CLIENT: RED ADMIRAL DC LIMITED

PROJECT NAME: ADMIRAL

PROJECT DETAILS: PROPOSED DATA CENTRE FACILITY AND DECENTRALISED ENERGY RESOURCE, AT GNEEVEBANE, OLDTOWN, FARTHINGSTOWN, CASTLELOST, AND KILTOTAN & COLLINSTOWN CO. WESTMEATH

DOCUMENT: ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) - NON-TECHNICAL SUMMARY (VOLUME 1)

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1 INTRODUCTION

1.1 OVERVIEW

Red Admiral DC Limited (the applicant) are applying for planning permissions for a project on lands with an area (redline boundary) of c.243 hectares (ha) in the townlands of Gneevebane, Oldtown, Farthingstown, Castlelost and Kiltotan and Collinstown in the south of County Westmeath.

This Environmental Impact Assessment Report (EIAR) has been prepared by Halston Environmental & Planning Limited (Halston) on behalf of the applicant to support both a planning application to Westmeath County Council under Section 34 of the Planning and Development Act 2000, as amended, hereafter referred to as "the Act") and a planning application to An Coimisiún Pleanála (formerly An Bord Pleanála and hereafter referred to as "the Board") under Section 182A of the Act.

The two main elements of the project are described as follows:

1. The Data Centre (DC) facility, comprising six two-storey Data Centre buildings, car parking, landscaping, drainage and other associated works. The DC facility will be constructed and secured within a secured 39ha campus. Each DC building will have a footprint of 13,978m^2 (sqm) and have a gross floor area of 28,561 sqm. Each DC building will contain:

    (a) Data halls fitted with server racks and distribution units,
    (b) Mechanical and electrical (M&E) plant rooms /spaces which will house advanced cooling equipment, pumps, piping and medium voltage (MV) and low voltage (LV) switchgear, and
    (c) Administration and support areas including, reception, offices, meeting rooms and welfare facilities.

2. Decentralised Energy Resource (DER), which will be constructed on lands adjoining the DC facility. The DER incorporates several power assets which will generate, store and manage electricity close to the DC facility. The DER comprises the following assets:

    (a) Solid Oxide Fuel Cell (SOFC) Power System (hereafter referred to as Fuel Cell) – nominal capacity of 160MWe
    (b) Battery Energy Storage System (BESS) - nominal capacity of 250MWe
    (c) Solar PV farm - nominal capacity of 180MWp

(d) Grid connection to the 220kV Castlelost GIS substation which adjoins the proposed development site.

The DER will optimise the use of these assets to support operations at the DC facility and provide clean, dedicated power that tracks the DC facility's load requirements. The project has been designed to conform with the Irish Government's *Principles for Sustainable Data-Centre Development*[1] which details a set of national principles that should inform and guide decisions on future data centre development.

1.2 APPLICANT COMPANY

The Applicant Company, Red Admiral DC Limited, is part of the Lumcloon Energy group of companies which was established in November 2008 as a project development company which specialises in innovative and scalable clean energy and low carbon solutions. Based in Tullamore, County Offaly, Lumcloon Energy has become a pivotal developer, applying a practical approach to advancing transformative clean energy projects in Ireland. The company develops, owns, and operates some of Europe's largest clean energy resources. and is focused on new pathways between clean electricity and the broader economy.

1.3 NEED FOR THE DEVELOPMENT

Ireland's case for continued but carefully managed data-centre development is now framed explicitly by two companion policy texts: the Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy (July 2022)[2] and Harnessing Digital, The Digital Ireland Framework (February 2022)[3]. Together they set out how the twin transitions of digitalisation and decarbonisation are to be delivered, and what is expected of every new facility. The national policies are mutually reinforcing rather than competing ambitions.

The July 2022 Statement is unambiguous: Data centres are *"core digital infrastructure"* and *"indispensable"* to the economy and society, underpinning everything from banking to health-service delivery. At the same time, the document recognises acute short-term constraints which include limited spare grid capacity, tighter carbon budgets, and rising public concern over water use, which mean *"not all existing demand for data-centre*

[1] Government of Ireland, Department of Enterprise, Trade and Employment (2022) *Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy: Principles for Sustainable Data-Centre Development*. Dublin: Department of Enterprise, Trade and Employment.
[2] Department of Enterprise, Trade and Employment (DETE) (2022) *Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy*
[3] Department of the Taoiseach (DoT) (2025) *Harnessing Digital – The Digital Ireland Framework* (updated 2024 progress report)

development can be accommodated." To address this, the Statement establishes six national principles:

- demonstrable economic impact;
- efficient use of the electricity grid;
- renewables additionality;
- co-location with future-proof power or storage;
- decarbonised by design; and
- tangible SME and community benefits.

The statement sets a clear preference for projects that (i) locate outside the electricity-constrained Dublin area, (ii) make efficient use of existing transmission assets, and (iii) add renewable generation and storage *"in regional locations where capacity is available"*.

Ireland's Digital Ireland Framework positions the State as a *"bridge between the United States and the European Union"* in global tech, while promising that digital solutions will also tackle climate challenges and boost inclusion and productivity. The strategy mirrors the EU's Digital Compass along four axes (a) digital transformation of business, (b) world-class infrastructure, (c) digital skills, and (d) digitised public services. The strategy insists on a *"modern, cohesive, well-resourced regulatory framework"* to keep the transition safe and trusted.

The Government Statement prioritises projects that reduce pressure on the grid through on-site renewable generation and other grid supporting technologies (such as BESS and Fuel Cell technologies). The proposed project aligns with the six principles of the 2022 Government Statement and the four pillars of the Digital Ireland Framework. The project does not result in conflicts with electricity grid capacity constraints, and the DER is a catalyst for innovation in the decarbonisation and digitalisation transition

1.4 EIA AND EIAR

In Irish legislation, Section 172 of the Act establishes the requirement for an Environmental Impact Assessment (EIA), stating that:

> *"An environmental impact assessment shall be carried out by the planning authority or the Board, as the case may be, in respect of an application for consent for proposed development where either—*
>
> *(a) the proposed development would be of a class specified in—*
>
> *(i) Part 1 of Schedule 5 of the Planning and Development Regulations 2001, and either—*

(I) such development would equal or exceed, as the case may be, any relevant quantity, area or other limit specified in that Part, or

(II) no quantity, area or other limit is specified in that Part in respect of the development concerned,

or

(ii) Part 2 of Schedule 5 of the Planning and Development Regulations 2001 and either—

(I) such development would equal or exceed, as the case may be, any relevant quantity, area or other limit specified in that Part, or

(II) no quantity, area or other limit is specified in that Part in respect of the development concerned,

or

(b) (i) the proposed development would be of a class specified in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 but does not equal or exceed, as the case may be, the relevant quantity, area or other limit specified in that Part, and

(ii) it is concluded, determined or decided, as the case may be by a planning authority that the proposed development is likely to have a significant effect on the environment."

The classes of development where an EIA is mandatory are specified in the Planning and Development Regulations 2001, as amended ("the Regulations") pursuant to Section 176 of the Act. The Regulations outline the regulatory framework for planning and development activities in Ireland and provide detailed procedures and requirements for various aspects of planning and development, including the need for Environmental Impact Assessments (EIAs). Specifically, Schedule 5 of these regulations sets out specific thresholds for various types of projects. If a project exceeds these thresholds, an EIA must be carried out as a mandatory requirement. Where a project is of a type listed in the regulations but does not meet or exceed the applicable threshold then the likelihood of the project having significant effects on the environment should be assessment. Criteria to evaluate whether significant effects on the receiving environment will arise from a proposed development are listed under Schedule 7 of the Regulations.

Data-centre projects are not identified as a standalone class of development in Annex I or Annex II of the EIA Directive, nor in Schedule 5 of the Planning and Development Regulations 2001. Instead, they are treated as "urban development" within Class 10(b)(iv) of Part 2 of Schedule 5, which covers:

"Urban development that occupies more than 2 hectares in a business district, more than 10 hectares in the other parts of a built-up urban area, or more than 20 hectares elsewhere."

For this project the relevant threshold is 20 hectares. As the site area exceeds that figure, the project automatically falls within the category of EIA development and requires a mandatory Environmental Impact Assessment.

1.5 APPROPRIATE ASSESSMENT

Stage 1 AA screening of the projects was completed. A report for the purposes of Appropriate Assessment Screening has been completed for the project and is provided under separate cover in support of the planning applications. The report concludes that an appropriate assessment is not required.

2 DESCRIPTION OF THE PROPOSED PROJECT

The Admiral Project will establish a state-of-the-art Data Centre (DC) facility and its own Decentralised Energy Resource (DER) on c. 243 hectares between Rochfortbridge and Tyrrellspass in south-west County Westmeath. The project comprises two elements and a summary description of these is as follows:

- The Data Centre (DC) facility, comprising six two-storey Data Centre buildings, car parking, landscaping, drainage and other associated works. The DC facility will be constructed and secured within a secured 39ha campus. Each DC building will have a footprint of 13,978 m^2 (sqm) and have a gross floor area of 28,561 sqm. Each DC building will contain:
  - Data halls fitted with server racks and distribution units,
  - Mechanical and electrical (M&E) plant rooms /spaces which will house advanced cooling equipment, pumps, piping and medium voltage (MV) and low voltage (LV) switchgear, and
  - Administration and support areas including, reception, offices, meeting rooms and welfare facilities.

- Decentralised Energy Resource (DER), which will be constructed on lands adjoining the DC facility. The DER incorporates several power assets which will generate, store and manage electricity close to the DC facility. The DER comprises the following assets:
  - Solid Oxide Fuel Cell (SOFC) Power System (hereafter referred to as Fuel Cell) – nominal capacity of 160MWe
  - Battery Energy Storage System (BESS) - nominal capacity of 250MWe
  - Solar PV farm - nominal capacity of 180MWp
  - Grid connection to the 220kV Castlelost GIS substation which adjoins the proposed development site.

2.1 DESCRIPTION OF LOCATION

The proposed project location occupies a strategic position in the Eastern and Midlands region of Ireland. The project site lies midway between the villages of Rochfortbridge and Tyrrellspass and within the Eastern and Midland Regional Assembly's "*Dublin Hinterland*" growth belt.

The overall c.243ha project site incorporates lands in the townlands of, Gneevebane, Oldtown, Farthingstown, Castlelost and Kiltotan and Collinstown in the south of County Westmeath, approximately 76km from Dublin city centre and 100km from Galway. The

development lands are greenfield and described as agricultural farmland laid out in medium to large-sized, geometric fields enclosed by dense, mature hedgerows. The development lands share the gently undulating topography typical of the Midlands low plateau, ranging from c. 90m OD in the south-east and rising to c. 120m OD in the north-west (close to the R446).

A high voltage (HV) modern electricity node (Castlelost GIS substation) is located on adjoining lands and connects the 275MWe Castlelost Flexgen Power Plant (currently under construction and nearing completion) to the electricity grid. The proposed development lands are also served by multiple IT fibre network connections along with Gas Networks Ireland's transmission pipeline offering the key utilities a modern digital facility needs without long, disruptive off-site connection and associated development corridors.

The proposed project will sustain a sizeable on-site workforce of approximately 360 direct employees, structured to ensure 24/7 resilience and day-to-day operational excellence. This includes approximately 30 security staff working a rolling pattern of two 12-hour shifts, approximately 90 management and administrative staff across a single 8-hour shift and 180 engineering professionals organised into three overlapping 8-hour shifts so that specialist cover is always present during maintenance windows or unplanned events. A further 60 people will be employed as building services /facilities management staff across the DC facility and DER will by employed to maintain and maximise asset uptime and energy efficiency. In addition to this, the project will attract a transient population of contractors and visitors, with up to 40 people arriving and departing the campus over the course of a typical day for audits, support and minor project works, ensuring that the facility remains both secure and fully optimised throughout its lifecycle.

Locating a large-scale data campus here balances Ireland's objective of dispersing high-value technology jobs beyond Dublin while ensuring that digital latency is insignificant. The collocated DER provides flexible independent, resilient and reliable, low-carbon and net zero power to the DC facility.

2.2 DESCRIPTION OF DEVELOPMENT

2.2.1 DC FACILITY

Within a secure 39 ha inner campus, six identical two-storey data-centre buildings (D1–D6) will be laid out in pairs along a central spine road. Each DC building is c228 m long, 62 m wide and 18 m to parapet height, providing 28,561 m^2 of gross floorspace. Each DC building contains twenty data halls plus an administration wing. The façades marry muted metal cladding with brick and glazed elements so that the mass breaks into visually lighter bays. Air handling units hidden behind acoustic louvres, supplemented by closed-loop electric and absorption chillers, give free-air cooling for much of the year and avoid the heavy water use associated with evaporative systems.

A two-storey 33 kV sub-station and an air-insulated switchyard are positioned to the south of the campus, receiving three underground feeds from a proposed the 220kV IPP GIS Building and sending twin redundant circuits to every server hall. The entrance plaza contains a small security control building that filters all staff, visitors and deliveries. Internal roads at 7m width loop around the DC buildings, with 480 car-parking spaces, bicycle shelters and discrete loading docks arranged so that service traffic never crosses pedestrian routes.

The DC facility will keep its servers within the recommended temperature band almost year-round simply by drawing Ireland's cool, clean air through high-efficiency filter banks and modulating heat-exchange matrices, so neither sprays nor adiabatic cooling required and water demand is insignificant.

