◆ Climate and Energy

INTRODUCTION

1. Intermodal Logistics Park North Ltd. ('the Applicant') is promoting proposals for a new strategic rail freight interchange (SRFI) and associated development on land to the east of Newton-le-Willows, in the jurisdictions of St Helens, Wigan and Warrington Councils. An SRFI is a large multi-purpose freight interchange and distribution centre linked into both the rail and trunk road systems. SRFIs reduce the cost of moving freight by rail and encourage the transfer of freight from road to rail, thereby reducing carbon emissions and contributing to the UK's target to achieve net zero by 2050.

2. Under the Planning Act 2008, the proposals qualify as a Nationally Significant Infrastructure Project (NSIP). Accordingly, an application for a Development Consent Order (DCO) is to be made to the Planning Inspectorate (PINS), which will examine the DCO application on behalf of the Secretary of State (SoS) for Transport.

3. Before making a DCO application, an Environmental Impact Assessment (EIA) of the Proposed Development will be undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations'). EIA is a process that provides the decision maker with sufficient information about the likely environmental effects of a project and is used to improve the environmental design of a development proposal. The first stage of this process was the submission of a request for a formal scoping opinion under Regulation 10 of the EIA Regulations.

4. The Applicant submitted an EIA Scoping Report to the Planning Inspectorate in October 2024. This outlined the work undertaken to date and sought advice from the Inspectorate on the likely significant effects of the Proposed Development and the topics that needed to be assessed as part of the Environmental Impact Assessment (EIA). A Scoping Opinion was received in December 2024 and this will be used to inform the EIA process for the Proposed Development. A summary of the main comments received and how the Applicant intends to address these are set out in the table below.

Table 1 Scoping Opinion comments and responses

Inspectorate's Comments	Applicant's Response
The assessment should also take account of any changes in rail movements as a result of	The Applicant notes this comment.

the Proposed Development.	

5. This topic paper outlines the ongoing assessment of the potential impact of the Proposed Development on climate change. It also considers how the impacts of future climate change may affect the Proposed Development, and the potential inter-related effects between climate change and other environmental impact pathways.

6. This topic paper has been written by Tom Dearing, an Associate Director at Savills, who is a Chartered Environmentalist with fourteen years' experience of climate change assessment and mitigation through EIA. It draws from work undertaken by Susie Sidley, a Sustainability Partner at Ridge & Partners LLP, at the EIA scoping stage for this project.

7. The purpose of this topic paper is to explain what impacts on and from climate change will be assessed for the Proposed Development, how we will approach this (with reference to the applicable policy and guidance) and most importantly, the initial consideration of how impacts can be reduced ('mitigated' in EIA terminology) or where enhancement opportunities lie.

8. The key greenhouse gas (GHG) emission impacts would be from producing the materials and products used to build the Proposed Development, supplying the energy needed to operate it, and from fuel and energy used in lorries, trains and employee travel to and from the Proposed Development. There are opportunities to reduce each of these, and in particular one purpose of an SRFI in shifting freight from the road to rail, is to reduce GHG emissions compared to a baseline of typical all-road transport.

9. The key climate risks and inter-related effects could arise from more intense or frequent weather extremes as the climate changes over the Proposed Development's working lifetime: for example storms with intense rainfall, prolonged summer heatwaves with high peak temperatures, and changes in how sensitive habitats, fauna and people are to various impact pathways due to climate stresses.

10. After a summary of the policy and guidance for assessment, our approach to each of these is discussed in turn below.

RELEVANT LAW, POLICY AND GUIDANCE

11. The DCO application will be determined pursuant to the Planning Act 2008 and relevant regulations, the National Networks National Policy Statement ('NPSNN', adopted 2024) and the National Planning Policy Framework (NPPF). Relevant local planning policy are material considerations.

12. There is a great deal of legislation and policy which concerns climate change, transport, energy, the built environment and management of the natural environment in general, which is not exhaustively listed here; this summary instead focuses on aspects of legislation or policy where these matters intersect to be of most relevance to the Proposed Development.

13. The summary will be expanded in the EIA, because legislation and policy goals forms part of the context for judging the mitigation of climate change impacts and hence the significance of effects.

Legislation

14. The Climate Change Act 2008[1] (as amended in 2019) commits the UK government to reducing GHG emissions by at least 100% of 1990 levels by 2050: a net zero target. The Act requires the UK government to set interim carbon budgets for the UK. The Act also established the Climate Change Committee (CCC) to give advice on carbon budgets and report on progress.

