AtkinsRéalis

Environmental Impact Assessment Report (EIAR) - Volume 2

Bord Gáis Energy Ltd.

February 2026

CASHLA PEAKER PLANT

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This document has 821 pages including the cover.

Document history

Document title: Environmental Impact Assessment Report (EIAR) - Volume 2

Document reference: 0114485DG0005

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
0	Draft	AMC	EE	DL	DL	18/06/2025
1	Draft	EE	AMC	EE	DL	07/08/2025
2	Draft	EE	AMC	EE	DL	12/09/2025
3	Draft	EE	DL	DL	DL	02/12/2025
4	Draft	EE	DL	DL	DL	07/01/2026
5	Draft	EE	DL	-	-	12/01/2026
6	Final	EE	EE / DL	DL	CW	10/02/2026
7	Final	EE	EE / DL	DL	CW	17/02/2026

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1. Introduction & Methodology

1.1 Background

Ireland is undergoing a rapid transition to a low-carbon electricity system, with increasing deployment of renewable energy technologies such as wind and solar. While these resources are central to achieving binding climate targets, their output is variable and is not always sufficient to meet electricity demand. Maintaining a reliable, secure supply therefore requires **flexible** generation capable of responding quickly when renewable output is insufficient.

The proposed Bord Gáis Energy (BGE) Peaker Plant (herein referred to as the Peaker Plant) plays a critical role in this context. Rather than competing with renewable energy, it functions as an enabler of the net zero transition, providing fast-response capacity that facilitates renewable generation to be safely connected to the grid. By bridging periods of low renewable output, the facility ensures grid stability and prevents supply shortfalls, supporting the integration of renewable generation, and storage technologies.

In doing so, the Peaker Plant safeguards electricity supply while facilitating the continued expansion of renewables. It is a transitional solution that ensures reliability today and enables Ireland to accelerate progress toward its binding climate and net zero targets.

The Proposed Project provides for a Gas-Powered Peaker Plant and associated infrastructure at Pollnagroagh / Rathmorrissy, Athenry, Co. Galway (Figure 1-1), which comprises four main elements: the Peaker Plant, Gas Networks Ireland (GNI) above-ground installation and gas pipeline, Electricity Supply Board (ESB) substation, and underground grid connection.

The GNI gas pipeline is subject to a separate consenting process via. GNI under section 39A of the Gas Act 1976, as amended. The remaining three elements (i.e. (1) the Peaker Plant, (2) above-ground installation, and (3) electricity transmission infrastructure [substation and underground grid connection]) constitute strategic infrastructure development (SID) under the Planning and Development Act 2000, as amended.

Different provisions of the Act apply depending on the type of SID:

- Standard SID development is applied directly to An Coimisiún Pleanála under section 37E of the Act.
- SID comprising electricity transmission infrastructure must be applied for under section 182B, as provided in section 182A of the Act.

Accordingly, the substation and underground grid connection will be the subject of a separate section 182B planning application by BGE, while the Peaker Plant and above-ground installation will be the subject of a section 37E planning application also by BGE.

The rationale for the separate planning applications, including details regarding pre-application consultation (PAC) with An Coimisiún Pleanála (ACP) for each application, is outlined in the Planning Statement prepared by McCutcheon Halley Planning Consultants.

For the purposes of this Environmental Impact Assessment (EIA), the Proposed Project has been assessed as a single, combined project. A single Environmental Impact Assessment Report (EIAR) has therefore been prepared to assess the environmental effects of the overall project.

The Proposed Project (hereafter referred to as 'the Site' or the 'Proposed Project') comprises the Peaker Plant, Gas Networks Ireland (GNI) above-ground installation and gas pipeline, Electricity Supply Board (ESB) substation, and underground grid connection. An Environmental Impact Assessment Report (An EIAR) which

assesses the Proposed Project as a single, combined project will be submitted for all planning applications (namely Section 37E SID application and Section 182B SID application).