2.2.2 DECENTRALISED ENERGY RESOURCE (DER)

The Decentralised Energy Resource (DER) will be constructed across c. 200ha of lands adjoining, and to the east of, the DC facility. The DER comprises the following components.

2.2.2.1 Fuel Cell — nominal 160MWe

The fuel cell power resource will be located east of east of DC facility and adjoins the Castlelost Flexgen Plan. The fuel cell is designed to provide variable power to the DC facility. Generation from the fuel cell will be delivered by 330kW modular energy units (energy servers) positioned and stacked in a compact steel frame structure (power tower).

The fuel cell will be served with mains natural gas (and the technology is future proofed to use biomethane or green hydrogen) and efficiently converts the energy to electricity by electrochemical means without the need for combustion. Waste heat will be recovered by

absorption chillers creating cooling for the DC campus and lifting overall efficiency towards 80%. A dedicated process building will recover and purify high-grade CO_2 by-product. This will be exported and sold as a product to downstream markets off-site, thereby promoting recovery and circularity in the economy

2.2.2.2 Battery Energy Storage System (BESS)— nominal 250MW /500 MWh

A 2.65ha secure compound will house 138no lithium-ion battery enclosures paired with equal numbered medium-voltage power-station enclosures. The BES is designed in accordance with stringent NFPA 855 and UL 9540A fire-safety standards will play a central role in enabling the project to operate on a fully optimised, low carbon and net-zero carbon energy mix. The BESS has been incorporated to remove the need for back-up diesel-fired generators and will work in tandem with the grid and on-site fuel cells and solar PV generation delivering a stable and continuous supply of power.

The BESS time-shifts excess solar or off-peak grid power and can deliver full back-up load to the data campus within fractions of a second.

2.2.2.3 Solar PV Farm — nominal 180MWp

Across 168ha of agricultural lands, a solar farm will be developed to deliver clean electricity to the DC facility independent of the grid. The photovoltaic arrays are sited to mirror the existing field geometry, so the panel strings run parallel to hedgerow lines rather than cutting across them. Along every hedgerow and streams /drainage ditches an undeveloped buffer of 5–10m is maintained. This coupled with other constraints and assigned biodiversity areas leave roughly 60% of the fenced area as open grassland or lands enhanced for biodiversity value.

2.2.2.4 220kV Grid Connection – IPP GIS

An independently owned 220kV IPP GIS building interconnects the DC facility with the collocated DER storage and generation assets and the transmission system via underground electrical cables. The facility will be operated by the site's Independent Power Producer (IPP) and it sits at the heart of the DER architecture. Located within 100m of the Castlelost GIS substation and housed in a compact, climate-controlled building and within, the asset electrically connects the DC facility to the on-site generation and low-carbon energy assets and through its connection to the Castlelost GIS substation allows unconstrained power from the grid to supply the DC facility and BESS.

Electricity demand will be controlled through energy-efficient hardware, virtualisation, and intelligent workload management (*"Digital Carbon Passport Solution").* The Digital Carbon Passport automatically will rank supply options in a carbon merit order. The facility's

commitment to sourcing energy from the lowest carbon-intensive sources will result in a significantly reduced operational carbon footprint compared to conventional data centres.

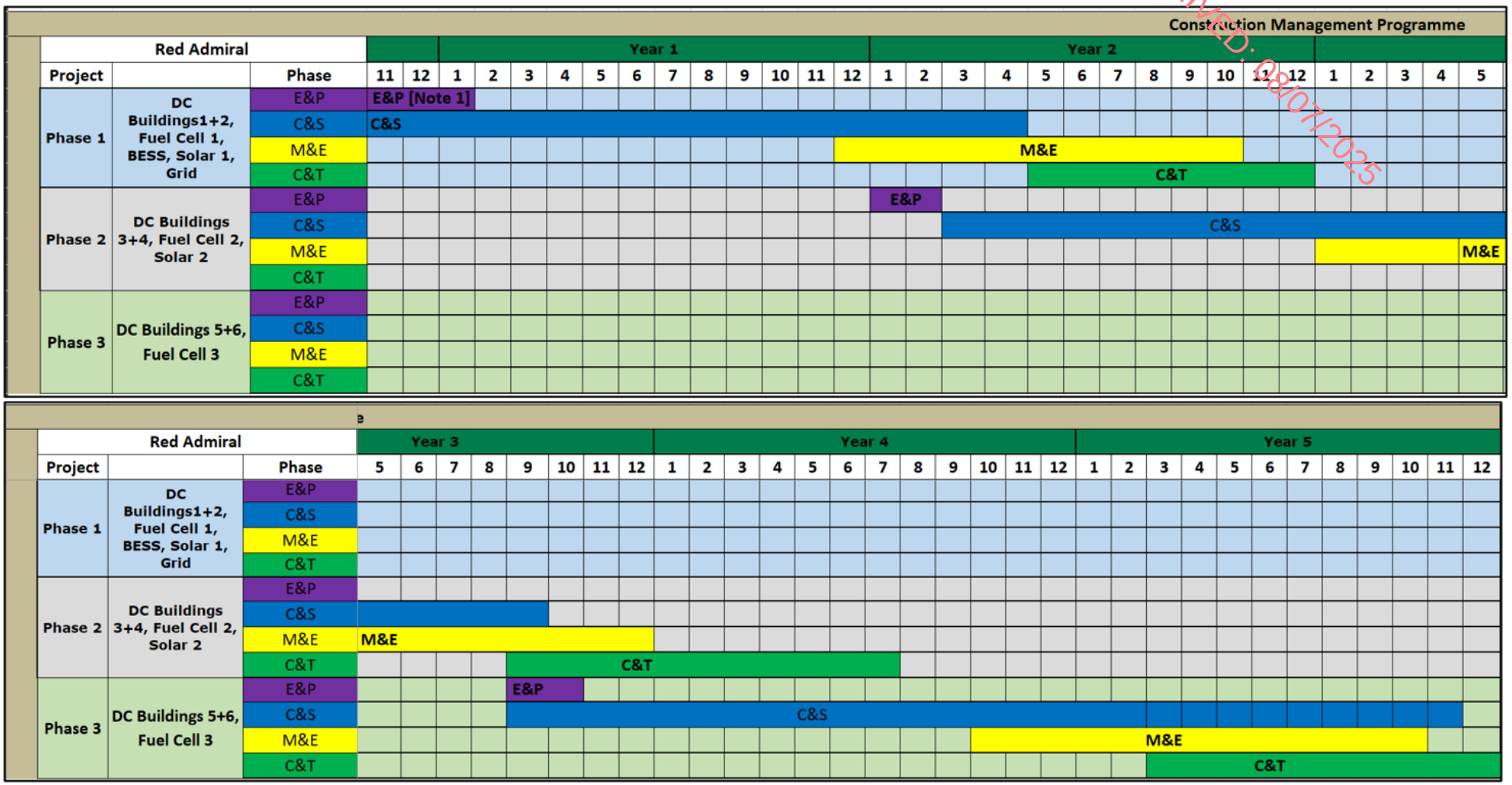
2.3 CONSTRUCTION STAGE

It is envisaged that the project will be constructed over an estimated 60-62-month period across three phases. After the construction period, it is expected that all elements of the project will be fully constructed, commissioned and capable of operating as designed. The specific details of the construction programme are not currently known as such this programme will be developed under Engineering Procurement and Construction (EPC) contract as part of the detailed design phase. The EPC contractor will prepare a detailed Construction Environmental Management Plan (CEMP) which will be submitted for agreement with the planning authority. It is expected that the EPC contractor will appoint subcontractors to undertake all the specific construction and civil works. A preliminary CEMP has been prepared and is contained in Volume 3 of the EIAR (Appendices) and is lodged in support of the project.

It is therefore difficult to assess the staffing and delivery levels for the development. However, it is considered that the design and proposed layout of projects has developed sufficiently to discuss the potential environmental effects of proposed construction methods. An estimate of construction traffic volumes has been made for a site of this size and is described in Chapter 13 (Traffic and Transport).

The timing of the commencement of construction is subject to planning, design, tendering and ecological constraints. Any works associated with site clearance and removal of soils and internal hedging would be seasonally limited to mitigate against any adverse ecological effects. The impact of construction activities on Biodiversity and Roads and Traffic are assessed separately in this EIAR. The CEMP will provide a framework under which construction activities, which have potential for environmental impact (e.g., generation of dust, ecological impacts, surface water discharge, etc.), will be managed. Mitigation measures as outlined in the EIAR shall be included within this plan. An indicative construction schedule for each phase is outlined below.

Figure 1 Indicative Construction Programme



Notes:

1. The construction timelines are for each project are indicative and will be finalised at detailed design stage of the projects.
2. E&P = Site Evaluation and Preparation (Works)
   C&S = Civil & Structural (Works)
   M&E = Mechanical & Electrical (Works)
   C&T = Commissioning and Testing (Works)

2.4 OPERATIONAL STAGE

The operational stage of the proposed DC facility and collocated DER is designed with robust sustainability commitments which represents a critical period in the facility's lifecycle. This stage is characterised by the continuous operation of advanced digital infrastructure, supported by integrated energy systems and environmental management practices that align with international best standards. The following outlines the anticipated operational characteristics, resource consumption, emissions, waste management, and mitigation measures relevant to the project.

2.4.1 DC FACILITY

The operational phase begins once final commissioning tests are complete, and the data halls are handed over for live IT load. From that point, the facility operates continuously, twenty-four hours a day, three hundred and sixty-five days a year, to provide services. Its design philosophy links its performance with best-in-class environmental stewardship, reflecting the commitments embodied in the European *Climate Neutral Data Centre Pact*. It is proposed that as part of detailed design work (preconstruction) the project will be prepared for certification to the LEED BD+C v4 rating system for data centres.

Unlike conventional data centres that often rely on water-intensive evaporative cooling, the proposed DC facility will employ a combination of free fresh air cooling, air handling units, and, during periods of unusually high ambient temperatures, electric and absorption chillers. The primary cooling strategy utilises filtered outside air to maintain optimal server temperatures, significantly reducing water consumption and associated environmental impacts.

Electric chillers and absorption chillers will only operate when climatic conditions exceed the design thresholds for free air cooling. This hybrid approach ensures year-round thermal stability while minimising both energy and water use. The absence of evaporative cooling eliminates the need for large-scale water abstraction and discharge, further reducing the facility's environmental footprint. The operational phase will be characterised by substantial but carefully managed resource consumption. Electricity will remain the primary input, with demand moderated through energy-efficient hardware, virtualisation, and intelligent workload management (*"Digital Carbon Passport Solution").* The Digital Carbon Passport automatically ranks supply options in a carbon merit order. The facility's commitment to sourcing energy from the lowest carbon-intensive sources will result in a significantly reduced operational carbon footprint compared to conventional data centres.

Direct emissions will be minimal, primarily associated with periodic testing of backup systems. The use of fuel cells and renewable energy will further limit reliance on fossil-fuel-based backup generators. Air quality impacts will be negligible, with emissions well below regulatory thresholds. Noise emissions, primarily from cooling equipment and backup power systems, will be addressed through careful equipment selection, acoustic screening, and adherence to design criteria specified. Predictive modelling was used to ensure that operational noise levels remain within permissible limits at the site boundary and nearby sensitive receptors.

Operational water use is confined to domestic demand, cleaning and minor closed-loop top-ups. Groundwater abstraction, supplied though a modular water treatment unit, will serve the vast majority of the proposed demand on site and this will be supplemented by rainwater harvested from each building. Harvested rainwater stored in underground tanks and will used as "grey water", e.g. for WC flushing and /or replenishment of bulk water storage tanks (e.g. firewater). Clean stormwater is attenuated on site using open ponds in accordance with SuDS principles and released to an existing receiving watercourse at greenfield run-off rates flow controls to safeguard and mitigate any risk of downstream impact. Foul effluent from the DC facility will be discharged to the public sewer.

Operational waste streams will include electronic waste (e-waste) from hardware upgrades and decommissioning, packaging materials, and general municipal waste from staff activities. The DC facility will implement a comprehensive waste management plan, prioritising reduction, reuse, and recycling in line with LEED BD+C v4 requirements and circular economy principle. Waste will be processed by certified contractors, ensuring responsible handling and material recovery. Routine training and awareness programmes will be provided for staff to support waste segregation and minimisation efforts. The facility will report on waste generation and diversion rates as part of its ongoing sustainability commitments

2.4.2 DER

A distinguishing feature of project is the collocation and integration of a DER including a solar farm, fuel cell, and BESS, in addition to a grid connection. These systems are designed to prioritise the lowest carbon-intensive energy sources available at any given time, thereby minimising the facility's carbon footprint. The solar farm will provide renewable electricity during daylight hours, while the fuel cell offers a low-emission, dispatchable power source. The BESS will facilitate load balancing, back-up, and support to energy source integrations, enhancing overall energy resilience and flexibility.

The facility's energy management system will dynamically optimise the use of on-site and grid-sourced electricity, ensuring that the data centre's demand is met in the most sustainable manner possible. Although the fuel cell does not involve combustion, it is expected that it will require an industrial emissions licence from the EPA. EU guidance on both the IED and the ETS makes clear the oxidation of a fuel, not the presence of a flame, that brings an installation into the "combustion" category, i.e., it falls under a class of activity ("*Combustion of fuels in installations with a total rated thermal input of 50 MW or more*") as outlined in the first schedule of the EPA Act 1992, as amended.