15. At present, the Fourth, Fifth and Sixth Carbon Budgets for the UK, set through The Carbon Budget Orders 2011, 2016 and 2021, are 1,950 $MtCO_2$ for 2023 to 2027, 1,725 $MtCO_2$ for 2028 to 2031 and 965 $MtCO_2$ for 2033 to 2037. The Sixth Carbon Budget is the first that is consistent with the UK's net zero target, requiring a 78% reduction in GHG emissions by 2035 from 1990 levels. The UK's updated Nationally Determined Contribution (NDC) under the Paris Agreement (as reaffirmed in the Glasgow Pact) commits the UK to reducing economy-wide GHG emissions by at least 68% by 2030 compared to 1990 levels[2]. At COP29 in November 2024, the UK pledged to make its next NDC an 81% reduction on 1990 levels by 2035[3].

16. The Paris Agreement is a binding international treaty on climate change, to which the UK is a signatory. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016. Its overarching goal is to hold *"the increase in the global average temperature to well below 2°C above pre-industrial levels"* and pursue efforts to *"limit the temperature increase to 1.5°C above pre-industrial levels."*

17. Under s.14 of the Climate Change Act 2008, the UK government must report on its proposals and policies for meeting each carbon budget. The Carbon Budget Delivery Plan 2023[4] is the present such report. The plan indicates that the quantified emission reductions predicted from the implementation of current policies are expected to be sufficient to deliver the Fourth and Fifth Carbon Budgets but may fall short of the Sixth Carbon Budget. However, in May 2024, the Delivery Plan was found to be unlawful following a judicial review and so the Secretary of State is required to produce a new plan within 12 months (i.e. by 2 May 2025).

18. Under s. 56 of the Climate Change Act 2008, the UK government is required to publish a five-yearly national climate risk assessment, the latest being from 2022[5]. This was developed based on advice from the Climate Change Committee.

[1] Climate Change Act 2008 (c.27): https://www.legislation.gov.uk/ukpga/2008/27/contents, accessed 29/07/24

[2] United Kingdom of Great Britain and Northern Ireland's Nationally Determined Contribution (2022): https://assets.publishing.service.gov.uk/media/633d937d8fa8f52a5803e63f/uk-nationally-determined-contribution.pdf, accessed 19/07/24

[3] Prime Minister's National Statement at COP29: 12 November 2024, https://www.gov.uk/government/speeches/prime-ministers-national-statement-at-cop29-12-november-2024, accessed 09/01/25

[4] Carbon Budget Delivery Plan (2023): https://assets.publishing.service.gov.uk/media/6424b2d760a35e000c0cb135/carbon-budget-delivery-plan.pdf, accessed 29/07/24

[5] UK Climate Change Risk Assessment (2022): https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2022, accessed 29/07/24

Policy

National Policy Statement for National Networks (March 2024)

19. For nationally significant road, rail and strategic rail freight infrastructure projects (as defined in the Planning Act 2008), the National Policy Statement for National Networks (NPSNN) sets out the primary policy objectives.

20. The NPSNN identifies the potential contribution that rail freight could make to reducing greenhouse gas emissions, with an estimated reduction of 76% per tonne per km travelled when compared to road freight, which equates to around 1.4 m tonnes of carbon dioxide emissions saved each year. Each freight train can remove up to 76 heavy goods vehicles (HGVs) from the road. The rail freight industry resulted in 5.56 million fewer lorry journeys in 2020/21.

21. The NPSNN also sets out four design principles developed by the National Infrastructure Commission, one of which focuses on climate, covering both mitigation of carbon emissions and adaptation to climate change. This design principle is for development that:

"…includes opportunities to enable decarbonisation, incorporates flexibility, and builds resilience against climate change. The functionality of projects, including fitness for purpose, resilience and sustainability, is equally important."

22. With respect to carrying out EIAs, the NPSNN provides guidance on assessment of carbon emissions associated with infrastructure projects, including that these can be compared against UK carbon budgets and the net zero target in the Climate Change Act 2008.

23. The NPSNN also provides guidance on climate adaptation, stating that *"applicants must consider the direct (e.g., flooding of road or rail infrastructure) and indirect (e.g., flooding of other parts of the road or rail network) impacts of climate change when planning the location, design, build, operation and maintenance."*

National Planning Policy Framework 2024

24. The National Planning Policy Framework (NPFF)[6] states with regard to climate change that the core planning principle of the NPPF is that the planning system should:

"…support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure." (paragraph 161).

25. 'Low-carbon' technologies are defined in the NPFF at pages 77-78 as *"…those that can help reduce emissions (compared to conventional use of fossil fuels)."*

[6] DLUHC (2024): National Planning Policy Framework. [Online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2, accessed 12/12/24

26. In paragraphs 162 (quoted above) and 163, the NPPF refers to the need for planning to provide climate adaptation and resilience and for this to be considered in planning applications:

"Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating and drought from rising temperatures…" (paragraph 162).

"The need to mitigate and adapt to climate change should also be considered in preparing and assessing planning applications, taking into account the full range of potential climate change impacts." (paragraph 163).