The full planning application pack, including this EIAR will be available for public viewing from the ACP Office, Galway County Council Office, or the SID Application Website www.cashlapeakerplantsid.ie

The purpose of the Proposed Project is to provide additional generating capacity during periods when electricity demand is higher than average and it cannot be met by renewable generation, as previously noted. The Peaker Plant will function as a transitional solution, maintaining grid stability while renewable generation and energy storage capacity continue to expand. Flexible generation is recognised as a key part of the energy transition to net zero and energy security. The availability of renewable electricity (e.g., solar or wind) can be intermittent in nature and as a result, back-up conventional generation is needed to ensure stability and security of supply and to support the growth of renewable generation. The proposed Peaker Plant will help bridge this gap, by ramping up quickly to meet peak demand. The flexible nature of the plant means that it can be turned on and off to react to these fluctuations in renewable generation. The Peaker Plant will facilitate an increased penetration of renewable technologies on the grid, by providing the grid with energy when the output from renewable sources is insufficient to meet the energy requirements.

This plant will operate as a 'peaking plant' (herein referred to as the Peaker Plant) with low annual use operating only when requested by EirGrid to support the electrical transmission network and ensure continuity of supply. Such requests are only expected to be on occasions when the electricity demand is particularly high and there is insufficient renewable generation to fully meet this demand e.g. during a high atmospheric pressure period when the wind is low. A summary of the expected operating regime is presented in Chapter 2.

It is expected that construction will commence in Q2 2027 with design, construction, and commissioning activities lasting for approximately 18 months subject to planning being approved. The Proposed Project is expected to be fully operational by Q2-2029 subject to timely receipt of the necessary statutory consents (including EPA Industrial Emissions (IE) Licence).

The Peaker Plant will operate under an IE licence issued by the Environmental Protection Agency (EPA), ensuring that all emissions are strictly controlled. The licence sets enforceable Emission Limit Values (ELVs) for various media including air, water, and noise, providing clear limits to protect both the environment and human health. Continuous monitoring, reporting, and EPA oversight, guarantee compliance. These regulatory safeguards will ensure that the plant operates safely, minimising environmental impact while contributing to the reliable supply of electricity necessary to support Ireland's transition to a low-carbon, net zero energy system.

The plant's performance data will be accessible via. a Licence & Enforcement Access Portal (LEAP), the EPA's public-facing interface, allowing members of the public to view information on the plant's performance. This transparency ensures accountability. During its operation, the Peaker Plant will be minimally crewed with a small dedicated team who will be responsible for ensuring compliance with the operating IE licence, carrying out routine maintenance, attending meetings, accepting deliveries and security services.

1.1.1 Site Description

The Proposed Project boundary is presented in Figure 1-1, which includes the Proposed Peaker Plant Site, as detailed further below, as well as the construction of an ESB substation compound within the Peaker Plant site, and associated infrastructure, the construction of approximately 8.1 kilometres (km) of an underground grid connection route and laying of cable from the proposed ESB Substation in the Cashla Peaker Plant Site to the Cashla 220 kilovolt (kV) Substation along the L7109, L71093, L7108 and L3103 roads. The construction methodology includes three horizontal directional drilling (HDD) operations beneath the M6 and M17 motorways to minimise surface disruption. In total, the project site (as presented in the Proposed Project boundary in Figure 1-1) covers approximately 19.17 hectares (Ha).

The Proposed Peaker Plant Site is in a greenfield site located in Pollnagroagh, Athenry, ca. 18 km east of Galway City and ca. 2 km west of Athenry. The Proposed Peaker Plant Site is positioned between the northern and eastern arms of the M6/M18 interchange (Refer to Figure 1-1 and Figure 1-2). The Proposed Peaker Plant Site is agricultural in nature and generally surrounded by agricultural lands, with the M18 motorway bounding the west of the Site, and agricultural lands to the north, east and south of the Site, with the M6 motorway slightly further south. Access to the Site will be provided via a newly proposed ca. 1.15 km long access road connecting to the L3103, ca. 1 km east of the M17 motorway. The Site is close to an existing gas transmission pipeline, as well as the existing Cashla 220 kV electricity substation. Sporadic rural houses and agricultural properties are located within the vicinity of the proposed access point off the L3103.