The Solar Farm and BESS facility will operate largely unmanned and will be controlled remotely. The Solar PV farm and BESS will provide power to the DC facility via the 220kV IPP GIS. Neither project is a class of activity under the First Schedule of the EPA Act 1992, as amended. Noise emissions, primarily from DER assets has been addressed through careful equipment selection, acoustic screening, and adherence to design criteria specified. Predictive modelling was used to ensure that operational noise levels remain within permissible limits at the site boundary and nearby sensitive receptor.

Upon handover after the Commissioning and Testing Phase, the plant operators will provide suitably qualified and technically competent staff who will be responsible for maintenance of the facility. Employees will cover a broad range of services including safety, engineering, technical, security, maintenance and administrative support staff. Subcontracted maintenance staff will also be required at critical times throughout the life of the project. The plant will be operated in accordance with procedures which will be prescribed in management systems associated with the site operations, i.e., quality, health and safety.

3 CONSIDERATION OF ALTERNATIVES

3.1 DO NOTHING SCENARIO

If the project does not proceed, the 243ha site would remain in low-intensity pasture and arable use. While that outcome would avoid the construction-phase disturbance associated with any new development, it would also forgo the opportunity to place climate-neutral edge computing and flexible, low-carbon generation in a key regionally unconstrained location in the Midlands of Ireland. Ireland's data loads would continue to grow; in the absence of new regional infrastructure they would either migrate to less efficient in-house server rooms or relocate overseas, diluting the State's policy. Such leakage contradicts both the EU Digital Decade target and the National Planning Framework's call for balanced growth, while offering no superior environmental outcome when whole-life emissions are counted

3.2 ALTERNATIVE TECHNOLOGIES

Early design work tested a range of DER power options; including open and combined-cycle gas turbines, standby diesel/HVO, flow batteries, etc. The selected decentralised-energy resource (DER) blends a 180 MWp solar farm, a 500 MWh lithium-ion BESS and 160MW of future proofed solid-oxide fuel cells. Efficiency, potential environmental impact and compatibility of DER assets with the DC facility were key drivers to the selection of the chosen technologies.

To inform the design, project undertook LEED pre-assessment to assist with LEED certification under the LEED BD+C v4 Rating System for Data Centres. The project pursues LEED Campus Approach, which is tailored for the projects involving multiple buildings within a single development site. The Campus approach allows for efficiency in certification process as shared site features (e.g., stormwater management, landscaping, renewable energy, parking) can be documented once and applied across multiple buildings. DC facility technologies were examined and chosen in parallel to provide compatibility and consistency. In terms of cooling evaporative towers were ruled out in favour of a non-evaporative fresh-air system augmented by dry coolers and an absorption chiller that captures fuel-cell waste heat.

To alignment with the project's commitment to evaluate every design alternative against technical feasibility, environmental performance, efficiency, security, reliability and cost, a dedicated piece of embodied-carbon modelling was undertaken. The exercise complements the Energy Statement and Sustainable Data-Centre Development Plan which supports this this planning application and, together with the DER strategy, provides a full

picture of how the scheme will minimise greenhouse-gas (GHG) emissions across both construction and operation.

Consideration of alternatives technologies and process resulted in a project with negligible water-Usage effectiveness and a markedly low PUE aligning with EU taxonomy principles and capable of achieving the Climate-Neutral Data Centre Pact and aligning with forthcoming EU data-centre reporting duties.

3.3 ALTERNATIVE LOCATIONS

The guidance on *"reasonable alternatives"* recognises that some projects are intrinsically site-specific. The proposed location offers key attributes which support this type of development including, an unconstrained collocated HV electricity node, a high-pressure gas main and dark-fibre corridors, absence of environmental constraining factors including Natura 2000 sites), generous setbacks from receptors and direct access to public transport infrastructure (including the M6).

3.4 ALTERNATIVE LAYOUTS

Once the preferred site was selected, the design team focused on suitably positioning a proposal within the site that is sympathetic and one which integrates into the landscape and surrounding environment. The final design concept was, as far as practicable, to minimise visual intrusion and accordingly the proposed finished compound levels were determined following careful consideration of cut and fill requirements and existing local topographical conditions.

During the EIA process baseline surveys were carried out and design mitigation measures were incorporated into the overall scheme. Various design layout options were developed to minimise potential impact on sensitive receptors) and accord with the natural features of the site (e.g., topography). Extensive consideration was also given in relation to devising suitable access points to all areas of the proposed development and mitigating potential impacts.

Early layout designs gave way to six DC buildings campus-style arrangement which suitably separates buildings from each other along with other proposed infrastructure and boundaries. The adopted layout represents a refined balance between function design and operational logic, visual containment, efficient earthworks and ecological enhancement.

4 PLANNING AND POLICY

The development proposal is assessed in the context of the following:

- European / International
  - European Green Deal, 2019
  - EU Taxonomy Regulation 2020/852
- National
  - Project Ireland 2040 – National Planning Framework (rev. 2025)
  - National Development Plan 2021-2030
  - National Energy and Climate Plan 2021-2030
  - Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy (2022)
  - Climate Action Plan 2025
  - National Hydrogen Strategy 2023
  - National Biomethane Strategy 2024
  - Harnessing Digital – The Digital Ireland Framework 2022
  - Ireland's Industry 4.0 Strategy 2020-2025
  - AI – Here for Good: National AI Strategy 2021
- Regional
  - Eastern & Midland Regional Spatial and Economic Strategy 2019-2031
- County
  - Westmeath County Development Plan 2021-2027
  - Westmeath County Council Climate Action Plan 2024-2029

Ireland's planning system requires that new developments be tested against hierarchy of policy, starting with Europe-wide climate and energy law and narrowing through national, regional and county plans. The Admiral Project was therefore bench-marked against all of relevant guidance.

The conclusion demonstrates that the scheme is fully policy compliant and gives practical effect to long-stated goals to decarbonise the grid and reinforce digital resilience and regional balanced growth visions along with delivering high-value employment in the Midlands while safeguarding the receiving environment.

5 POPULATION AND HUMAN HEALTH

5.1 INTRODUCTION

While there are a range of issues which may impact on human beings many of these have been considered within other disciplines within this EIAR, including Planning Policy (Chapter 4), Water Environment (Chapter 8), Air Quality (Chapter 10), Noise and Vibration (Chapter 11), Landscape and Visual (Chapter 12), Traffic and Transport (Chapter 13). Cultural Heritage (Chapter 14) and Climate (Chapter 15).

5.2 RECEIVING ENVIRONMENT

The proposed development lands are located midway between the villages of Rochfortbridge and Tyrrellspass within the jurisdiction of Westmeath County Council. The subject development lands are located in the electoral divisions (ED) of Castlelost and Ballykilmore, which have a population of 1,736 people (859 males and 877 females) and a population of 778 (390 males and 388 females) respectively. Mullingar and Tullamore are the closest settlements with populations greater than 5,000 people. Both settlements are approximately 14km and 17km (approximately 15-minute vehicle journey time to/from site) respectively from the proposed development lands.

5.3 ASSESSMENT OF POTENTIAL EFFECTS

The main population effects are influenced by the nature, location and characteristics of the works taking place during both the construction and operation phases.

The total construction phase for the proposed development is approximately 62 months which will take place over a phased basis (three phases). Due to the size and nature of the development and the nature and volume of the potential emissions, the construction phase activities will not have a significant impact on climate and will be short-term in duration while the operational phase activities will have an imperceptible impact

The effect of the impact associated with the project or in combination with other projects is considered as neutral and long-term.

This project does not contain a housing or services element and is not considered to have any direct positive or negative impacts on the local or regional population levels. However, the plant will attract employees who are not based in locally to relocate to the town to reduce commuting distances. During the construction phase there is the potential for limited impacts on the residential amenity of the local population. The overall impact is considered to be imperceptible in terms of population. Temporary /short term slight

adverse impacts associated with an increase in traffic (construction) levels will likely occur. With the recommended traffic and transport mitigation measures in place, no significant adverse roads and traffic related environmental impacts are anticipated during the construction, operational or decommissioning phases of the proposed development.

A Stage 1 Road Safety Audit has been carried out in accordance with TII's publication *'GE-STY-01024 – Road Safety Audit'* and is included under the Traffic and Transport (Chapter 13) Appendix. All issues raised in the Road Safety Audit have been addressed so the proposed development will be satisfactory in terms of traffic operations and safety.

5.4 MITIGATION MEAURES

Post mitigation impacts to population and human health during the construction (and decommissioning stages) of the proposed development are predicted as short-term, direct and indirect slight effects.

In order to control potential negative impacts during construction, a Construction Environmental Management Plan (CEMP) is prepared for the development (Appendix 2.2). This will be further developed and implemented by the nominated Contractor in advance of construction works and agreed with the planning authority. Mitigation measures outlined within the various Chapters of the EIAR will be incorporated into the CEMP along with any conditions applied by the planning authority. Post mitigation impacts to population and human health during the construction (and decommissioning stages) are predicted as temporary /short-term, direct and indirect slightly adverse effects. Given the setting and sensitivity of identified receptors, the potential effects associated with operation of the proposed development is considered neutral. A project decommissioning plan has been prepared for the project and is available in Appendix 2.3 of the EIAR.

Based on the assessment findings presented in all Chapters of the EIAR which have interactions with Population and Human Health, the proposed development will give not rise to any profound or significant population and human health effects. The significance of potential effects on identified sensitive receptors associated with operation of the proposed development is in general considered negligible /imperceptible.

5.5 RESIDUAL EFFECTS

After the implementation of mitigation measures during the construction and operation phases the project will not give rise to any significant negative population and human health effects. There is likely to significant positive residual and cumulative effects as a result of the proposed development.

6 BIODIVERSITY

6.1 INTRODUCTION

This chapter provides an assessment of the impacts of the proposed development on the ecological environment, i.e., biodiversity, flora and fauna.

6.2 DESCRIPTION OF THE RECEIVING ENVIRONMENT

The proposed development area is improved farmland with open fields which are either heavily grazed or under Arable Crops. There are internal hedgerows and associated short shallow drainage ditches and surrounding outgrown hedgerows

6.2.1 HABITATS

A list of habitats recorded, and their corresponding Fossitt codes is presented Table 6.1.

Table 6.1 Details of Habitats Recorded and their Corresponding Fossitt Codes

Habitat	Habitat Category	Habitat Type
(F) Freshwater	(FW) Watercourses	((FW4) Drainage ditches
(G) Grassland	(GA) Improved grassland	(GA1) Improved agricultural grassland
(W) Woodland and Scrub	(WD) Scrub and transitional woodland	(WD1) Mixed broadleaved woodland
	(WL) Linear woodland	(WL1) Hedgerows
		(WL2) Treelines
(B) Cultivated and Built land	(BC) Cultivated land	(BC1) Arable crops
(B) Cultivated and Built land	(BL) Built land	(BL3) Buildings and artificial surfaces
(ED) Exposed rock and disturbed ground	(ED) Disturbed ground	(ED2) Spoil and bare ground

There are no designated sites within the development site boundary. The nearest European sites to the Proposed Development are associated with Raheenmore Bog and include the Raheenmore Bog SAC (Site Code 000582), which is located just over 5.12km to the south. However, there are no pathways to these sites, and they are excluded from the assessment at this preliminary stage.

The Proposed Development is located within the hydrological catchment of the Castlejordan and Yellow River which flow northeast to the River Boyne with its associated European sites, the River Boyne and River Blackwater SAC (Site Code 002299) and the River Boyne and River Blackwater SPA (Site Code 004232), which are located over 30 river km to the northeast of the Proposed Development. As such, at this great distance

downstream, the River Boyne European sites are outside the zone of influence and are both excluded from the assessment.

Small patches of Japanese Knotweed were record during preliminary site visits in May 2019. The area is located on the access road to the east and was treated in the past 5 years having reduced an extensive patch along the road in that area to a few persistent plants.

The open field habitats are considered of low biodiversity value at a local level as are the internal hedgerows. There are no rare or protected habitats recorded in the study areas. Overall, the proposed development area is of Low Local Ecological Value with Treelines of higher local value.

6.2.2 BATS

Seven of the nine resident Irish bat species were found within the site; Leisler's Bat, Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Brown Long-eared, Natterer's Bat and Daubenton's bat.

A total of 62,880 registrations were recorded over the course of 22 nights from 8 static bat detectors placed in key locations throughout the site. Detectors 2, 3, 5, 7 are set in Edge Habitat which shows much higher activity on this site and these detectors make up 97% of all bat calls. Locations with high density of bat commuting traffic are Detector 2 and Detector 3 (D3 particularly in late summer when Young are present).

Lowest Levels of activity are consistently seen in open habitats onsite, with Detector 1, 4, 6 and 8 showing drastically lower levels of activity. Detector 5 is the only detector placed adjacent to a watercourse, a small stream along the northern border of Section 3. It also showed the highest levels of Myotis Species on site though few Myotis bats were recorded.

A Breeding pair of Barn owls were observed nesting onsite near Detector 3. Literature suggests that Barn Owls can influence the suitability of an area for bats, potentially driving bats out of a roost. Roulin (2013) concludes that while Barn Owls can predate on insectivore bat species, bats typically make up a small portion of their diet (usually <0.2%) and predation is mostly opportunistic on the part of the Barn Owl.