27. The NPPF as revised in December 2024 also includes further support for onshore renewable energy generation.

National Net Zero and Climate Adaptation Policy

28. The Net Zero Strategy (Build Back Greener)[7], as revised in 2022 after court challenge, sets out the UK's plans to achieve net zero emissions by 2050. The Net Zero Strategy policies were further updated in early 2023 by the Powering Up Britain: Net Zero Growth Plan[8] policy paper. Headline policies are around decarbonising transport through the zero emissions vehicle mandate and continuing the transition to heat pump use for building heating.

29. The response to climate risks through resilience and adaptation actions are set out in the National Adaptation Programme (NAP), with the most recent being NAP3 published in 2023[9].

30. There is extensive further national policy for the delivery of net zero and climate adaptation, which will be discussed in more detail in the Environmental Statement.

St Helens Borough Local Plan up to 2037

31. The St Helens Borough Local Plan in Policy LPA01 outlines a spatial strategy for the Borough, which includes a requirement for new development proposals *"to mitigate their contribution to climate change and to adapt to its impacts".*

32. Policy LPA02 of the Local Plan states development principles including the need to *"lower St Helens Borough's carbon footprint and adapt to the effects of climate change"*.

33. Policy LPC13, Renewable and Low Carbon Energy Development sets out a requirement for new developments *"to meet high standards of sustainable design and construction and minimise carbon emissions to a 19% carbon reduction against Part L 2013 unless proven unviable"*. In addition, proposals for new development within a strategic employment site *"must, unless this is shown not to be practicable or viable, ensure that at least 10% of their*

[7] Net Zero Strategy: Build Back Greener (2022): https://www.gov.uk/government/publications/net-zero-strategy, accessed 29/07/24
[8] Powering Up Britain (2023): https://assets.publishing.service.gov.uk/media/642556c560a35e000c0cb167/powering-up-britain-net-zero-growth-plan.pdf, accessed 29/07/24.
[9] Defra (2023): The Third National Adaptation Programme (NAP3) and the Fourth Strategy for Climate Adaptation Reporting, https://www.gov.uk/government/publications/third-national-adaptation-programme-nap3, accessed 09/10/24

energy needs can be met from renewable and / or other low carbon energy source(s).”

Places for Everyone Joint Development Plan

34. The Places for Everyone Joint Development Plan (2024) is the shared Development Plan document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan.

35. It includes Policy JP-S2: Carbon and Energy which identifies measures to support the aim of a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions. It sets out requirements for new development to be net zero carbon unless it can be demonstrated that it is not practicable or financially viable.

36. It also includes Policy JP-S4: Flood Risk and the Water Environment which identifies the need for climate change effects to be taken into consideration in designing schemes, including solutions such as Sustainable Drainage Systems. It also highlights the need for water conservation.

Wigan Local Plan – Core Strategy

37. The Wigan Local Plan Core Strategy was adopted in September 2013. Since March 2024, several policies have been replaced by policies in the Places for Everyone Plan and no longer form part of the borough’s Development Plan. However, Policy CP 10 which is still included in the Local Plan has a requirement for new development to include *“measures to minimise the impact of and adapt to climate change and conserve natural resources and meet established national standards for sustainability and national carbon reduction targets”.*

Warrington Local Plan 2021/22–2038-39

38. The Warrington Local Plan, adopted in December 2023, includes a vision for Warrington to be a *“carbon neutral, exemplar green town”* with new development built “*to the highest levels of energy efficiency*” (pages 23-24). This vision is reflected in strategic objective W6:

*“**W6.** To minimise the impact of development on the environment through the prudent use of resources and ensuring development contributes to reducing carbon emissions, is energy efficient, safe and resilient to climate change and makes a positive contribution to improving Warrington’s air quality.”* (page 27).

39. It also feeds through to policies INF1 on sustainable transport to reduce carbon emissions, policy ENV7 supporting renewable and low-carbon energy development, and policy ENV2 with respect to climate resilience in flood risk and water management.

Guidance

Advice of the Climate Change Committee

40. The Climate Change Committee has a statutory role under the Climate Change Act 2008 to provide advice to the government on setting carbon budgets, monitoring UK progress in meeting them, and on evidence-based policy measures that could be used for their

achievement.

41. In the latest review of UK progress in meeting carbon budgets[10], the overriding advice of the Committee has been that there remains important policy gaps and a lack of uptick in pace in carbon reduction. Despite a significant reduction in emissions in 2023, the UK is not on track to hit the NDC target of reducing emissions by 68% of 1990 levels by 2030; only a third of the emissions reductions required to achieve the 2030 target are currently covered by credible plans. The 2024 progress report indicates that action is needed across all sectors of the economy, with low-carbon technologies becoming the norm.