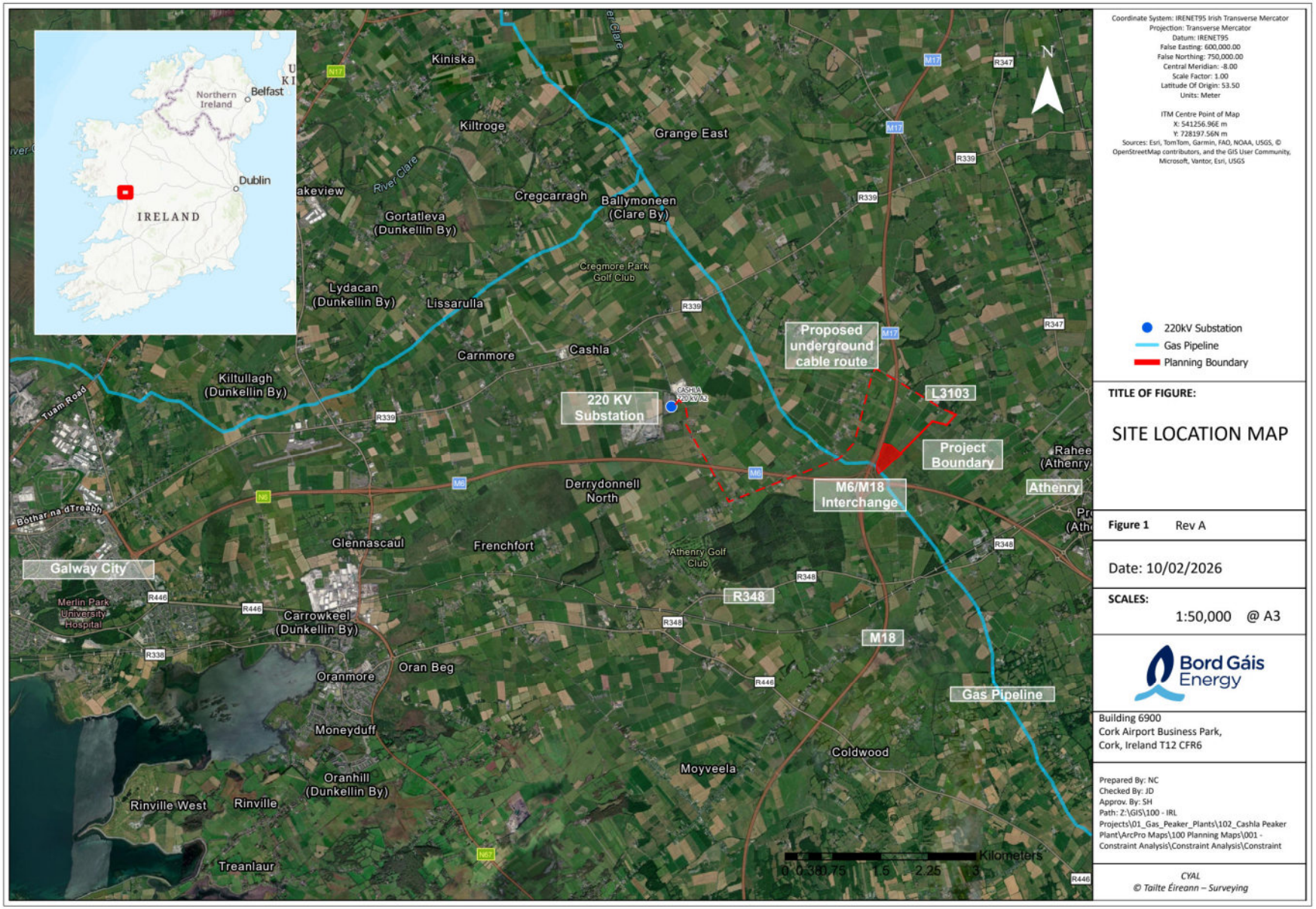

Figure 1-1 - Site Location (showing Proposed Project boundary)