No tree roosting bats were recorded during any survey. Bat roosts were noted from buildings to the west of the site (two roost structures) however these buildings will not be altered by the proposed development.

6.2.3 OTHER MAMMALS

There were signs of fox recorded along with rabbits. These species are of low ecological concern and are not protected.

6.2.4 BIRDS

Bird surveys were conducted to establish a baseline dataset of birds using the site and the surrounds and to determine the scale of effects on birds as a result of the planned development. Target species of interest for this site are Golden Plover and Snipe, which were observed using multiple areas of the site to the south and, in the case of Golden Plover, tillage fields to the northwest during winter months. These birds are not breeding on-site. Breeding Barn Owl were recorded within the site. Whooper Swan was recorded within the hinterland but did not utilise fields onsite, while Lapwing were confirmed breeding in bog habitats outside the site during May's hinterland survey. Meadow Pipit was found to be breeding onsite, with possible Yellowhammer breeding present.

6.3 ASSESSMENT OF POTENTIAL EFFECTS

The open field habitats are considered of low biodiversity value at a local level as are the internal hedgerows. The central dividing Hawthorn hedgerow is maintained at a very low height and there would be a loss of c. 250m of this hedgerow which is not significant.

The potential indirect effects on habitats will be imperceptible and neutral. There will be earth movement during site preparation, however, there will be no discharge of silt laden or contaminated surface water to any water courses. The possibility of contaminated surface water reaching the Rover Boyne is extremely low given the downstream distance of over 30 river km.

There are no rare or protected habitats recorded in the study areas inside the licenced areas. Overall, the proposed development area is of Low Local Ecological Value with outgrown Hedgerows presenting as Treelines being of High Local Ecological Value.

Potential direct effects on breeding birds through loss of internal hedgerow can be avoided by appropriate timing. Potential direct effects on Birds are considered in terms of displacement and barrier effect and direct habitat loss. The majority of impact determinations for bird species recorded were low or very low with the exception of Yellowhammer and Medow Pipit (see mitigation).

6.4 MITIGATION MEASURES

In terms of habitats, compensatory woodland will be planted in to mitigate the loss of linear features within the DC facility component during the construction phase.

Ponds will be created and enhanced for biodiversity value within with the DC facility. These ponds will be hidden from view and will be of use by duck and wader species known to be found in the hinterlands (mallard, tufted duck, cormorant, little grebe). A lighting plan will ensure these ponds remain dark at night, increasing the ecological value.

Potential impacts on birds will be avoided by cutting of vegetation outside the bird nesting season 01 March to 31 August. If this cannot be enforced, then the site will be surveyed for the presence of nesting birds and/or nests prior to cutting and if none are recorded the vegetation may be removed within 48 hours.

The proposed development aims to retain as much tree lines and hedgerows as possible. In order to allow access, there will be 4.5m of guaranteed internal hedgerow loss within the red line boundary. Mature hedgerow will be maintained onsite and hedgerow will be plan ted in proportion to the Hedgerow removed during the construction phase of the project.

As mitigation for the loss of feeding habitat for yellowhammer, several areas totalling 11.16 Ha have been designated for wild bird cover planting. Two sections (parcels) of land will be maintained for these crops. While the overall loss of tillage is greater, these wild bird cover areas benefit from not being harvested thus are of significantly higher benefit to passerines. The addition of grains will allow for the expansion of Yellowhammer's range into this area. A Yellowhammer monitoring program will be implemented for years 1 to 3 post construction. If a significant decline of breeding Yellowhammer is found additional measures will be implemented to prevent a decline in population. One such measure is to rent out lands adjacent to Section 1 and plant this area with tillage, transformed from improved grassland.

6.5 RESIDUAL EFFECTS

Specific local mitigation measures include the avoidance of cutting of vegetation during the bird nesting season with regard to the construction phase. The remaining hedgerow habitat to be conserved in site. There will be a loss of relatively low value local habitats including short sections of low value gappy hedgerow, scrub, grassland and overgrown drainage ditches. The overall effect is considered neutral, imperceptible, and long-term.

No significant indirect impacts on the habitats associated with rare and protected birds found utilising the site in the wintering and breeding seasons as long as best practice measures such as those outlined in Mitigation and Enhancement are implemented fully. As such residual Impacts on bird species will be low.

With the employment of appropriate mitigation measures with regard to local biodiversity, the Proposed Development will have a neutral, imperceptible and long term effect on biodiversity. There will be no significant effects on designated sites in the potential Zone of Influence of the proposed development. There will be no significant effects on local biodiversity.

7 SOILS AND GEOLOGY

7.1 INTRODUCTION

The chapter examines how the proposed DC facility and DER may interact with the ground beneath and around the 243-hectare site. Prepared in line with EPA 2022 and IGI 2013 guidance, the assessment considers the full life-cycle of the project, from construction through operation to eventual decommissioning, using desk studies and intrusive investigation works (ground investigation by drilling boreholes and digging trial pits works) to establish a robust baseline against which potential impacts are measured.

7.2 DESCRIPTION OF THE RECEIVING ENVIRONMENT

The development straddles gently undulating pasture and tillage fields south-west of Rochfortbridge. Surface soils are chiefly fine loamy drift of the Elton association, underlain by limestone-derived till with pockets of cut-over peat in the east and south. Bedrock is dominated by unbedded Waulsortian Limestone, with minor Lucan–Tobercolleen formations and basalt intrusions toward the southern margin. Site investigations confirmed an overburden thickness of typically more than 0.8m. No groundwater was detected in trial pits which were excavated to average depths of 2.5m across the DC facility development lands. There are no geological heritage sites within the boundary. A cluster of small solution dolines immediately north-east of the development lands indicates active karstification in the general area of the site but no evidence of karst was encountered during ground investigations conducted beneath the DC facility development lands or Castlelost Flexgen /GIS site.

7.3 ASSESSMENT OF POTENTIAL EFFECTS

Construction activities present the greatest short-term risks. Accidental fuel or oil spills, topsoil stripping and the compaction associated with access roads could contaminate or erode shallow soils, while foundation excavation has the potential to transmit pollutants or vibration into the underlying limestone. Without controls these impacts rate as moderate, though still localised, receptors (soils and unprotected bedrock) are classed as low sensitivity.

Solar PV tables will be mounted on a lightweight steel racking system consisting of vertical posts (hot-dip galvanised, typically SHS or C-section) driven or screwed to a depth of c. 1.5 m, avoiding deep excavations and enabling straightforward decommissioning.

During operation the main risks relate to leaks of cooling fluids and reduced rainfall infiltration where hardstanding replaces grassland. Nonetheless, the assessment shows

that operational impacts (without mitigation) remain slight to moderate and largely reversible.

7.4 MITIGATION MEASURES

Topsoil will be carefully stripped, stored and reinstated; all chemical storage areas will sit within bunded, double-lined compounds equipped with spill kits and leak-detection sensors; plant routes, silt fencing and erosion blankets will limit soil disturbance and run-off; and vibration will be monitored continuously, with non-impact piling preferred if required. During the operational stage, green infrastructure and landscaping with mitigate potential effects.

7.5 RESIDUAL EFFECTS

With mitigation measures implemented, the assessment concludes that residual impacts on soils, superficial deposits and bedrock geology will be imperceptible to slight and confined to the immediate site, with no significant cumulative effects when the adjacent Castlelost Flexgen plant is factored in. The project therefore aligns with national objectives to safeguard land and sub-surface resources while enabling strategic energy and digital-infrastructure development.

8 WATER ENVIRONMENT

8.1 INTRODUCTION

The Water Environment chapter of the EIAR considers how the proposed development could affect both surface water (hydrology) and groundwater (hydrogeology) during construction, operation and decommissioning. The assessment Prepared in accordance with EPA 2022 guidance and considers requirements as set out in the Water Framework Directive (WFD). The assessment draws on desk studies, field surveys along with findings from a Stage 3 Flood Risk Assessment.

8.2 DESCRIPTION OF THE RECEIVING ENVIRONMENT

The 243 ha site lies on gently sloping farmland about 500 m north of the Mongagh River, within the Yellow (Castlejordan)_SC_010 sub-catchment of the Boyne system, a water body currently classed as Good and *"Not at Risk"*. No significant streams traverse the footprint; a few dry, overgrown field ditches discharge south-west via motorway drains to the Mongagh River.

The Athbody Groundwater is located beneath the site and is a locally important limestone aquifer that is moderately to poorly productive and is mainly classed as moderate. Monitoring boreholes show water moving east–south-east towards the Mongagh and Castlejordan rivers; flows accelerate after heavy rain but equilibrate quickly in dry spells. Average recharge is estimated at 200mm/year indicating favourable conditions for infiltration, but soakaway testing found only one successful location, signalling patchy subsoil permeability. A flood-risk review confirms the lands are at low risk from fluvial, pluvial or groundwater sources.

8.3 ASSESSMENT OF POTENTIAL EFFECTS

During the five-year build programme, excavations, top-soil stripping and earthworks could generate sediment-laden runoff and expose soils to erosion, while fuels, concrete additives and other construction chemicals pose a spill risk. These pathways give rise to moderate, short-term adverse effects on the underlying aquifer and slight to moderate effects on nearby surface waters if unmanaged.

Once operational, the principal risks are potential leaks of oils, altered drainage patterns where hardstanding replaces grassland, and localised reductions in groundwater recharge. Modelling identifies moderate potential effects on groundwater quality and slight to moderate effects on storm-water runoff volumes; one-off incidents such as chemical spills

could also occur. Water demand will be served by three proposed on-site wells drawing a combined estimate quantity of 40m^3 per day.

8.4 MITIGATION MEASURES

A Preliminary Construction Environmental Management Plan (CEMP) has been prepared for the development, and this will be further developed and agreed with the local authority during detailed design works and in advance of construction. It is proposed to deploy silt fences, sediment traps and check dams, stabilise exposed slopes with erosion blankets, and confine refuelling or paint-mixing to bunded areas equipped with spill kits and trained personnel. Regular inspections and an on-site pollution-prevention plan underpin these controls.

For the operational phase of the DC facility, drainage is designed around green-infrastructure principles: landscaped green areas, vegetated swales, will restore natural percolation rates, while roof and yard run-off is directed to lined attenuation ponds appropriately sized to account for climate change. Underground rain harvesting tanks for each DC building are also incorporated to replenish water stored in tanks and used as grey water supplies. All hazardous liquids will be stored in double-contained systems with leak-detection alarms, and the plant layout channels any accidental releases away from groundwater recharge zones. Due to the fact that solar farms contain little impervious areas and cover less than 45% of the fenced compound, rainfall will be allowed to run of the panels and infiltrate straight back into the vegetated ground. The widely adopted approach for this type of development is low-maintenance, ecologically positive and fully aligned with the SuDS hierarchy set out in national and local guidance.

8.5 RESIDUAL EFFECTS

Post recommended mitigation, it is concluded that residual impacts on both surface water and groundwater will be imperceptible to slight. Drainage pathways and volumes will mirror current conditions, infiltration to the aquifer will remain largely unhindered, and the quality objectives of the WFD will be sustained throughout the project life-cycle.

9 AIR QUALITY AND CLIMATE

This chapter examines and evaluates how both the five-year construction programme and subsequent operation of the proposed project might influence ambient air quality and human health. The assessment follows EPA 2022 and IAQM 2024 guidance, applies EU and WHO standards, and uses five years of meteorological data plus dispersion modelling to establish whether the project can meet all regulatory limits for air pollutants.

9.1 DESCRIPTION OF THE RECEIVING ENVIRONMENT

The 243-hectare site lies predominantly lies between the M6 and R446, where road traffic is already the dominant influence on air quality. EPA Zone D monitoring stations show low background concentrations—annual means of roughly 7.7µg/m^3 NO_2, 11.8µg/m^3 PM_{10} and 8.1µg/m^3 $PM_{2.5}$, all well inside EU limit values. Site-specific baseline diffusion-tube surveys (passive) carried out recorded similarly modest levels, confirming that existing air quality in the vicinity of the site is *"good"*.

9.2 ASSESSMENT OF POTENTIAL EFFECTS

Construction activities comprising earthworks, material handling and vehicle movements have the potential to generate coarse dust (30-75µm) within about 100m of active works and raise short-term suspended particulate matter, while plant and HGV exhausts add small amounts of NO_x, $PM_{10/2.5}$ and CO. IAQM screening rates these risks as *"medium to high"* at the handful of dwellings closest to the boundary but *"temporary or short-term"* in duration; modelled changes in roadside pollutant concentrations stay below 1% of existing values. During operation, emissions are limited to trace NO_x from the fuel cells and infrequent tests of a 1MW emergency generator (≤ 100 h/yr).

AERMOD simulations show the 99.8-percentile hourly NO_2 contribution at the worst receptor is 0.27µg/m^3, just 0.1% of the 200µg/m^3 standard and the annual mean increment is 0.13µg/m^3, keeping cumulative concentrations well inside the 40µg/m^3 limit. Similar modelling at five nearby designated habitats predicts (under maximum adverse conditions) process contributions below 2% of the critical load for nitrogen deposition, so ecological impacts are negligible.