IEMA (2022) Assessing Greenhouse Gas Emissions and Evaluating their Significance (2nd Edition)

42. This document[11] is the main guidance for assessing significance of the effects of the project on climate change. It prescribes an approach to judging significance which is based on the degree to which a project makes a contribution towards achieving a science-based, 1.5°C aligned transition towards net zero, which is determined based on policy and good-practice guidance for the scale of mitigation required.

IEMA (2020) EIA Guide to: Climate Change Resilience & Adaptation

43. This document[12] provides guidance for considering the vulnerability of a project to climate change (climate change resilience). It provides a framework for the effective consideration of climate change resilience and adaptation in the EIA process.

RIBA (2021) RIBA 2030 Climate Challenge v2

44. The Royal Institute of British Architects (RIBA) has developed the RIBA 2030 Climate Challenge which sets out voluntary performance targets to achieve the reductions needed so that the UK building stock can achieve net zero carbon by 2050. The operational energy and water use and embodied carbon performance targets that are set out in the 2030 Climate Challenge have been developed by the RIBA consultation with experts across the industry. The targets consider the latest recommendations from the Green Construction Board and are aligned with other built environment professional bodies.

UK Net Zero Carbon Buildings Standard Pilot Version

45. The pilot version of a new UK Net Zero Carbon Buildings Standard[13] (UKNZCBS) was published in September 2024. This includes 'technical details on how a building should meet the Standard, including what limits and targets it needs to meet, the technical evidence needed to demonstrate this and how it should be reported. In the future, projects will be able to verify that a project conforms to the Standard.'

[10] 2024 Progress Report to Parliament: https://www.theccc.org.uk/publication/progress-in-reducing-emissions-2024-report-to-parliament/, accessed 29/07/24
[11] IEMA: Assessing Greenhouse Gas Emissions and Evaluating their Significance: https://www.iema.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance, accessed 29/07/24
[12] IEMA: Climate Change Resilience and Adaptation: https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020, accessed 29/07/24
[13] UK Net Zero Carbon Buildings Standard (2024), https://www.nzcbuildings.co.uk/pilotversion, accessed 02/12/24.

46. The UKNCZBS includes specific voluntary limits for each year from 2025 to 2050 for upfront carbon and operational energy. Similar to the RIBA standard, the UKNZCBS also uses energy use intensity as a metric for operational energy (kWh/m^2GIA/yr) and $kgCO_2$ equivalent for embodied carbon.

SITE DESCRIPTION

Site location

47. The DCO Site is located on the eastern extent of Newton-le-Willows in a flat, agricultural landscape. The DCO Site is located within the local authority areas of St Helens Borough Council, within the Liverpool City Region Combined Authority; Wigan Council, within the Greater Manchester Combined Authority; and Warrington Borough Council.

48. The DCO Site is split broadly in two sections:

- the Main Site – land to the east of the M6 motorway, to the south of the Chat Moss Line and to the west of Winwick Lane incorporating the triangular parcel of land located to the west of Parkside Road and to the north of the Chat Moss Line;
- the Western Rail Chord – land to the west of the M6 motorway, which bisects the DCO Site in a northwest southeast orientation, and to the east of the West Coast Mainline.

49. The majority of the land contained within the Main Site is bound to the north by the Chat Moss Line (Liverpool-Manchester railway line), to the west by the M6 motorway and to the southeast by Winwick Lane (A579). The Main Site south of the Chat Moss Line is approximately 198 hectares in size. The Highfield Moss Site of Special Scientific Interest (SSSI) is also adjacent to the north of the DCO Site, which is described in more detail below. A number of other uses exist at the Main Site currently, including:

- Kenyon Hall Airfield, which is a small airfield used by the Lancashire Aero Club for recreational flying of small propeller planes;
- Warrington Model Flying Club, which is a model club for radio controlled model aircraft; and
- Highfield Farm, is comprised of two agricultural/residential buildings set within a curtilage surrounded by agricultural fields.

50. The majority of the Main Site is comprised of agricultural fields used for arable crops, with some small patches of woodland in the east. There are also a number of residential properties, farmsteads and a commercial yard within the Main Site. Parkside Road (A573) runs through the DCO Site to the south before passing over the M6 where it provides access to Parkside Link Road West.

51. The triangular parcel of land located to the north of the Chat Moss Line and to the east of Parkside Road also forms part of the Main Site.

52. The Western Rail Chord of the DCO Site is approximately 12 hectares in size and is bordered

to the west by the West Coast Mainline railway, to the north by the Chat Moss Line and to the east by the Parkside West Development.

53. The Western Rail Chord is comprised of scrub land and areas of woodland which are set within the context of an area of redevelopment with commercial uses proposed, which is known as Parkside West, and is currently being promoted through the Town and Country Planning Act process.