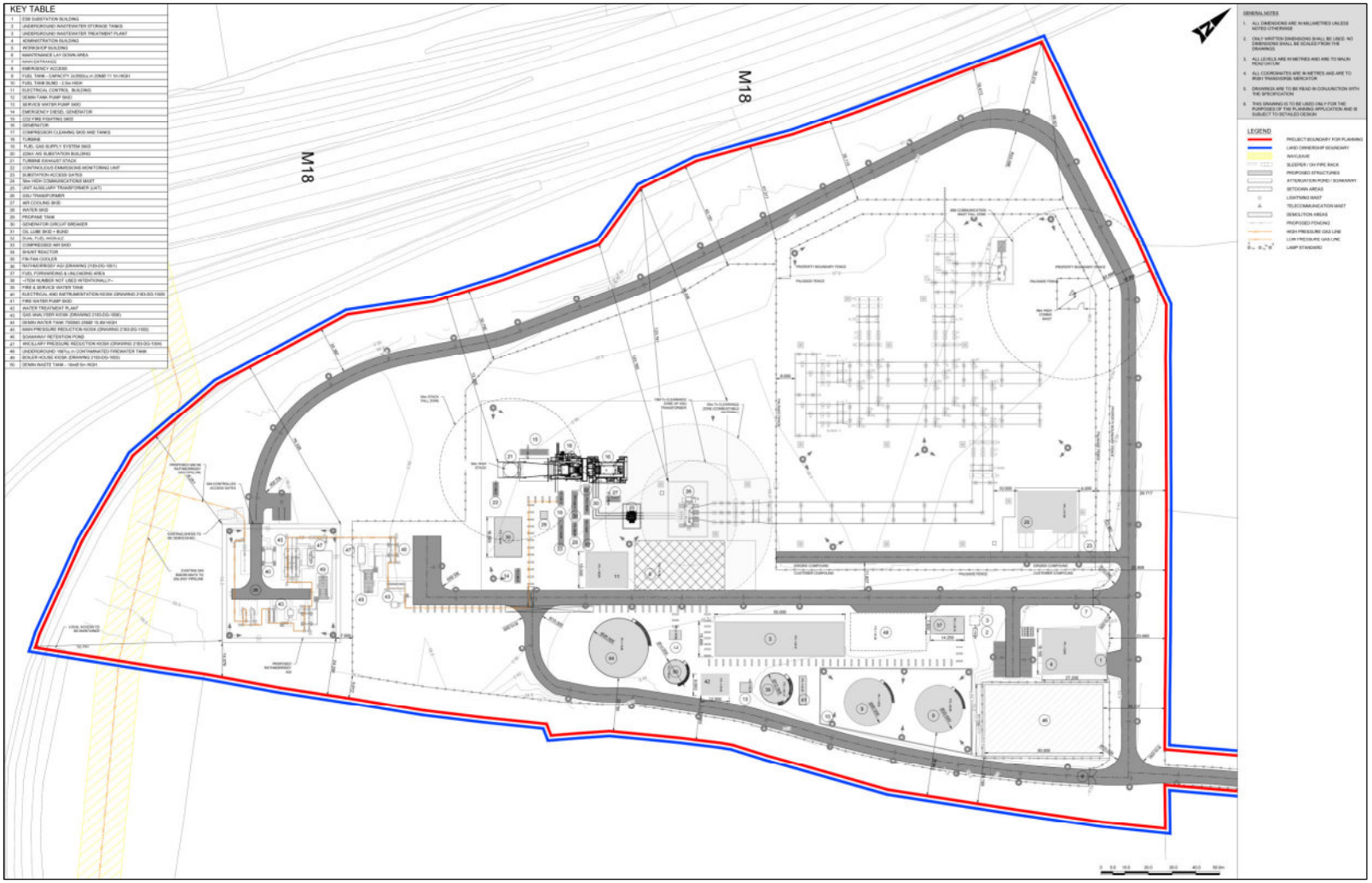

Figure 1-2 – Proposed Peaker Plant Site Layout (showing relevant section of Proposed Project boundary)

1.1.1.1 Terminology

For the purposes of clarity a description of the following key terms, as they have been applied throughout this EIAR (Volume 1 to 3), is summarised as follows:

- 'Proposed Project' refers to all technically, functionally and legally interdependent elements of the project (i.e. all aspects of the project within the Proposed Project boundary presented in Figure 1-1 and detailed in Section 1.1 of this EIAR, namely all four main elements: the Peaker Plant, Gas Networks Ireland (GNI) above-ground installation (AGI) and gas pipeline, Electricity Supply Board (ESB) substation, and underground grid connection);
- 'Site' refers to the site within the Proposed Project boundary, as presented in Figure 1-1;
- 'Proposed Peaker Plant Site' refers to the main Peaker Plant site and associated site boundary, as presented in Figure 1-2; and,
- 'Study Area' is defined by each subject matter expert and is relevant to the discipline being assessed, as described in detail in each of the technical chapters in this EIAR (Chapter 4 to Chapter 15).