9.3 MITIGATION MEASURES

A site-wide dust management plan will be integral to the Construction Environmental Management Plan (CEMP). Measures include locating stockpiles away from residences, hard-surfacing haul routes, covering or damping exposed soils in dry or windy weather, bunded fuel-storage areas with spill kits, and daily inspections backed by boundary dust

gauges. Water sprays, speed limits and wheel-washing will minimise track-out onto the public road. For operation, the project incorporates low-NO_x fuel-cell technology, stack heights chosen by dispersion modelling, impervious chemical stores with leak alarms, and an emergency-generator maintenance schedule that keeps annual run-time minimal.

9.4 RESIDUAL EFFECTS

During the construction phase of the proposed development there will be some dust impacts experienced at the nearest receptors to the subject site. It is predicted that the mitigation measures proposed will ensure that the air quality impacts are kept to a minimum. The predicted air quality impacts on the receiving environment during the construction phase are considered to be not significant and short-term and may affect a small number of properties.

Due to the size and nature of the development and the nature and volume of the potential emissions, the construction phase activities will have a not significant impact on climate and will be short-term in duration while the operational phase activities will have an imperceptible impact on climate and will be long-term in duration.

10 MATERIAL ASSETS

10.1 INTRODUCTION

This Chapter evaluates the impacts, if any, which the development will have on material assets. Material assets are resources that are valued and intrinsic to the Site and the surrounding area. With regard to Material Assets, the 2022 EPA EIAR Guidelines ("EPA Guidelines") state:

> *"Material assets can now be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure. Sealing of agricultural land and effects on mining or quarrying potential come under the factors of land and soils."*

Material assets of *natural origin* and the existing quality of natural resources such as air, water, soils, landscape, lands and soil, etc., are discussed in depth in earlier Chapters of the EIAR along with those of human origin such as traffic and transport infrastructure, soils, archaeological /architectural heritage and flood protection.

Material assets of natural and human origin which are included in this assessment are the following:

- Ownership and access
- Land Use
- Services
- Demolition works

10.2 DESCRIPTION OF THE RECEIVING ENVIRONMENT

The 243-hectare site stretches across the townlands of Gneevebane, Oldtown, Farthingstown, Castlelost, Kiltotan and Collinstown. Presently it is farmed, mainly grass and tillage fields bounded by mature hedgerows, with access from the R446, L51251 and L11272. Nationally important key utilities already traverse and exist at the proposed development site and this avoids the ned for off-site development corridors. This includes (a) the 220kV Shannonbridge–Maynooth electricity line, which loops in and out underground of the recently constructed Castlelost GIS substation, (b) the transmission gas network which serves the Castleost Flexgen Plant which is under construction and nearing completion (Q4-2025 /Q1-2025) and (c) dark fibre broadband. Aside from a handful of small agricultural sheds and a derelict house scheduled for demolition and

removal, no public amenities, rights-of-way or high-value community facilities lie within or immediately adjoining the landholding.

10.3 ASSESSMENT OF POTENTIAL EFFECTS

The principal change will be a switch from agricultural to industrial use, accompanied by new buildings, roads and buried services. Excavated soils will be retained on site to form landscaped berms, so the loss of productive land is confined to the footprint of hardstanding and is classified as a slight, low-sensitivity effect.

Water supply will come from three modest groundwater abstractions and will provide up to 40m^3/day, which represents a negligible draw on the local resource. Foul effluent from the DC facility will be pumped to the existing Rochfortbridge public sewer, while low occupancy IPP buildings across the DER will rely on sealed holding tanks which will contain foul effluent which will be disposed of periodically by a waste permitted contractor to a licensed facility. Stormwater will be managed through attenuation ponds, limiting runoff to green-field rates. Electrical demand for the DC facility will be served by the collocated DER which will ensure that no stresses or burden or placed on public electricity infrastructure. The low emissions fuel cells will be served by the existing gas network on the site and the technology is future proofed to use blends of biomethane and hydrogen in line with GNIs intention to decarbonise Ireland's gas grid.

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10.4 MITIGATION MEASURES

All enabling works will be kept within the red-line boundary, eliminating the need for off-site diversions of public services. Soil handling will follow best-practice protocols so that berm material retains its structure and fertility. New utility trenches will be laid in coordinated corridors to minimise ground disturbance and allow future maintenance without repeated excavation.

10.5 RESIDUAL EFFECTS

After mitigation, no significant adverse effects on material assets remain. The project delivers a long-term, positive upgrade to the local built environment, securing high-capacity power, fibre and gas nodes, while maintaining sustainable water, wastewater and drainage balances, thereby providing regional and national benefits without disadvantaging neighbouring landowners or service users. In terms of potential environmental effect once operational, the impact on the environment from projects in isolation and in combination will be long-term, neutral and imperceptible

11 NOISE AND VIBRATION

11.1 INTRODUCTION

An assessment of the impact on the ambient sound environment and related effects on receptors, (namely human beings), potentially arising, as a result of each of the proposed projects has been prepared during construction and operation of the development. Potential for vibration impacts on nearby dwellings and occupants during site development and construction has also been undertaken.

11.2 DESCRIPTION OF THE RECEIVING ENVIRONMENT

The proposed 243 ha development site is flanked by the M6 motorway and the R446 regional road, whose constant traffic forms the dominant existing noise source. Baseline sound levels were established through unattended monitoring at four locations between 7 and 11 April 2025. The findings of the survey determined that neither daytime nor night-time backgrounds qualify as *"low-background"* under EPA definitions. Thirty-five dwellings, scattered mainly along the R446 and local lanes were identified as nearest noise-sensitive receptors, while no significant sources of ground-borne vibration were recorded during the survey campaign.

11.3 ASSESSMENT OF POTENTIAL EFFECTS

During construction, earth-moving and site-levelling plant could temporarily raise sound levels above the 65 dB LAeq,1 hr threshold at a handful of properties closest to the berm works. However, the exceedances will be short-lived, screened as the berm rises and therefore not of sufficient duration to constitute a significant effect. Construction traffic noise is negligible in the context of existing road flows, and vibration from occasional rollers or rock breakers is predicted to remain well below the 7.5 mm/s criterion for residential structures.

In terms of operation phase, predictive modelling of more than 1,400 point sources, including fuel-cell stacks, battery inverters, rooftop dry coolers, air handling units and solar inverters, indicates façade levels of 31–44 dB LAeq at almost all receptors, comfortably beneath the 45 dB(A) night-time limit. Only one house (NSR 6, an associated project landowner) is forecast at 46 dB(A). Cumulative analysis with the licensed Castlelost Flexgen plant shows similarly low contributions, with the greatest combined level still confined to NSR 6. Vibration during operation is not expected because all rotating equipment will be balance-maintained.

11.4 MITIGATION MEASURES

A construction-stage Noise and Vibration Management Plan will appoint a site representative, maintain a complaints log, deploy real-time boundary monitors and, where necessary, install temporary acoustic hoarding or reschedule the noisiest tasks to keep levels within guideline values. Low-noise plant, certified under EU Directive 2000/14/EC, will be specified, and precautionary vibration monitoring undertaken near the closest dwellings. For the operational phase, acoustic louvres are integrated along the long façades of each data-centre roof to screen air-handling units; all plant will be serviced to prevent tones or impulses, and direct mitigation for NSR 6 will be agreed with the occupant if required.

11.5 RESIDUAL EFFECTS

With the implementation of mitigation measures, the EIAR concludes that construction activities will not produce significant residual noise or vibration impacts, and that operational emissions will meet EPA daytime, evening-time and night-time limits at all NSRs. Overall, the development is expected to exert a neutral to imperceptible influence on the surrounding acoustic climate.

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12 LANDSCAPE AND VISUAL

12.1 INTRODUCTION

This Landscape and Visual Assessment (LVIA) has been prepared to accompany a planning application for the Admiral project (DC facility and DER) which is proposed on lands southwest of Rochfortbridge, Co. Westmeath. This LVIA describes the landscape context of the proposed development and assesses the likely landscape and visual impacts of the scheme on the receiving environment. Using EPA 2022 and GLVIA3 guidance, the study describes the landscape setting, assesses how the project might alter both landscape character and public views, and presents mitigation and monitoring commitments. Landscape and visual effects are treated separately but reported together so decision-makers can understand the combined implications for the receiving environment.

12.2 DESCRIPTION OF RECEIVING ENVIRONMENT

The 240-hectare site occupies low undulating farmland framed by mature hedgerows, small conifer plantations and pockets of cut-over bog. The M6 motorway skirts its southern edge and the Castlelost Flexgen plant and GIS (currently under construction and nearing completion) adjoins it, giving the area a distinctly *"utilitarian, working landscape"* character. Scenic quality is moderate: long views are mostly screened by dense vegetation, though elevated spots such as Garrane on the R446 and distant Croghan Hill afford wider panoramas. This assessment is supported by the current Westmeath CDP, which does not identify any part of the study area as an *"Area of High Amenity"*. The site falls within Landscape Character Area (LCA) *"Lough Ennell and Southeast Corridor"*, although the influence of the southeast transport corridor is considerably more pronounced than that of Lough Ennell, which lies some 6.5 km to the northwest and is visually and perceptually disconnected from the site.

12.3 ASSESSMENT OF POTENTIAL EFFECTS

The construction stage landscape impacts are deemed to be High within the site and its immediate setting (<c. 500m), thereafter reducing to Medium and Low at increasing distances and with a higher degree of screening. It should be noted that the construction stage effects related to the solar aspect of the development will be considerably less than those experienced at the data centre aspect of the proposed development. Combined with the Medium-low landscape sensitivity of the study area, the significance of construction stage effect is deemed Substantial-moderate and of a Negative Quality.

Coupled with the Medium-low visual receptor sensitivities in the immediate surrounds of the site, the construction stage visual impacts in the immediate vicinity of the site will be no greater than Substantial-moderate and will reduce considerably beyond 500m-1000m from the site, where the proposed development will be heavily screened. As a result, construction stage visual impacts are deemed Not Significant.

Once operational, the solar arrays sit low in the field pattern and cause only slight landscape change. The DC facility introduces large buildings that locally replace a pastoral scene with an industrial one. Even so, analysis of 19 representative viewpoints shows that the full breadth of the project is never visible at once; outside the immediate setting (roughly 250–500m) visual effects fall to moderate, slight or imperceptible because of topography and vegetation.

The proposed development will contribute to a marked change in the local landscape in terms of its scale and function and represents a considerable increase in the intensity of built development. The Medium-low landscape sensitivity judgement attributed to the study area, coupled with a High magnitude of landscape impact in the immediate vicinity (<500m) of the proposed development is considered to result in an overall significance of no greater *than "substantial-moderate"*, with residual landscape effects reducing swiftly at increasing distances as the proposed development becomes screened and soften within the wider surrounding landscape. It is important to note that there will be limited residual visibility of the development beyond c. 500m - 1km from the site. Thus, the most notable landscape effects will be heavily localised to the immediate surrounding landscape context.

12.4 MITIGATION MEASURES

The main mitigation by avoidance measure employed in this instance is the siting of the proposed development in a relatively flat part of the surrounding landscape that avails of a notable degree of existing screening along the site boundary and further layers of intervening hedgerow vegetation throughout the immediate surrounding landscape. The site is also located in a robust part of the surrounding landscape with limited highly susceptible landscape or visual designations. Indeed, the immediate site context is influenced by the existing recently operational Flexgen development, the M6 motorway corridor and typical rural land uses including pastoral farmland and conifer forest plantations. In this regard, the site and immediate study area is not considered highly distinctive or susceptible to change.

The proposed fuel cells, which are one of the larger built structures encompass a site-specific design to further assimilate them into this landscape context whilst diminishing their overall perceived visual mass. the architectural treatment of the facade employs a

layered palette of green tones with subtle tonal shifts and a vertical emphasis that mimics the rhythm of hedgerows, tree lines, and vertical natural forms commonly found in the rural Irish landscape. This deliberate variation in tone and finish helps break up the perceived mass of the building and prevents the development from appearing as a monolithic or intrusive structure when viewed from nearby visual receptors. The façade treatment also encompasses earth-toned, muted greens that draw from the palette of the surrounding agrarian landscape. The vertical striping echoes the structure of surrounding conifer forest plantations and field boundary planting, helping to visually anchor the building into its broader agricultural setting. Furthermore, whilst the principal of the design is to diminish the perceived scale of the development, the proposed treatment introduces a contemporary architectural aesthetic that acknowledges the scale and function of the building, whilst also providing visual interest without appearing overtly industrial, especially for road users travelling along the neighbouring motorway corridor.

It is also proposed to finish the data halls in various muted tones of grey, to further break up the visual mass of these structures when viewed from surrounding receptors. The proposed 220kV GIS Building (D16) will also adopt a colour scheme designed to complement the mitigation screen planting and respond to the likely backdrop in terms of tonal contrast. For the lowest 5 metres of the main structures, a dark olive-green plinth will be used to de-emphasise the height of the buildings and to integrate them with the dense lower sections of the surrounding vegetation network. The next 3 metres (i.e., up to 8 metres from floor level) will incorporate a mid-green tone intended to blend with the tree canopies of existing and proposed planting around the site. The upper sections of the buildings (above 8 metres) will feature a light green/grey finish, chosen to recede against the typically light backdrop of the sky. This visual mitigation strategy aligns with the approach adopted for the existing Castlelost Flexgen development, further assimilating the proposed development into its context and presenting both schemes as a cohesive development type within the local landscape setting.