Baseline environment

Impact of the Proposed Development on climate change

54. The DCO Site currently comprises predominantly agricultural land but there are also a small number of residential dwellings, a General Aviation airfield used by a flying club, commercial premises and farmsteads. There will therefore currently be some GHG emissions associated with these uses.

55. At this stage, we expect that the baseline emissions from this relatively low-intensity land use are minor compared to those of the Proposed Development. A worst-case assumption for the change in GHG emissions due to the Proposed Development would be to treat the baseline as zero, therefore treating all Proposed Development emissions as an increase. As existing land uses may in practice be displaced, rather than extinguished, this is a reasonable scenario. We will consider further whether baseline GHG emission sources need to be quantified in more detail to inform the assessment when carrying out the EIA.

Climate change resilience

56. The existing baseline for the climate change resilience assessment is the current climate in the location of the Proposed Development. Historical climate data has been obtained from the Met Office website using the closest meteorological station to the Proposed Development that gathers climate data (Crosby Station), for the 30-year climate periods of 1961-1990 and 1991-2020. This shows an increase in the average annual maximum daily temperature, but a slight reduction in the mean annual rainfall.

57. The Met Office confirms that past severe weather events in the last five years have included record breaking heatwaves, severe flooding, severe winter weather with significant snowfalls, and storm and high wind events.

58. UK Climate Projections published in 2018 (UKCP18) have been developed by the UK Climate Impacts Programme (UKCIP) to provide projections for future climate scenarios and trends. This shows that climate change over the next few decades is likely to mean milder wetter winters and hotter, drier summers in the UK, with greater frequency and intensity of weather extremes.

59. The UKCP18 projections for the 25 km grid square in which the Proposed Development is located will be used to assess climate risks and resilience measures in the EIA.

DEVELOPMENT DESCRIPTION

60. The Proposed Development is a Strategic Rail Freight Interchange (SRFI) and associated development comprising:

- provision of a rail terminal serving up to 16 trains per day, including ancillary development such as container storage, cranes for the loading and unloading of shipping containers, HGV parking, rail control building and staff facilities;
- a rail turn-back facility within the Western Rail Chord;
- up to c.767,000 square metres (m^2) (gross internal area) of warehousing and ancillary buildings with a total footprint of c.590,000m^2 and up to c.177,050m^2 of mezzanine floorspace, subject to ongoing design and market assessment, comprising a mixture of units with the potential to be rail-connected, rail served and additional units;
- new road infrastructure and works to existing road infrastructure;
- provision of overnight lorry parking for users of the SRFI;
- new energy centre and electricity substations, including central battery storage and potential provision of central Combined Heat and Power (CHP) units to augment the grid supply in the case of demand exceeding instantaneous firm and variable supplies;
- provision of photovoltaics and battery storage on site;
- strategic landscaping and open space, including alterations to public rights of way and the creation of new ecological enhancement areas;
- demolition of existing on-site structures (including existing residential dwellings / farmsteads and commercial premises);
- potential relocation of the Huskisson Memorial; and
- earthworks to regrade the DCO Site to provide appropriate access, connections to the railway, development plots and landscape zones.

OUR APPROACH TO THE ASSESSMENT

Scope of assessment

61. As noted above, our assessment is of both the impact on climate change due to GHG emissions and the risks arising from a changing climate. The scope therefore includes, for the construction and operational phases of the development:

- the impact of the Proposed Development on climate change, in line with IEMA (2022) Assessing Greenhouse Gas Emissions and Evaluating their Significance; and
- the vulnerability of the Proposed Development to climate change (climate change

resilience) in line with IEMA (2020) EIA Guide to: Climate Change Resilience & Adaptation; and

- the inter-related effects of climate change with other environmental impact pathways.

62. The EIA is not going to assess decommissioning in detail because ILP North is intended to be a permanent development, with no fixed decommissioning phase being planned. Where elements of the Proposed Development are required to be decommissioned, and where effects from this are identified as likely to be significant, these will be assessed in the ES. For climate change, end-of-life impacts and the opportunities to design for recycling and re-using materials are expected be referred to in the consideration of carbon at each life-cycle stage of the development, where proportionate.

Impact of the Proposed Development on climate change

Study area

63. A spatial study area is not very meaningful for impacts on climate change, since the impact of GHG emissions is on global climate, and the emissions sources caused directly or indirectly by Proposed Development activities can be from a variety of locations. No specific geographical study area is therefore defined for the identification of receptors or assessment of effects.

64. However, GHG emissions caused by an activity are often categorised into 'scope 1', 'scope 2' or 'scope 3' emissions, following the guidance of the Greenhouse Gas Protocol suite of guidance documents.

- Scope 1 emissions: released directly by the entity being assessed, e.g., from combustion of fuel at a facility;
- Scope 2 emissions: caused indirectly by consumption of imported energy, e.g., emissions from generating electricity supplied through the national grid to a facility; and
- Scope 3 emissions: caused indirectly in the wider supply chain, e.g., in the upstream business activities supplying goods or services or the downstream use of products or disposal of waste from a facility.

