommissioning

8.5.17 As detailed in paragraph 8.2.52, the Proposed Development is expected to operate for the foreseeable future, with equipment, plant and building components refurbished, upgraded, replaced as a permanent installation. Whilst decommissioning is not anticipated, end of life impacts remains part of the asset's whole life carbon performance and have therefore been included. The decommissioning phase of the Proposed Development is assumed to occur following the 60-year design life as mentioned in paragraph 8.5.12.

Table 8.16 Emissions resulting from the decommissioning stage of the Proposed Development

Lifecycle module	Decommissioning stage emissions (tCO_2e)
C1-C4: End-of-life*	1,083

**Under decarbonised scenario as modelled in the WLCA*

8.5.18 The Proposed Development's end-of-life timeline, and associated activities, is anticipated to fall outside the UK and GLA carbon budget periods, which is after 2050. Beyond 2050, it is implied that the UK, and therefore all regional carbon budgets, will remain at net zero. However, the decommissioning environment and associated practices of the future are expected to vary considerably to those observed currently, the GHG impact by the time of decommissioning phase would be considered minimal.

8.5.19 The WLCA has assessed the Module D external benefits of the Proposed Development, including emission benefits from recycling recyclable building waste, it is expected to be 7,625 tCO2e. Module D benefits are reported separately from the building lifecycle total and is not part of development emissions and not deducted from Module A – C following RICS guidance as detailed in the WLCA.

Combined Phases

8.5.20 **Table 8.17** and **Table 8.18** below details the project emissions compared to the GLA and UK carbon budgets with Module A (Construction stage) and B (Operation stage) combined (whereby both Module A and Module B emissions occur within the 4th and 5th carbon budget periods, but the 6th, 7th, 8th and 9th carbon budget periods only include Module B emissions). Module C (Decommissioning stage) emissions have not been included in the tables below as

the end-of-life timeline of the Proposed Development falls outside of the UK and GLA carbon budget periods.

Table 8.17 Contribution of whole-life GHG emissions (excl. Module C) to the GLA carbon budgets

Carbon budget	GLA carbon budget (tCO_2e)	Potential project emissions (tCO_2e)	Percentage contribution of WLCA emissions to the GLA carbon budget (%)
4th (2023-2027)	22,400,000	1,033	0.005%
5th (2028-2032)	18,000,000	159,555	0.9%

Table 8.18 Contribution of whole-life GHG emissions (excl. Module C) to the UK carbon budgets

Carbon budget	UK carbon budget (tCO_2e)	Potential project emissions (tCO_2e)	Percentage contribution of WLCA emissions to the UK carbon budget (%)
4th (2023-2027)	1,950,000,000	1,033	0.0001%
5th (2028-2032)	1,725,000,000	159,555	0.009%
6th (2033-2037)	965,000,000	226,334	0.02%
7th (2038-2042)	535,000,000	226,334	0.04%
8th (2043-2047)	220,000,000	226,334	0.10%
9th (2048-2050)	22,000,000	135,800	0.62%

8.5.21 As detailed in paragraph 8.5.8, it is assessed that the significance of construction GHG emissions when compared to both the GLA carbon budgets and the UK carbon budgets is Minor Adverse which is likely to result in a Not Significant effect.

8.5.22 As detailed in paragraph 8.5.15, it is assessed that the significance of operational stage GHG emissions when compared to both the GLA carbon budgets and the UK carbon budgets is Moderate Adverse which is likely to result in a Significant effect.

CCRA

8.5.23 Using the climate change projection data gathered in Appendix 8.1, climate risks were identified (e.g. increased risk of heat stress on construction workers) using the climate hazards deemed to be relevant to the Proposed Development (e.g. increased frequency and intensity of summer heatwaves).

8.5.24 For each climate risk identified, the asset components impacted were noted and the environmental design and management measures considered listed. In this instance, embedded or planned controls represent measures already included in the design and operation of the Proposed Development, that mitigate climate risk. With this information, an initial assessment of climate change risk was undertaken based on an analysis of likelihood and consequence.

8.5.25 This section outlines the main climate risks identified for the Proposed Development. Risks presented in this section have considered the planned controls and design resilience measures presented in Section 8.4.

Construction Phase

8.5.26 The following risks have been identified for the construction phase of the Proposed Development and presented within Table 8.19.