1.1.2 Key Components

Detailed information of the design, construction and operation of the Proposed Project in its entirety is given in Chapter 2 Project Description.

Due to the nature of the Proposed Project, a description of the key components of the Proposed Project is provided here for ease of understanding. For the purposes of clarity, and as previously noted, all components of the Proposed Project as a whole, have been assessed within this EIAR.

This includes:

- the GNI146 Rathmorrissy Gas Pipeline which will be subject to a separate Section 39A consent process,
- the substation and underground grid connection will be the subject of a separate section 182B planning application by BGE, and,
- the Peaker Plant and above-ground installation will be the subject of a section 37E planning application also via. BGE.

Depending on the technology that is used, the open cycle gas turbine will have a total output capacity of either 325 Megawatts (MW) or 334MW. The turbine parameters are the same in both cases, it is only the output capacity that will change depending on the technology used. However, there may be minor differences in noise and vibration levels or emission levels, depending on which technology is used. Accordingly, this EIAR has fully assessed both technologies, as described in further detail in Chapter 4 to Chapter 15 of this EIAR.

1.1.2.1 The Peaker Plant

The Peaker Plant refers to all BGE assets within the Proposed Peaker Plant Site (as demarcated by the proposed fencing boundary; refer to Chapter 2 Project Description) which will be subject to an EPA IE licence. Refer to Figure 1-2 for the Proposed Peaker Plant Site Layout.

1.1.2.2 Rathmorrissy Above Ground Installation

To supply gas to the Proposed Project's gas turbine and generator, an above ground installation (AGI) will be built within the Proposed Project boundary. Gas Networks Ireland (GNI) will own and operate the AGI asset with the purpose of supplying a gas connection to the Peaker Plant, which requires this to operate. GNI will exclusively operate the underground transmission gas pipeline and carry out routine maintenance for the lifetime of the asset. For clarity, the proposed Rathmorrissy AGI is described by GNI in detail as follows:

''The installation of a Gas Networks Ireland above ground installation connected to the existing mains gas network within the south-western boundary of the site. The AGI (named Rathmorrissy) will be within a 2500 sq.m enclosure secured by a 2.4 m high fence with an access gate and will include internal access routes, concrete bases to support the infrastructure, and stone-chipped surfacing. The AGI installation comprises five single-storey buildings: the Gas Analyser Kiosk (6.25 sqm), the Boiler House Kiosk (37 sqm) including 10 no. boiler flues 5.67 m above ground level, PV panels at roof level, and emergency generator, two Pressure Reduction Kiosks – main (71.92 sqm) including 5.24 m high vents, and ancillary (21.7 sqm) including 3.72 high vents – and the Electrical and Instrumentation Kiosk (15.75 sqm). The compound includes 4 no. floodlighting columns (each 8 m in height). The development will include a gas meter, filters, heat exchangers, and above-ground pipework, and other ancillary works."

1.1.2.3 GNI146 Rathmorrissy Gas Pipeline

A new underground pipeline (43 m length) called the GNI146 Rathmorrissy Gas Pipeline will be built to connect to the existing Mayo-Galway pipeline (BGE/85) and ultimately the Rathmorrissy AGI (described above). The GNI146 Rathmorrissy Gas Pipeline for the AGI will be subject to an application to the Commission for Regulation of Utilities (CRU) under Section 39A of the Gas Act 1976, as amended. This involves:

New high pressure underground transmission gas pipeline (250 mm NB (Nominal Bore)) which will connect into the existing GNI BGE/85 Mayo to Galway pipeline via a hot tap connection to the Rathmorrissy Above Ground Installation. The underground transmission gas pipeline is subject to Section 39A consent under the Gas Act 1976, as amended.