65. This assessment will seek to include emissions from all three scopes, where this is material and reasonably possible from the information and emissions factors available, to capture the impacts attributable to the Proposed Development.

66. The majority of GHG emissions are likely to occur within the territorial boundary of the UK, and hence within the scope of the UK's national carbon budgets. However, in recognition of the climate change effect of GHG emissions (wherever occurring) and the need, as identified in national policy, to avoid 'carbon leakage' overseas when reducing UK emissions, potential scope 3 GHG emissions that may physically occur outside the UK will be considered where relevant.

Data sources

67. An assessment of GHG emissions during the construction and operational phases of the development will be undertaken using estimated materials and assumptions in line with typical benchmarks, initial energy modelling and use of predicted travel data from the Transport Assessment. In line with IEMA guidance, a reasonable worst-case approach will be used.

68. The following information will be used to inform the assessment.

- Operational Energy Calculations for the buildings within the Proposed Development (Building Regulations Part L compliance calculations, plus estimation of unregulated energy to determine the energy use intensity).
- An Energy Study into low carbon energy supplies.
- Embodied carbon calculations using 'One-Click' Life Cycle Assessment (LCA) software or similar. This is a well-recognised tool for undertaking LCA and will enable an estimation of embodied carbon associated with the Proposed Development. This will be based on proposed material specifications and their associated areas/volumes.
- Transport Assessment considering movements to and from the Proposed Development once operational, as well as quantifying the effect of a switch from road to rail freight.

Predicting effects

Impact magnitude

69. As GHG emissions can be quantified directly and expressed based on their global warming potential, the magnitude of impact will be reported numerically as tonnes of carbon dioxide equivalent (tCO_2e) rather than requiring a descriptive scale.

Receptor sensitivity

70. GHG emissions have a global effect rather than directly affecting any specific local receptor to which a level of sensitivity can be assigned. The global atmospheric mass of the relevant GHGs and consequent warming potential, expressed in tCO_2e, will therefore be treated as a single receptor of **high** sensitivity. It is considered to be of high sensitivity given the importance of the global climate as a receptor, the limited and decreasing capacity to absorb further GHG emissions without severe climate change resulting, and the cumulative contribution of GHG emission sources.

Effect significance

71. The IEMA assessment guidance for GHG emissions describes five levels of significance for emissions resulting from a development, each based on whether the GHG emission impact of the development will support or undermine a science-based 1.5°C-compatible trajectory towards net zero.

72. To aid in considering whether effects are significant, the guidance recommends that GHG

emissions should be contextualised against pre-determined carbon budgets, or applicable existing and emerging policy and performance standards where a budget is not available or not meaningfully applicable at the scale of development assessed. It is a matter of professional judgement to integrate these sources of evidence and evaluate them in the context of significance.

73. Taking the guidance into account, the following will be considered in contextualising the Proposed Development's GHG emissions:

- the magnitude of GHG emissions as a percentage of national and local authority carbon budgets;
- the GHG emissions intensity of the Proposed Development relative to benchmarks and recommended performance standards for comparable development; and,
- whether the Proposed Development contributes to, and is in line with, the applicable UK and local policy for GHG emissions reductions, where this policy is consistent with science-based commitments to limit global climate change to an internationally agreed level (as determined by the UK's current NDC to the Paris Agreement).

74. Effects from GHG emissions are described in this chapter as adverse, negligible or beneficial based on the following definitions, which closely follow the examples in Box 3 of the IEMA guidance.

- **Major Adverse**: the Proposed Development's GHG impacts would not be compatible with the UK's net zero trajectory. Its GHG impacts would not be mitigated, or would be compliant only with do-minimum standards set through regulation. The Proposed Development would not provide further emissions 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 Proposed Development's GHG impacts would not be fully compatible with the UK's net zero trajectory. Its GHG impacts would be partially mitigated and may partially meet the applicable existing and emerging policy requirements, but it 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 the UK's trajectory towards net zero.
- **Minor Adverse**: the Proposed Development's GHG impacts would be compatible with the UK's 1.5°C trajectory and would be fully consistent with up-to-date or emerging policy and good practice emissions reduction measures. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
- **Negligible**: the Proposed Development would achieve emissions mitigation that goes well beyond existing and emerging policy compatible with the 1.5°C trajectory, 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.

- **Beneficial**: the Proposed Development would result in emissions reductions from the atmosphere, whether directly or indirectly, compared to the without-project baseline. As such, the net GHG emissions would be below zero. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

75. **Major** and **moderate adverse** effects and **beneficial** effects are considered to be **significant**.