Table 8.19 No. of climate risks identified for the construction phase

Initial Risk Rating	RCP4.5 2021-2050	RCP8.5 2021-2050
Low	3	3
Medium	4	4
High	-	-
Extreme	-	-

Top Construction Climate Risks

8.5.27 Of the seven climate change risks identified for the construction phase, none were considered to be significant (rated high or above). A summary of the risks identified is provided below.

- **Flooding** – The construction site may experience fluvial or pluvial flooding, disrupting site access, creating unsafe working conditions and delaying the construction programme. It is anticipated that the Construction Environmental Management Plan (CEMP) will detail measures to reduce the risk of flooding on site to a reasonable level.
- **Extreme Heat –** Extreme heat events and heatwaves may create unsafe working conditions for construction workers and equipment, delaying the construction programme**.** It is anticipated that the CEMP will detail measures to reduce the risk of extreme heat impacts on site to a reasonable level.
- **Storm Events –** Storm events and high winds may lead to debris on the construction site or increased dust generation during construction activities, delaying the programme and resulting in financial disruption. It is anticipated the CEMP will adequately manage risks related to storm events.

Operational Phase

8.5.28 The following risks have been identified for the construction phase of the Proposed Development. To represent the worst-case scenario, only the risks for the RCP8.5 climate change scenario are presented within Table 8.20.

Table 8.20 No. of climate risks identified for the operation phase

Initial Risk Rating	RCP8.5 2021-2050	RCP8.5 2041-2070	RCP8.5 2071-2100
Low	3	3	2
Medium	5	5	5
High	1	1	2
Extreme	-	-	-

8.5.29 Of the nine risks identified during the operational phase, two were considered to be significant with a rating of 'high'. Significant operational climate risks are summarised below:

- **Pluvial Flooding –** Extreme rainfall events can lead to the overwhelming of drainage systems and the occurrence of surface water flooding, which can result in damage to Proposed Development infrastructure and the suspension of operations. The site is located in Flood zone 2, where instances of surface water flooding have been experienced. In addition to this, climate change is projected to increase winter rainfall by 20-50% by the end of the century. As the drainage system has been designed with a 40% climate change allowance, this may not be sufficient to deal with future projected rainfall events.
- **Extreme Heat & Heatwaves –** Extreme heat and extended periods of high temperatures can lead to fault and disruptions within the electrical infrastructure of the Proposed Development. Data centre severs generate large amounts of waste heat during operation and require cooling to remain effective. By the end of the century there may be between 8 to 26 days over 35°C per year under an RCP8.5 scenario. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) have published Equipment Thermal Guidelines for Data Processing Environments[37] which recommends an optimal temperature range of 18°C to 27°C. Currently, the MEP design has not been finalised, though should consider HVAC systems adequate to manage extreme heat events.

[37] The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) (2021) Thermal Guidelines for Data Processing Environments. Available at: 00 ReferenceCard portrait.fm

8.6 Additional Mitigation

Lifecycle GHG Impact Assessment

8.6.1 The Proposed Development is assessed to have Minor Adverse effects on the global climate at the construction and decommissioning phases of the Proposed Development, no further mitigation measures are therefore proposed for construction or decommissioning GHG emissions.

8.6.2 As the operational stage emissions of the Proposed Development result in a Moderate Adverse and therefore Significant effect, it is recommended that additional mitigation measures shall be committed in order to reduce the significance of the operational GHG emissions to a Minor Adverse and Not Significant impact. The following mitigation measures would demonstrate alignment with up-to-date industry policy and good-practice measures for carbon reduction in data centre schemes, as set by the Climate Neutral Data Centre Pact (see paragraph 8.5.15). If these mitigation measures are committed to be implemented in the design and operation of the Proposed Development, residual effects may be reduced to a Minor Adverse and Not Significant effect:

- Demonstrate that the Proposed Development does not exceed an annual PUE target of 1.3 (i.e. the annual energy consumed by the data centre divided by the annual energy consumed by any IT equipment does not exceed 1.3);
- Meet at least 75% of data centre electricity demand with renewable energy or hourly carbon-free energy, increased to 100% by December 31st 2030;
- Demonstrate that the Proposed Development does not exceed an annual WUE target of 0.4 L/kWh (i.e. the annual potable water consumed by the data centre divided by the annual potable water consumed by any IT equipment does not exceed 0.4 L/kWh;
- Set a target for the percentage of server materials which must be repaired or reused at their end-of-life; and
- Commit to design measures for reusing excess heat from servers to leverage heat recovery and reducing on-site heating demand.