1.1.2.3.1 Gas Act 1976 - Section 39A

The underground gas pipeline is subject to an application to the Commission for Regulation of Utilities (CRU) under Section 39A of the Gas Act 1976, as amended for:

- Installation of a hot tap into the existing Mayo-Galway pipeline (BGE/85).
- Construction of a steel pipeline connecting BGE/85 to the proposed Rathmorrissy AGI.

The CRU, when considering a Section 39A consent, must follow EIA requirements as they apply under the Planning Acts. In line with Section 40A of the Gas Act 1976 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). The CRU must be provided with details of the likely environmental impacts of the proposed pipeline.

The 43 m long GNI146 Rathmorrissy Gas Pipeline is an integral part of the Proposed Project. The CRU, in determining the Section 39A application, will therefore also be required to undertake an EIA for this element to ensure full compliance with the EIA Directive.

1.1.2.4 Underground Cable Grid Connection Route

The underground cable (UGC) grid connection route, will connect the proposed 4-Bay AIS substation within the Site to the existing Cashla substation. The UGC route is proposed along the northern access route to the Site, before turning west along the L3103 roadway to cross the M17 using HDD and turning south along an unnamed local road, which it follows as far as the Cashla Sub-station. 2 no. HDD crossings of the M6 are also required along the local road.

Refer to Figure 1-1 for the boundary of the Proposed Project, as summarised above, including the underground cable grid connection.

1.2 Applicant

BGE is one of Ireland's leading energy companies, providing gas, electricity and home services to Irish families and businesses for almost 50 years. BGE is an integrated energy company, which means BGE make energy, store it, move it, sell it, and help to maintain it. BGEs 445 MW Combined Cycle Gas Turbine (CCGT) plant at Whitegate, County Cork, has established BGE at the centre of energy security in Ireland, providing up to 10% of the country's energy needs. BGE has been part of Centrica Group plc since 2014, and is investing €1 billion over the next five years to support Ireland's transition to a low-carbon economy. This includes the development of two Peaker Plants in Athlone and Dublin to provide flexible electricity generation to the grid, along with the Proposed Peaker Plant.

The Peaker Plant will be owned and operated by BGE. It is intended to employ an engineering, procurement, and construction (EPC) Contractor for the provision on a turnkey basis of a single Open Cycle Gas Turbine (OCGT) with all its associated ancillary plant and facilities. The Peaker Plant is expected to be fully operational by Q2-2029, subject to timely receipt of the necessary statutory consents. It is proposed that the Peaker Pant will operate until 31 December 2050. At the end of the operational period the facility will be decommissioned.

The AGI will be owned and operated by Gas Networks Ireland.

1.3 Need for the Project

The following section sets out the need for the project with specific reference to the policy support for the proposed project, the rationale for open-cycle vs combined-cycle technology and the operational lifespan proposed.

The purpose of this project is to enhance the capacity of the national grid by providing additional generating power when renewable energy production is insufficient to meet demand. Operating as a 'peaker plant' with minimal annual use (i.e. anticipated to be in the order of 100 hours per annum though actual dispatch will be determined by system requirements), the facility will provide backup or 'flexible' generation during critical periods when renewable energy sources are not sufficient to meet demand.

For the avoidance of doubt, the term 'peaker' in this context refers to a dispatchable, fast-start facility operating intermittently to support system adequacy during periods when 'renewable energy sources' cannot meet demand.

1.3.1 Policy Support

The need for new gas demand flexibility measures, such as the Cashla Peaker Plant Project, is directly related to energy security and is highlighted in national planning, regulatory and power system operator policies. This is particularly emphasised in the '*Policy Statement on Security of Electricity Supply'* published by the Government in November 2021 where it states that the Government has approved that:

> "*the development of new conventional generation (including gas-fired and gasoil/distillate-fired generation) is a national priority and should be permitted and supported in order to ensure security of electricity supply and support the growth of renewable electricity generation*…". (p.5)

Planning authorities were advised through *Circular Letter PL/2021 - Government Policy Statement on Security of Electricity Supply,* issued by the Government on the 10th December 2021, that where planning applications are submitted for electricity infrastructure or infrastructure that may impact on electricity supply – including for existing conventional electricity generation – that they should, until further notice, be considered having regard to the Policy Statement on Security of Electricity Supply. The National Energy Security Framework, published

by the Government in 2022, further reiterated the importance of increasing the level of dispatchable electricity generation capacity significantly over the coming years in order to reliably meet the expected demand for electricity.