76. **Minor adverse** and **negligible** effects are considered to be **not significant**.

Impact of climate change on the Proposed Development

Study area

77. The UKCP18 dataset provides probabilistic projections in 25 km grid squares. The primary study area will be the DCO Site itself, using data for the 25 km grid square in which it is located. However, regional and national trends from the UKCP18 overview report will also be considered as further context.

Data sources

78. The following information in addition to the UKCP18 climate projections will be used to inform the assessment:

- Flood Risk Assessment and Drainage Strategy
- Ecological assessment
- Concept architectural, structural, drainage and landscape drawings
- Design and Access Statement

Predicting effects

79. A risk assessment matrix approach will be used to evaluate the potential impact of climatic hazards, consequence, likelihood and resulting risk profile to the Proposed Development and its users. This will be informed by the UKGBC guidance 'A Framework for Measuring and Reporting of Climate-related Physical Risks to Built Assets'[14] adapted with additional definitions of risk for workforce for the Proposed Development.

80. The risk assessment will use qualitative scales to describe the probability and consequence of each hazard, and how the resulting risk score is determined. A range of risk consequences from 'minor' to 'severe' will be used, the definitions of which are formulated with regard to the sensitivity of buildings, businesses and DCO Site users/workers to hazards and the severity of consequences. Probability of occurrence will be described on a range from 'unlikely' to

[14] UKGBC: A Framework for Measuring and Reporting of Climate-related Physical Risks to Built Assets: https://ukgbc.org/wp-content/uploads/2022/02/UKGBC-Measuring-and-Reporting-Physical-risk-Report.pdf, accessed 29/07/24

'high likelihood', which will consider mid-century and end-of-century periods of climate change from the UKCP18 projections.

81. The scale of risk (combining probability and consequence) will be from 'very low' to 'very high'. Risk ratings greater than '**moderate**' will be considered to be **significant**.

Inter-related effects of climate change with other impact pathways

82. The assessment will identify the ways in which climate change could exacerbate or ameliorate the effects of the Proposed Development on sensitive receptors. These would be either where climate change could alter the sensitivity of receptors or alter the baseline environment, thereby increasing the significance of effects; or secondly, where climate change could modify an impact pathway, i.e. by changing the magnitude or spatial extent or introducing new receptors.

83. It will then summarise the assessments of these inter-related effects using the evidence from the other impact pathway assessments, so that this is brought together in one place. The assessment will be qualitative not aim to be determinative of significance levels, which will have been assessed in the other applicable ES topic chapters.

LIKELY MAIN EFFECTS OF THE PROPOSALS

Impact of the Proposed Development on climate change

84. Building the Proposed Development will require bulk materials such as concrete and structural steel together with a range of engineered products and fittings to be assembled on site. The supply chain for extracting, processing or manufacturing and delivering these materials and products causes greenhouse gas emissions, which are referred to as 'embodied carbon', and this is likely to be the largest construction-stage impact.

85. GHG emissions will also be caused by fuel used by construction plant, workforce travel, energy and water use, and waste disposal during the construction work. These are typically lesser than the embodied carbon of materials and products.

86. These will be quantified using lifecycle assessment software as described above.

87. Land-use change can be a cause of GHG emissions, in the sense that soil or vegetation carbon stocks can be lost, and also in the sense that existing activities causing emissions may cease or be moved. At this stage it is expected that habitat retention and biodiversity net gain are likely also to mean no net loss in the long term, or potentially a gain, in carbon stocks, and this will be considered further in the assessment. Where existing buildings are demolished, this can present an opportunity to re-use materials so that their embodied carbon is not lost.

88. Once the development is completed and operational, the main source of GHG emissions will be the change in transport – a balance of emissions from the use of diesel and electrified rail combined with road transport, compared to a future without-development baseline of transporting freight fully by road. The change in emissions will depend not only on the carbon intensity of each mode of transport (where rail has an advantage) but also on the overall trip

length and handling of goods for transshipment via the Proposed Development.

89. The second key source of GHG emissions will be energy (electricity and fuel) used to operate the development, including the rail handling facilities and the logistics buildings. The latter will vary depending on the tenant mix and their needs, such as for refrigeration, and will be assessed using predictions of energy consumption and through comparison to benchmark values where applicable.

90. Thirdly, more minor sources of emissions such as workforce commuting, water use, waste and wastewater treatment, and maintenance / refurbishment of buildings and equipment will also contribute to the operational emissions total, which will be included in the lifecycle assessment.

Impact of climate change on the Proposed Development

91. A changing climate and greater frequency and/or severity of weather extremes can pose a physical risk to the Proposed Development, a risk to its operation, or a risk to its workforce.