CCRA

8.6.3 The following adaptation actions are recommended as additional mitigation to increase the climate resilience of the Proposed Development.

Construction Phase

8.6.4 Climate risks during construction will be managed by the CEMP. Consideration should be given to the following potential climate impacts within the CEMP.

- **Pluvial and Fluvial Flooding** – Raise critical infrastructure to be above PMF (Probable maximum flood).
- **Extreme Heat** – Heat tolerance of material, plant and workforce should be considered when planning construction works.
- **Storms & Wind** – Debris and dust management procedures to manage increased temperatures and more frequent windy conditions. Consider installing additional attenuation storage tanks at key locations or identified flood risk areas, to increase the Proposed Development‘s drainage capacity.

Operational Phase

8.6.5 The following adaptation actions are recommended for significant operational climate risks to reduce vulnerability to climate impacts.

Flooding

- Consider introducing a drainage maintenance and operation plan, that ensures the drainage system is monitored and kept blockage free.
- Consider re-paving key areas with a permeable material to allow water to be absorbed into the ground and not gather on the surface area.
- Critical infrastructure should be raised above PMF (Probable maximum flood) level.

Storms & Wind

- Wind patterns should be monitored and an early warning system should be in place at the Proposed Development. This will allow for contingency plans to be put in place in advance of predicted storm and windy conditions.
- A wind monitoring plan which establishes procedures and measures that should be instated during periods of strong winds should be developed.

Extreme heat & Drought

- Weather forecasts should be monitored and an early warning system should be in place at the Proposed Development. This will allow for contingency plans to be put in place in advance of predicted extreme heat events.
- In advance of expected periods of extreme heat check all HVAC system are working correctly and assess if further temporary fans need to be dispersed in indoor areas.
- HVAC systems should be designed to achieve stated optimal temperature of IT data equipment during spells of extreme outdoor temperature
- Design should allow for the retro-fit of new technologies that reduce the reliance on water for use in cooling operation, or consider current technologies to reduce water demand.

8.7 Residual effects

Lifecycle GHG Impact Assessment

8.7.1 There will be unavoidable GHG emissions resulting from the construction, operation, and decommissioning phases of the Proposed Development as materials, energy and fuel use, and transport will be required, and these cannot be entirely eliminated through design changes or the implementation of mitigation measures. The significance of effects for the construction stage and decommissioning stage is assessed as Minor Adverse and Not Significant with no additional mitigation measures suggested besides those already included in the Proposed Development's inherent design mitigation. Therefore, it is expected that residual effect during construction and decommissioning will also be Minor Adverse (Not Significant).

8.7.2 However, operational GHG emissions from operational energy use does present a significant impact. Following commitment to, and implementation of, the additional mitigation measures recommended in Section 8.6, the operational stage GHG emissions may result in a Minor

Adverse and Not Significant effect through demonstration of industry alignment to best-practice measures for carbon reduction in data centre developments. However, the residual effect cannot be reduced to Minor Adverse and Not Significant until evidence is provided showing commitment to the additional mitigation measures set out in **Section 8.6**.

CCRA

Construction Phase

8.7.3 No significant climate risks have been identified for the construction phase of the Proposed Development. The CEMP is anticipated to adequately manage any risks that may occur.

Operational Phase

8.7.4 Two significant climate risks were identified for the operation of the Proposed Development. These related to pluvial flooding and extreme heat. Following the implementation of the mitigation measures recommended in Section 8.4, the residual risk rating will no longer be significant.

8.8 Cumulative effects

8.8.1 Climate change is the result of cumulative impacts as it is the result of innumerable minor activities. A single activity may itself result in a minor or insignificant impact, but when combined with many other activities, the cumulative impact could be significant.

8.8.2 Whilst the EIA Regulations does require the assessment of cumulative effects with other existing and/or approved projects, the effects of GHG emissions occur at the global level and not the local level (i.e., the effects occur irrespective of where the emissions occur).