12.5 RESIDUAL EFFECTS

The residual visual effects generated by the proposed projectare assessed as ranging between *Moderate and Imperceptible*. The most notable residual effects are associated with views from the adjacent motorway corridor and local road overpasses to the south of the proposed development. However, these receptors are not considered to be highly susceptible to change, as reflected in their Low visual receptor sensitivity classification.

The full scale and extent of the development is never fully perceptible, even from the nearest local receptors. The proposed development is considered to be appropriately sited,

and visual effects will be further reduced through the implementation of a comprehensive landscape mitigation strategy. Indeed, the principal visual effects are expected to be experienced by road users travelling along nearby sections of the motorway corridor and a number of local road overbridges. These receptors are not deemed highly sensitive to visual change.

Overall, it is concluded that, whilst sizable, the proposed development is located within a robust landscape setting and does not conflict with any landscape or visual policies or objectives contained within the County Development Plans for either County Westmeath or County Offaly.

13 TRAFFIC AND TRANSPORT

13.1 INTRODUCTION

The traffic and transport impacts of the project in isolation and in combination with other projects has been assessed. The assessment has followed current legislations and guidance including: the TTA guidelines produced by Transport Infrastructure Ireland (TII); and, the Environmental Protection Agency (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports, and involved a range of desktop study and field work, including: traffic data collection; and, traffic modelling.

13.2 DESCRIPTION OF RECEIVING ENVIRONMENT

The proposed development lands are accessed from the R446 regional road between Rochfortbridge and Tyrrellspass, beside the Castlelost Flexgen Plant (now nearing completion). The R446 was formerly part of the Dublin–Galway N6 and retains its wide carriageways and hard shoulders. Manual traffic counts were taken on 22 May 2025 at seven junctions near the development and show that weekday peak-hour flows are modest and the network has ample spare capacity, even when an 8% seasonal uplift is allowed for.

13.3 ASSESSMENT OF POTENTIAL EFFECTS

The traffic modelling output for the construction phase of the project deomonstrates that the project will add only three two-way heavy-goods-vehicle (HGV) movements in each peak hour during the busiest year of its construction. Traffic will be routed via the M6 and N52 to avoid the neighbouring villages of Rochfortbridge and Tyrrellspass. Workforce traffic is expected to generate around 100 light good vehicle (LGV) arrivals in the morning peak and 213 departures in the evening. Once the project is fully operational after its expected 5 year phased construction programme is complete, roughly 360 directly employed staff will be employed across several shifts at the DC facility.

Junction-capacity modelling of all seven survey points shows the worst-case ratio-of-flow-to-capacity remains well below the congestion benchmark of 0.85, with the highest forecast value reaching only 0.44 in 2048. Queue lengths therefore stay short and impacts are classified as *"not significant."* A Stage 1 Road Safety Audit confirms that, once its recommendations are incorporated, no material safety issues are anticipated.

13.4 MITIGATION MEASURES

To protect road quality, the project will document the baseline condition of the R446 and adjacent local roads with Westmeath County Council before works begin, inspect the network annually during construction and repair any verified project-related damage without delay. All design refinements identified in the Road Safety Audit—such as geometry tweaks at the new site accesses on the R446, L51251 and L11272will be fully implemented.

A Mobility Management Plan (MMP) has been prepared for the project and sets out how the DC facility and DER will manage staff and visitor travel so that growth in activity does not translate into growth in traffic. The plan is grounded in national and county policy on sustainable mobility and responds to the projected daily presence of 360 employees.

Governance will be provided by a Mobility-Management Working Group led by a dedicated Co-ordinator from Red Admiral DC Ltd. who will oversee day-to-day implementation, communication and biennial reviews. Regular staff and visitor travel surveys will feed into monitoring reports, allowing targets, and if necessary, the Action Plan itself, to be refined over time. Through this cyclical process the MMP aims to embed a culture of sustainable travel that keeps pace with the campus's operational needs yet aligns with county and national carbon-reduction goals.

13.5 RESIDUAL EFFECTS

With these measures in place, the chapter concludes that neither construction nor operation of the Admiral campus will give rise to significant residual impacts on traffic flow, road condition or safety.

14 ARCHAEOLOGICAL AND CULTURAL HERITAGE

14.1 INTRODUCTION

An archaeological and cultural heritage assessment was undertaken in relation to the site of a proposed development located in the townlands of Oldtown, Farthingstown, Gneevebane, Castlelost Kiltotan and Collinstown in Co. Westmeath, between the villages of Rochfortbridge and Tyrrellspass.

This assessment was carried out to identify, describe and present an assessment of the likely significant effects of the proposed development on archaeological and cultural heritage remains (known and unknown if present) and to outline mitigation measures to offset such potential effects.

14.2 DESCRIPTION OF RECEIVING ENVIRONMENT

The land is predominantly low-lying pasture and tillage bisected by the R446 and overlooked by the M6; wet ditches and the meandering Mongagh River define many field boundaries. Within the development boundary lie six recorded ringforts (SMRs), a recently detected sub-circular enclosure with an annexe and possible early field system, and traces of former vernacular farmsteads, lime-kilns, wells and nineteenth-century linear settlement mapped on historic Ordnance Survey sheets. A nineteenth-century Farthingstown forge /smithy stands is positioned on the western side of the L11272 near its junction with the R446. Townland boundaries slice through the holding, combining straight north–south lines with undulating hedgerows that mirror earlier land-division patterns.

14.3 ASSESSMENT OF POTENTIAL EFFECTS

The site layout was designed to stand-off and provide a buffer to identified and recorded sites and monument. Therefore, no direct impacts on recorded monuments are predicted. The assessment states that groundworks might expose subsurface archaeology in areas which have not been investigated, especially where geophysical survey has flagged anomalies or where water-side soils could conceal burnt-mound spreads. If such material exists it could be permanently lost, constituting a profound negative effect. Architectural heritage is largely absent from the footprint, yet demolition of surviving cottages and the removal of stretches of historic townland boundary would remove modest but locally significant cultural layers. Indirectly, the massing of new buildings will alter the visual setting of the two ringforts that retain earthworks (WM033-066 and WM033-067).

14.4 MITIGATION MEASURES

A tiered strategy to mitigate potential effects is incorporated within the desgin. Buffer zones around all known monuments will be installed before any site preparation and these maintained for the life of the project. It is proposed that unsurveyed northern and eastern fields will undergo licensed geophysical scanning followed by targeted test-trenching and the western fields will be similarly trenched to verify earlier readings. Any archaeology encountered will be either preserved in situ or excavated and recorded in consultation with the National Monuments Service, and the Construction Management Plan will commit adequate time, resources and reporting lines for that work. Prior to removal, every section of townland boundary and any upstanding vernacular structure will be subject to measured, photographic and written survey by a built-heritage specialist and any works near the forge (underground electrical cabling) will proceed under controlled supervision to avoid accidental damage.

14.5 RESIDUAL EFFECTS.

With implementation of mitigation measures as proposed, the EIAR concludes that residual impacts on archaeological sites, architectural heritage and the wider cultural landscape will be neutral to imperceptible, with no significant cumulative interactions once construction is complete.

15 CLIMATE

15.1 INTRODUCTION

This chapter of the EIAR considers the impacts on climate associated with the proposed development. Impacts of the construction and operational phases are considered in the context of appropriate standards and guidelines.

Climate change is a major challenge for all of society to address. The Sixth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC) confirmed that human activities resulting in the emission of greenhouse gases (GHG), are mainly responsible for global warming since the mid-20th century. The impacts of climate change are already observed at global and national levels and these impacts will continue. Even if the world rapidly decarbonises, GHGs already in the atmosphere and current emissions trends make future climate impacts unavoidable. Planned responses to the threats and opportunities posed by climate change are now required.

15.2 RECEIVING ENVIRONMENT

The proposed data-centre campus lies within a national and regional climate context that is already warming and becoming wetter. Ireland's average surface air temperature has risen by c. 0.9 °C in the last 120 years, with 2024 ranking as the country's fourth-warmest year on record, and extreme rainfall events are occurring more frequently, driving local flood episodes. National greenhouse-gas (GHG) emissions fell to an estimated 55 Mt CO_2e in 2023 (–6.8 % on 2022) but still leave a challenging pathway to the legally-binding 51 % reduction by 2030. Within County Westmeath the 2018 baseline inventory was 1.64 Mt CO_2e, dominated by agriculture (40 %), transport (21 %) and the residential sector (16 %). Projected climate modelling for Ireland indicates further temperature rises, wetter winters, drier summers and a marked increase in the frequency of heatwaves, intense rainfall and storm events through the century.

15.3 ASSESSMENT OF POTENTIAL EFFECTS

The main impact is the one-off release of embodied carbon in building materials and construction processes. Even after a planned low-carbon materials upgrade, these emissions are estimated at c. 31,300 t CO_2e, equating to merely 0.015 % of Ireland's second carbon-budget envelope (2026–2030). Combustion emissions from site plant and traffic are negligible in climate terms. Exposure of the works to climate hazards such as flooding or storms is rated low, with any disruption predicted to be minor and not significant.

In terms of the operational phase, electricity demand is the dominant driver. Modelling shows that the on-site decentralised energy resource (DER) will outperform the national

grid for carbon intensity across all load scenarios. At a representative 150MW load the DER would emit c. 150 g CO_2/kWh versus a 2023 grid average of 249 g CO_2/kWh. Even at the unlikely full 250 MW load, annual emissions (493 kt CO_2e) remain only 1.2% of the current national carbon budget and are expected to fall to 188 kt by 2030 and 85 kt by 2040 as grid and gas networks decarbonise. Climate-change risks during operation (heat, storm, flood or drought) are classed as low-likelihood, minor-consequence events and therefore not significant.

15.4 MITIGATION MEASURES

During construction low-carbon optimisation set out in the life-cycle assessment will be implemented. The developer will seek Environmental Product Declarations for key materials, source supplies locally where practicable, enforce strict plant-idling controls and apply a site-specific resource and construction-waste-management plan to maximise reuse and recycling.

During operation, the DER is itself the principal mitigation; renewable solar output will be prioritised, Fuel Cells are future proofed to run on biomethane and hydrogen blended gas for variable power, the BESS shifts surplus wind or solar energy and eliminates the need for diesel backup, and real-time carbon-intensity monitoring (carbon passport) continually optimises the supply mix. All buildings will target LEED certification, use high-performance envelopes, passive-solar design and ultra-efficient HVAC and lighting systems to curb residual energy demand.

15.5 RESIDUAL EFFECTS

After the above measures are embedded, the construction stage leaves a short-term, minor adverse but *not significant* contribution to Ireland's carbon budgets. In operation the DC facility is designed to achieve continuous net-zero performance well before 2040, with residual GHG emissions falling steadily as national electricity and gas grids decarbonise; any remaining effect is long-term, negative, minor adverse and therefore also *not significant* in EIA terms

16 CUMULATIVE EFFECTS & INTERACTIONS

This Chapter of the EIAR describes the main interactions between potential impacts identified as part of the Environmental Impact Assessments for each of the proposed developments at Gneevebane, Farthingstown, Oldtown, Castlelost and Kiltotan & Collinstown, Co. Westmeath.

The interaction of environmental factors was identified and carefully considered from the outset of the project. Interactions during construction, operational and decommissioning stages of the project are considered.

Table 16.2 presents a matrix of interactions likely to occur from the proposed development (highlighted in green). The level of interaction between the various media will vary greatly but the table allows the interactions to be identified and detailed where necessary. If the development does not have the potential to impact or affect the interaction, then that interaction is not highlighted in green.

The interaction matrix is based on the potential interrelationships of the environmental media both during the construction, operation and decommissioning phases of the proposed development.