92. Potential climatic risks during the construction period would be to the workforce, for example in summer 'heatwave' conditions with high peak temperatures, and also the risk of programme disruption, for example where snow/ice, high wind or waterlogged ground prevent certain construction works. These risks are also typical of the existing climate, and it is considered that construction contractors are routinely adapted to them, including by managing construction workforce safety as required under the Health and Safety at Work Act 1974. For construction workers' welfare, good-practice measures drawn from HSE guidance[15] will be incorporated in the Construction Environmental Management Plan.

93. The climate risk assessment will therefore focus on the medium and long term of the development's operational lifetime.

94. The main climate risks physically to the buildings of the Proposed Development are likely to arise from storm events and from flooding. Its operation is likely to be most at risk from disruption to the wider transport and energy networks it relies upon, with the rail network in the UK being vulnerable to disruption during high temperatures and in winter storms, among other events. The main risk to the workforce is likely to be from overheating during summer 'heatwave' conditions.

95. These will be assessed using UKCP18 projections for a continuing high global emissions scenario, for a worst-case assessment. As set out above, this will use a risk matrix format to consider the nature of hazard, vulnerability and consequences for the building, aspect of operation or the persons affected, and the probability of occurrence, to determine the category of risk. Resilience or adaptation measures and the degree to which the Applicant can control or influence these will then be considered in making recommendations for mitigation.

96. There is also potential for landscaping and habitat creation failure, discussed under the inter-related effects heading below.

[15] HSE, undated: Outdoor Working. https://www.hse.gov.uk/temperature/employer/outdoor-working.htm

Inter-related effects of climate change with other impact pathways

97. The main areas where there is considered to be a potential for inter-related effects, subject to other technical leads' assessments in due course, are considered to be:

- landscape planting: increased temperatures and drought conditions, or increased soil erosion from extreme weather events, could cause landscape planting to fail;
- ecology: changing weather patterns could affect the distribution of habitat and resources for a variety of species, increasing their sensitivity to impact;
- air pollution and health: increased temperatures could lead to a greater sensitivity to episodes of poor air quality, e.g. for people with long-term respiratory or cardiovascular health conditions;
- noise conditions: increased temperatures could lead to a greater sensitivity to noise due to open windows/doors for ventilation;
- potable water supply: increased temperatures and drought conditions could reduce the resilience of potable water supply; and
- transport network resilience: extreme weather events could reduce the resilience of the transport network and cause more frequent disruption.

PROPOSED APPROACH TO MITIGATION

98. There are two stages of considering mitigation and enhancement. 'Embedded' mitigation is that which is incorporated into the development as proposed at the planning application stage, through the design and EIA process. This can include:

- aspects of design, such as building fabric and renewable energy provision; and
- good practice measures and industry standards typically adopted during construction and operation, which may be secured in the proposal through construction and traffic management plans, for example.

99. Embedded mitigation will be taken into account when assessing the magnitude of impacts and significance of effects.

100. Additional mitigation or enhancement is that which may be recommended in the EIA to:

- prevent, further reduce or offset likely adverse effects which were not avoided or minimised through design; or
- further enhance beneficial effects where there are opportunities to do so.

101. Additional mitigation or enhancement may then be secured through DCO requirements to develop details of the mitigation or enhancement and enact it for construction or operation, as applicable.

102. The potential effect of additional mitigation or enhancement, if enacted as proposed, will be used to inform an assessment of residual effects with it in place.

103. Embedded mitigation which already forms part of the Proposed Development at this stage includes:

- Inherently, the Proposed Development's purpose of enabling rail freight transport, which is more energy-efficient than road transport.
- A landscape strategy that will incorporate elements including tree and shrub planting and surface water features, which can help to reduce overheating associated with climate change and potentially provide minor carbon sequestration.
- Photovoltaic renewable energy generation within the DCO Site, provided as part of the Proposed Development and with provision on warehouse roofs for additional installation by tenants.
- A new energy centre including central battery storage and potential provision of central Combined Heat and Power (CHP) units to augment the grid supply in the case of demand exceeding instantaneous firm and variable supplies.
- Construction using good-practice techniques for site waste management, construction environmental management and construction traffic management.

NEXT STEPS

104. The next step is to carry out the EIA process supported by a proportionate assessment of life-cycle carbon, energy strategy development and climate risk assessment. This involves engaging with the design process through workshops, consulting external stakeholders (including through publication of Preliminary Environmental Information for statutory consultation), and publishing the Environmental Statement as part of the DCO application, which will detail the significance of effects and the mitigation measures.

105. This topic paper forms part of the material available for the informal consultation that is taking place between 27 January 2025 and 21 March 2025. Should you wish to comment on this paper or any other matters related to the Proposed Development you can respond to the informal consultation via:

- ILP North website–*www.tritaxbigbox.co.uk/our-spaces/intermodal-logistics-park-north*
- Email *ilpnorth@consultationonline.co.uk*
- Freepost ILP North
- 01744 802043