8.8.3 The ISEP guidance states *"…The effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other.".*

8.8.4 It is acknowledged that there is a cumulative impact of GHG emissions on the global climate, however it is not possible to quantitatively assess these effects. Whilst the emissions from the Proposed Development can be estimated and compared against local, regional and national carbon budgets, the combined effect together with all other GHG-emitting activities cannot be quantitatively assessed.

8.8.5 It is not considered applicable to assess cumulative effects within the CCRA as the assessment evaluates physical climate risks to the Proposed Development itself only.

8.9 Summary

Lifecycle GHG Impact Assessment

8.9.1 The GHG assessment has identified that the Proposed Development will lead to a net increase in GHG emissions against the existing baseline. The Proposed Development's GHG impact has been determined to be Minor Adverse and Not Significant during the construction and decommissioning stages, in accordance with ISEP best practice guidance on the assessment of GHGs for EIA. The inherent design mitigation measures to reduce GHG impacts during construction and decommissioning align with government policy on reducing GHG emissions, demonstrating that the Proposed Development is fully compatible with existing and emerging policy requirements. The Proposed Development's GHG impact during the operation stage has been assessed to be Moderate Adverse and Significant due to the high operational energy demand of the site. Additional mitigation measures have been recommended in **Section 8.6** to demonstrate how the Proposed Development could align to industry recognised best-practice, in order to reduce the significance of this impact. However, until evidence is provided to demonstrate commitment to these mitigation measures, the effect remains as Moderate Adverse and Significant.

8.9.2 A summary of the lifecycle GHG impact assessment is set out in **Table 8.22**. Decommissioning emissions have not been included in the summary of effects table for the reasons set out in paragraph 8.5.18.

CCRA

8.9.3 The CCRA has identified a total of seven risks during construction and nine risks during operation. None of the construction phase risks are considered to be significant, however three operational risks were rated as significant during the initial risk assessment. These were related to pluvial flooding and extreme heat. Additional mitigation measures have been recommended in Section 8.6 to reduce the risks associated with these impacts.

8.10 References

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8.11 Assessor information

Table 8.21 Assessor Information

Chapter	Responsibility	Name	Qualifications	Assessor information
Climate Change and Greenhouse Gases	AECOM	Sam Williams	BSc, PISEP	Sam is the core author for the Lifecycle GHG impact assessment presented in this chapter. Sam has relevant experience in greenhouse gas impact assessments for a variety of EIAs for major UK-based infrastructure schemes including railway, highway, public realm, water, and energy infrastructure schemes. Sam also has additional experience in infrastructure carbon accounting and management, material and waste assessment, corporate ESG strategy and sustainable infrastructure assessments.
	AECOM	Jarrad Fisher	BSc (Hons), BA, PISEP, REnvP	Jarrad has authored the CCRA within this chapter. Jarrad is a Senior Consultant at AECOM with four years' experience working on a variety of infrastructure climate risk assessments.

Table 8.22 Summary of effects

Receptor	Receptor sensitivity	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Construction Phase					
The global climate	High	GHG emissions from the construction of the Proposed Development. Low magnitude of impact.	No additional proposed mitigation in addition to the inherent design mitigation measures included under **Section 8.4.**	Minor Adverse	Not Significant
The Proposed Development	High	Physical climate risks to the Proposed Development and associated users. Low magnitude of impact.	Additional measures described in **Section 8.4.**	Minor	Not Significant
Operation Phase					
The global climate	High	GHG emissions from the operation (including maintenance) of the Proposed Development. High magnitude of impact.	Additional measures described in **Section 8.4**	Moderate Adverse	Significant
The Proposed Development	High	Physical climate risks to the Proposed Development and associated users. High magnitude of impact.	Additional measures described in **Section 8.4.**	Minor	Not Significant