Table 16.1 Interactions between Environmental Factors

	Population & Human Health	Air & Climate	Noise & Vibration	Landscape & Visual	Biodiversity	Waters	Soils and Geology	Material Assets	Traffic & Transport	Archaeology & Cultural Heritage
Population & Human Health		C/D, O	C/D, O	C/D, O			C/D		C/D,	
Air & Climate	C/D, O				C/D, O		C/D		C/D	
Noise & Vibration	C/D, O				C/D				C/D	
Landscape & Visual	C/D, O									C/D, O
Biodiversity		C/D, O	C/D			C/D, O	C/D			
Waters					C/D, O		C/D, O			
Soils and Geology	C/D	C/D			C/D	C/D				
Material Assets										
Traffic & Transport	C/D	C/D	C/D							
Archaeology & Cultural Heritage				C/D, O						

C/D= Construction /Decommissioning
O = Operation

Table 16.2 Summary of Interactions

Interaction of Environmental Factors	Description
Air Quality, Population, Human Health and Biodiversity	There is potential for impact to human beings living in the area of the proposed development during the construction, operation and decommissioning phases of the development. These have been outlined and assessed in the EIAR. The impact of construction activities on air quality during the construction phase of all projects is short term in duration and its significance will vary from not significant to slight. The air quality impact at the nearest residential receivers is associated with each of the projects (and in combination) is predicted to be below the relevant air quality standard limit values and is therefore determined to be negligible. Similarly, the impact on identified protected ecological site and biodiversity is not significant.
Noise, Human Beings and Biodiversity	The impact of noise on the human beings living in the area of the proposed development has been addressed during the construction, operational and decommissioning phases of the proposed development. Appropriate mitigation measures have been recommended to ensure the construction phase target noise limits are not exceeded. These will be further prescribed in a construction management plan subject to planning. The predicted noise levels at the nearest neighbouring residential properties due to the operation of the proposed projects during daytime and night-time will be in accordance with lower limits for areas of low background noise. Given the proximity of the development lands and projects to designated ecological sites, noise impacts on the local ecological receivers is not considered significant.
Landscape and Visual, Biodiversity, Population and Human Health	The landscape and visual impacts have potential interactions with impacts resulting from other environmental statement topics. The interactions of these impacts are usually highly complex in practice and this section serves to act as a brief overview to these issues. In addition, the proposed development will create varying impacts during the construction phase and the operation phase. No designated scenic views will be affected by the proposed

Interaction of Environmental Factors	Description
	development. The proposed mitigation planting (including a new berm) will increase the variety of native tree and shrub species on site and this will have a positive impact of providing increasing screening and increased ecological benefit. The management of the site vegetation will also result in a positive impact to the appearance and condition of site vegetation. The residual significance of visual effect ranged between *'Substantial-moderate'* to *'Imperceptible'*, with the significance of visual effect reducing considerably beyond the immediate context of the site. In the context of the proposed development and the sensitivity of the receiving landscape (Westmeath CDP), it is not considered that the proposed development represents an inappropriate addition to this landscape context and complies with landscape and visual-related policies and objectives in the current Westmeath County Development Plan (2021-2027)
Landscape and Archaeology /Cultural Heritage	Developments can sometimes infringe upon the amenity use and visual setting of a cultural heritage feature and as a result lead to unacceptable impacts. The proposed development will introduce a new type of development within the local area. The introduction of the proposed development will not however impact upon any inter-relationships between monuments located within the local landscape.
Soils & Geology and Water Environment	There is an interaction between soils & geology and the water environment. The disturbance of soil during construction has the potential to impact on water quality. Construction activities which disturb or expose the soil, including realignment of the stream, have the potential to elevate suspended solids in runoff from the site which could impact on local drains. Mitigation measures during the construction process will prevent sediment run-off and construction discharges. A preliminary CEMP has been prepared and shall be further development and implemented for the construction phase. This provides a framework under which construction activities which have potential for environmental

Interaction of Environmental Factors	Description
	impact (e.g. generation of dust, ecological impacts, surface water discharge, etc) will be managed. Mitigation measures as outlined in the EIAR are included within this plan. There will be no direct process to soils or surface water bodies during the operational phase of the developments (in isolation or in combination). Stormwater generated on the site will be managed in accordance with sustainable best practice proposals as presented in the drainage report for each project. Overall, the impact is not considered significant.
Traffic & Transport, population and human health, noise & vibration, and biodiversity	There will be potential interactions with increased traffic movements as a result of the construction and to a lesser extent the operation of the proposed projects with potential effects on population and human health, air quality, noise and vibration and biodiversity. This is dealt within each Chapter of the EIAR The impact of construction stage traffic on air quality, human health, noise & vibration and biodiversity is short term, not significant (depending on activities) and long term imperceptible during operation.

The proposed development of the individual and collectively development has the potential to impact on various environmental aspects, and there are interactions and inter-relationships between these aspects, as presented in Table 16.1.

FIGURES

SITE LOCATION MAP

Figure 2 Site Location (1:50,000)

Figure 3 Site Location Map (1:2,500) - A

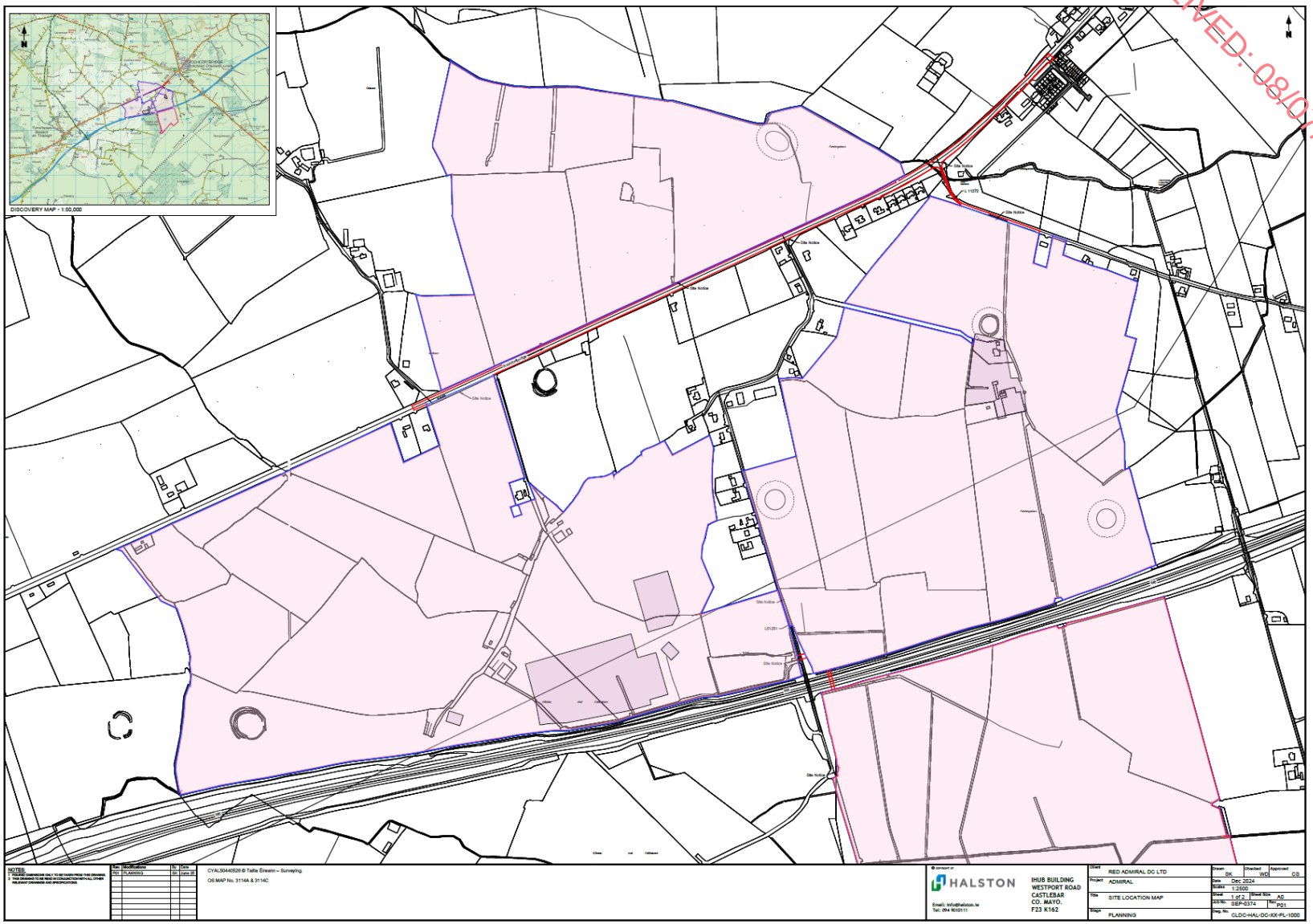


Figure 4 Site Location Map (1:2,500) - B

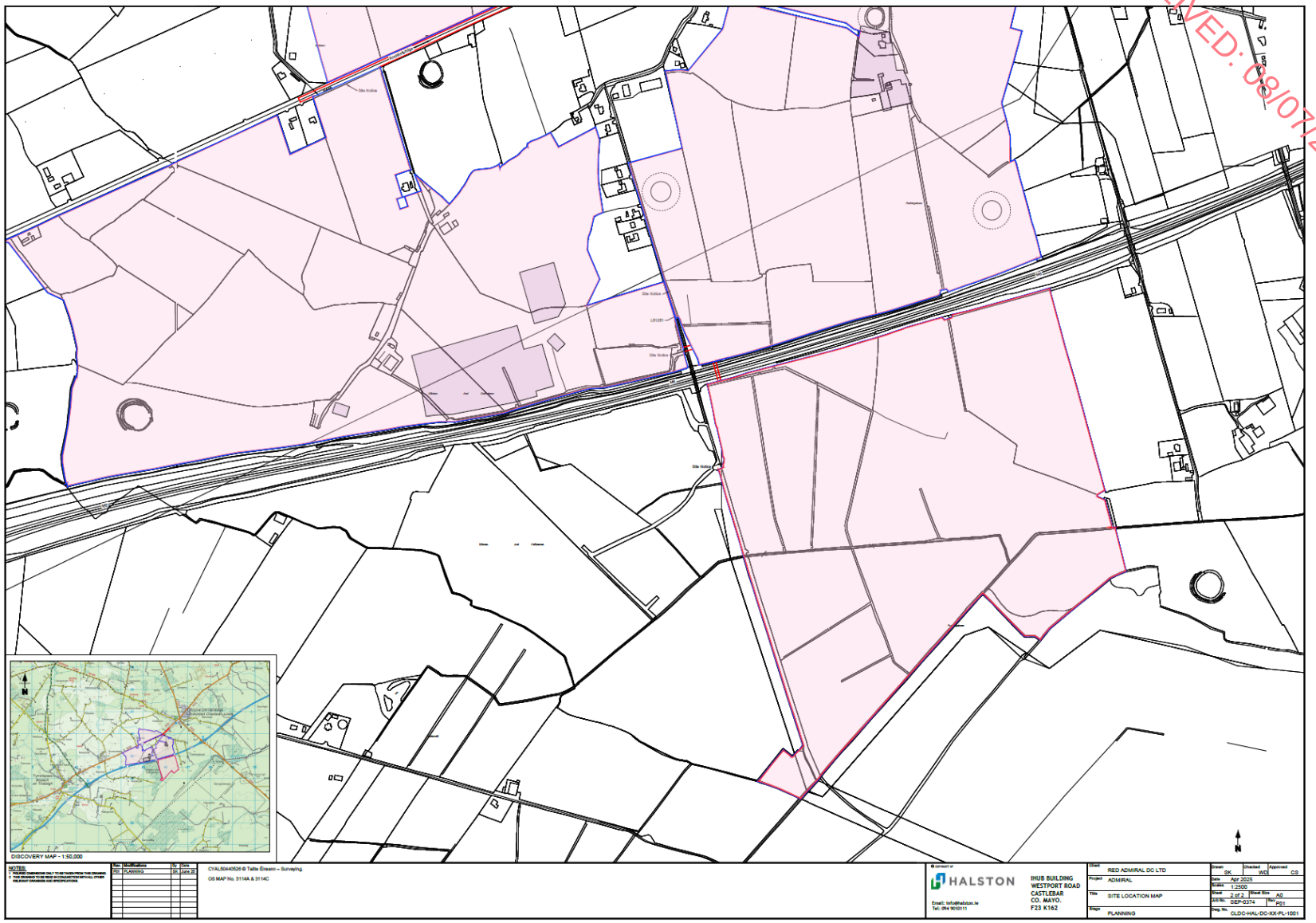
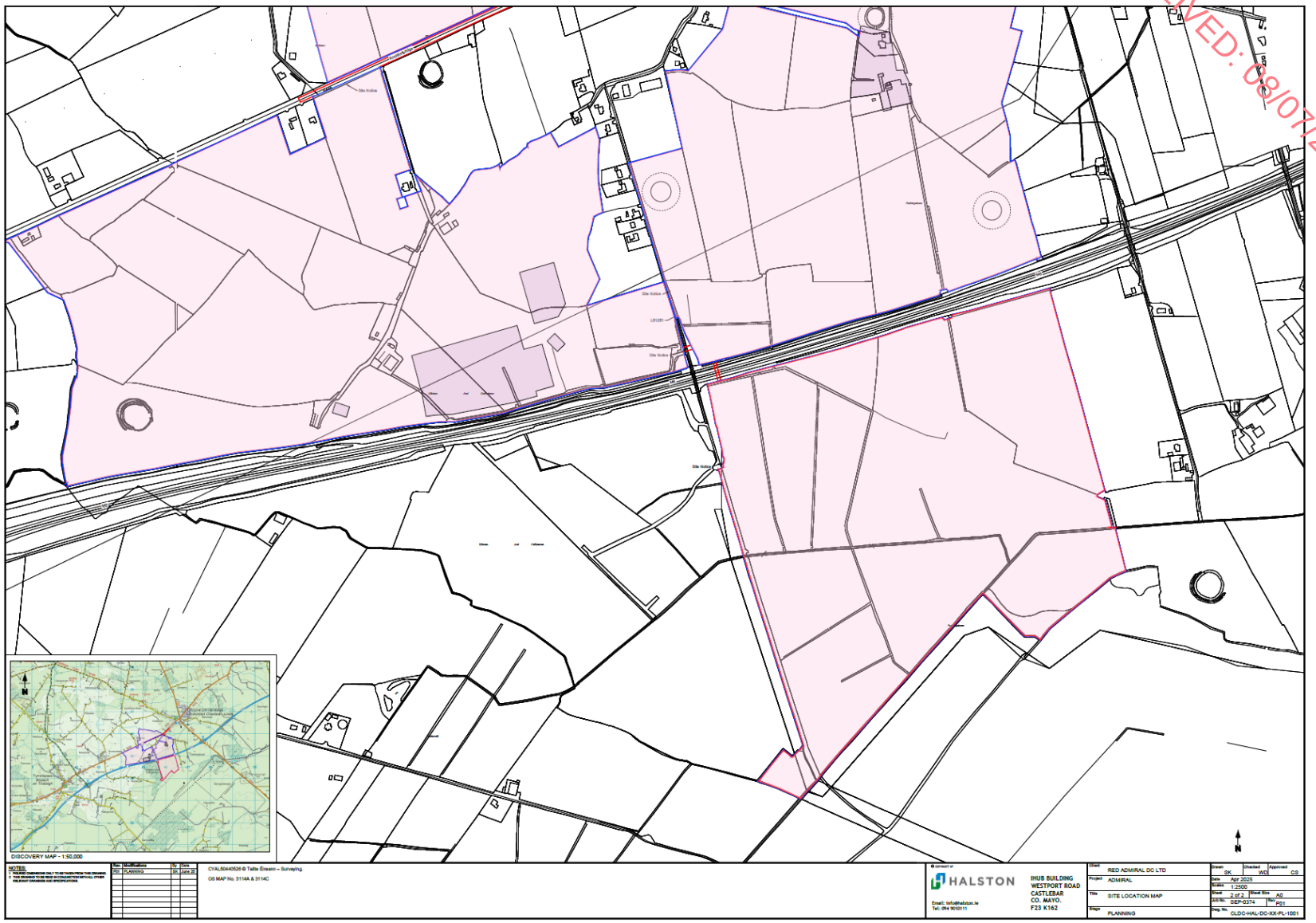