8.12 Mitigation commitments Summary

Table 8.23 Summary for Securing Mitigation

Identified receptor	Type and purpose of mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g. planning condition / legal agreement)	Delivered by	Auditable by
Construction Phase				
The Proposed Development	Enhance – In the CEMP, consideration should be given to raising critical infrastructure to be above PMF (Probably maximum flood) to reduce impacts from pluvial and fluvial flooding.	CEMP to be secured by Planning Condition	Contractor and the Applicant	LPA
The Proposed Development	Enhance – In the CEMP, heat tolerance of material, plant and workforce should be considered when planning construction works to reduce impacts from extreme heat.	CEMP to be secured by Planning Condition	Contractor and the Applicant	LPA
The Proposed Development	Enhance – In the CEMP, debris and dust management procedures should be included to manage increased temperatures and more frequent windy conditions. Consider installing additional attenuation storage tanks at key locations or identified flood risk areas, to increase the Proposed Development's drainage capacity.	CEMP to be secured by Planning Condition	Contractor and the Applicant	LPA
Operation Phase				
The global climate	Reduce – Demonstrate that the Proposed Development does not exceed an annual PUE target of 1.3 (i.e. the annual energy consumed by the data centre divided by the annual energy consumed by any IT equipment does not exceed	Energy and Sustainability Statement to be secured by the Planning Condition	Applicant	LPA

Identified receptor	Type and purpose of mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g. planning condition / legal agreement)	Delivered by	Auditable by
	1.3 PUE) to show alignment with the Climate Neutral Data Centre Pact.			
The global climate	Enhance – Meet at least 75% of data centre electricity demand with renewable energy or hourly carbon-free energy, increased to 100% by December 31st 2030, to show alignment with the Climate Neutral Data Centre Pact.	Energy and Sustainability Statement to be secured by the Planning Condition	Applicant	LPA
The global climate	Reduce – Demonstrate that the Proposed Development does not exceed an annual WUE target of 0.4 L/kWh (i.e. the annual potable water consumed by the data centre divided by the annual potable water consumed by any IT equipment does not exceed 0.4 L/kWh) to show alignment with the Climate Neutral Data Centre Pact.	Energy and Sustainability Statement to be secured by the Planning Condition	Applicant	LPA
The global climate	Enhance – Set a target for the percentage of server materials which must be repaired or reused at their end-of-life to show alignment with the Climate Neutral Data Centre Pact.	Energy and Sustainability Statement to be secured by the Planning Condition	Applicant	LPA
The global climate	Enhance – Commit to design measures for reusing excess heat from servers to leverage heat recovery and reducing on-site heating demand to show alignment with the Climate Neutral Data Centre Pact.	Energy and Sustainability Statement to be secured by the Planning Condition	Applicant	LPA
The Proposed Development	Enhance – Consider introducing a drainage maintenance and operation plan, that ensures the drainage system is monitored and kept blockage free to reduce during flood events.	Planning Condition	Applicant	LPA

Identified receptor	Type and purpose of mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g. planning condition / legal agreement)	Delivered by	Auditable by
The Proposed Development	Enhance – Consider re-paving key areas with a permeable material to allow water to be absorbed into the ground and not gather on the surface area, to reduce impacts during flood events.	Reserved Matters	Applicant	LPA
The Proposed Development	Enhance – Critical infrastructure should be raised above the PMF (probably maximum flood) level to reduce impacts during flood events.	Reserved Matters	Applicant	LPA
The Proposed Development	Prevent – Wind patterns should be monitored, and an early warning system should be in place at the Proposed Development. This will allow for contingency plans to be put in place in advance of predicted storm and windy conditions.	Planning Condition	Applicant	LPA
The Proposed Development	Prevent – A wind monitoring plan, which establishes procedures and measures that should be instated during periods of strong winds, should be developed.	Planning Condition	Applicant	LPA
The Proposed Development	Prevent – Weather forecasts should be monitored, and an early warning system should be in place at the Proposed Development. This will allow for contingency plans to be put in place in advance of predicted extreme heat events.	Planning Condition	Applicant	LPA
The Proposed Development	Prevent – In advance of expected periods of extreme heat, check all HVAC systems are working correctly and assess if further temporary fans need to be dispersed in indoor areas.	Planning Condition	Applicant	LPA
The Proposed Development	Enhance – HVAC systems should be designed to achieve stated optimal temperature of IT data	Planning Condition	Applicant	LPA

Identified receptor	Type and purpose of mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g. planning condition / legal agreement)	Delivered by	Auditable by
	equipment during spells of extreme outdoor temperature.			
The Proposed Development	Enhance – Design should allow for the retro-fit of new technologies that reduce the reliance on water for use in cooling operation or consider current technologies to reduce water demand.	Planning Condition	Applicant	LPA