Figure 5 Site Location Map (1:2,500) - C



FIGURES

PROPOSED SITE LAYOUT

&

LANDSCAPE AND BIODIVERSITY MITIGATION PLAN

Figure 6 Proposed Project Layout

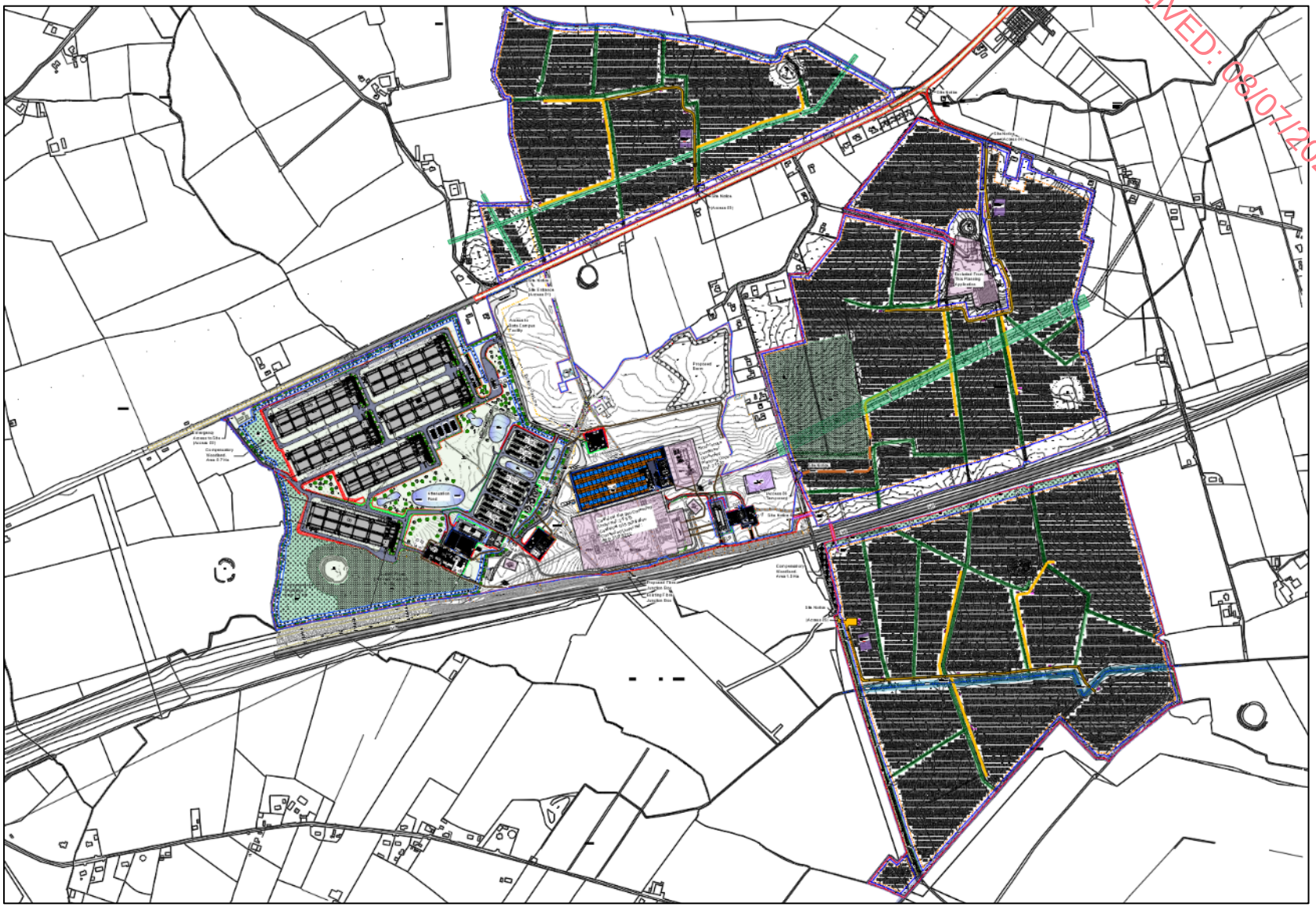


Figure 7 Site Layout with Landscape and Biodiversity Mitigation Plan (DC Facility)

Figure 8 Landscape and Biodiversity Mitigation Plan – Solar Farm

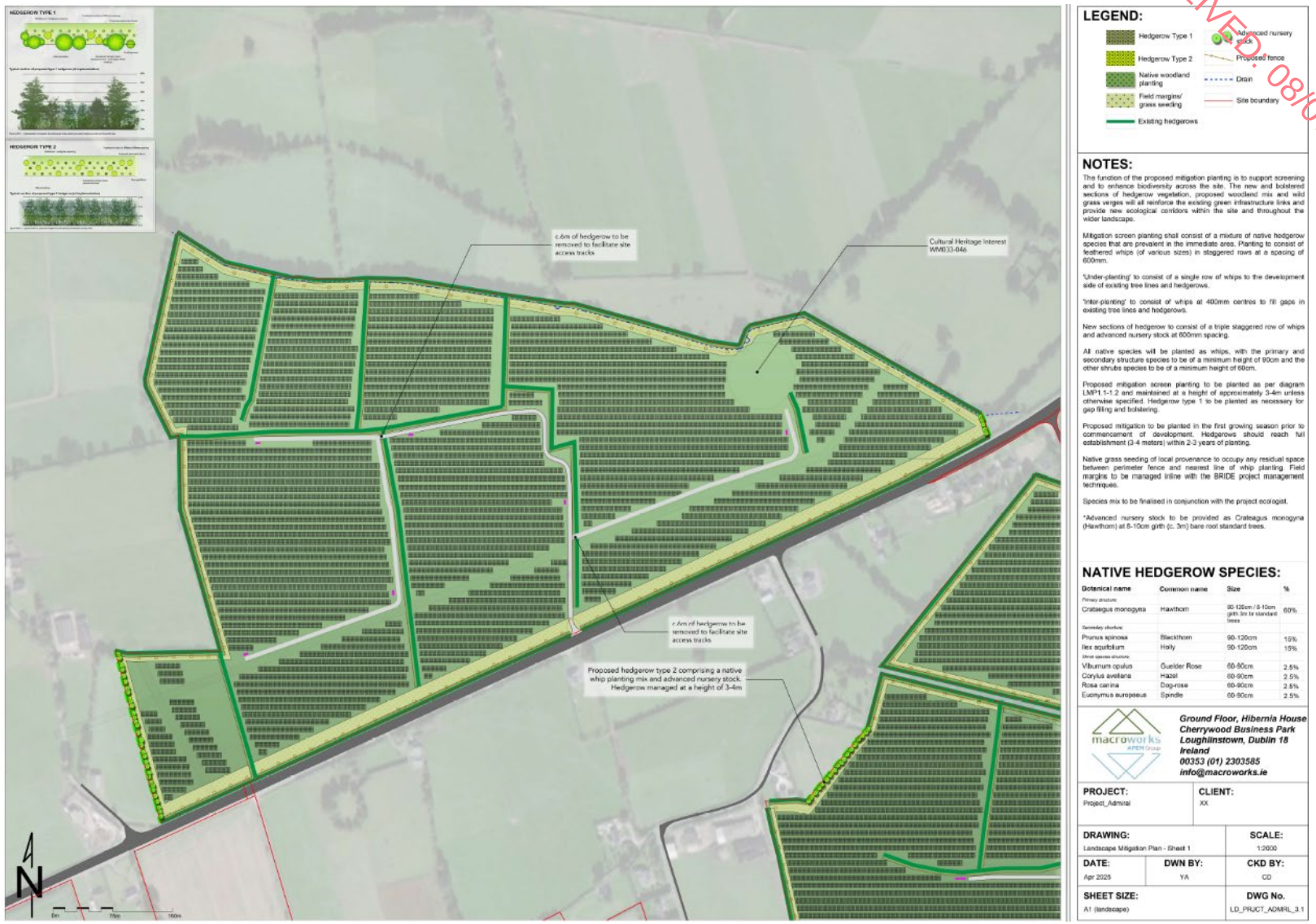


Figure 9 Landscape and Biodiversity Mitigation Plan – Solar Farm

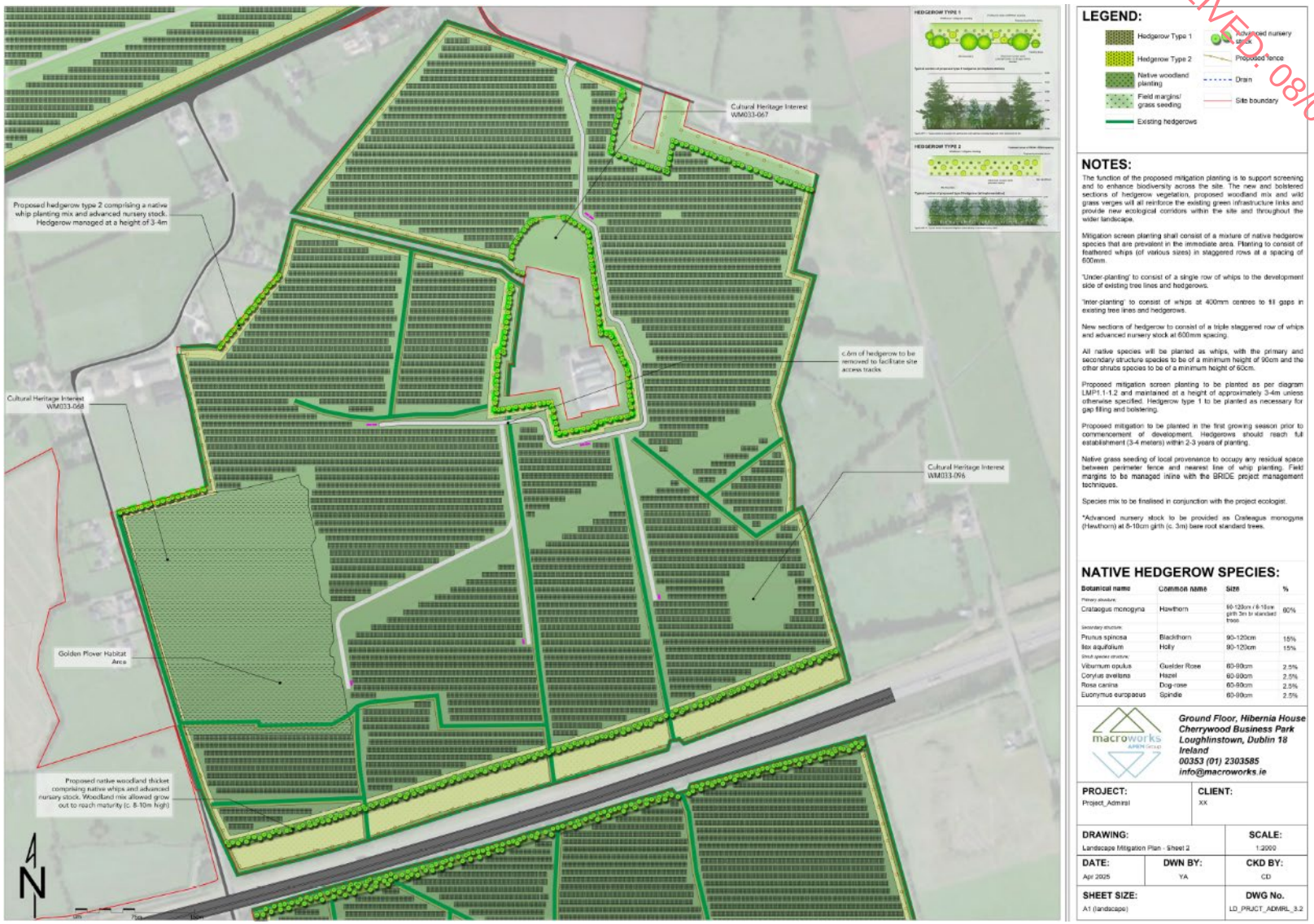


Figure 10 Landscape and Biodiversity Mitigation Plan – Solar Farm