'Energy Security in Ireland to 2030', which was published by the Government in November 2023 as part of an Energy Security Package, outlines a new strategy to ensure energy security in Ireland for this decade, while ensuring a sustainable transition to a carbon neutral energy system by 2050. The strategy acknowledges that Ireland's current energy system presents several risks in ensuring uninterrupted availability of energy sources. Two key risks relevant to the project are supply-side risks and demand-side risks.

From a supply-side perspective, the report notes that

> *"Supply-side risks usually occur where there is the loss of supply from production or infrastructure facilities. Potential disruptions to supply can be caused by (i) infrastructure or technical risks such as an outage of network infrastructure facilities, (ii) market risks such as expected imports being diverted to other markets due to sudden events and price responsiveness (this includes price risk rather than loss of physical supplies), and (iii) geopolitical risks such as when a key supply source becomes unavailable or significantly reduced due to global geopolitical events and/or natural disasters. As one of the most energy import dependent countries in the EU with limited diversity of supply, Ireland is exposed to this risk. In 2022, 82% of Ireland's energy needs came from imports. 48% of energy used in 2022 was from imported oil and nearly 31% from natural gas. 74% of Ireland's natural gas came from imports through two interconnectors from the UK*." (p.8)

From a demand-side perspective, the reports states that

> *"a risk can occur where there is the possibility of sudden increases in energy demand over a relatively short period of time that cannot be met by corresponding increases in supply. Demand-side risks are generally caused by weather-related events such as cold snaps or periods of low wind or a combination of these events."* (p.9)

The strategy recognises that, while the supply-side risks will reduce as Ireland increases its renewable energy generation capacity, there will be an increase in demand-side risks as we transition away from fossil fuels such as coal and oil. Weather events will impact on the availability of renewables such as wind and solar power and the dependence of the electricity system on natural gas is expected to increase in the short- to medium-term, particularly at times of very low wind.

> "*In addition, the peak day demand for natural gas is expected to increase. This means the electricity system will continue to rely on natural gas as a fuel source as it transitions to a majority-renewables system and phases out natural gas in the medium-term*." (p.9)

Taken together, national energy and climate policy clearly recognises that additional flexible, dispatchable electricity generation is required as a matter of public interest to maintain security of supply during the transition to a renewables-led electricity system. This need is identified at national level and is not dependent on local electricity demand.

The strategy document sets out a number of actions required to strengthen Ireland's Energy Security including Action 8 *'to complete the implementation of the CRU Security of Electricity Supply Programme'*. This action acknowledges the programme of work undertaken by the Commission for the Regulation of Utilities (CRU) to mitigate the risks of an identified shortfall in generation capacity in the electricity sector since the declaration of a capacity crisis in this sector in 2021. The procurement of at least 2GW of new, flexible, enduring, capacity through market mechanisms is included in the CRU-led Security of Supply programme of actions under Action 8.

This target is also reflected in the latest annual Climate Action Plan published by the government, Climate Action Plan 2025 (CAP 2025), which sets out the specific target to deliver at least 2GW of new flexible gas plant by 2030. CAP 2025, to be read in conjunction with CAP 2024, reiterates the role of flexible capacity in maintaining security of supply during the net zero transition. CAP 2024 states that:

> *"Considerable progress has been made in decarbonising the electricity sector, resulting in electricity emissions falling by 45% between 2001 and 2022. This was possible through the deployment of renewables and their successful integration into the electricity grid, as well as the increased use of higher efficiency gas turbines. 2021 and 2022 have seen increases in emissions of 1.4-1.5 million tonnes when compared to 2020, as 2021 saw both a "low wind" yield and a number of outages of the lower-carbon intensity gas-fired generators, resulting in an increase in the use of coal and oil. This highlights the need to diversify our renewable electricity generation sources and increase our gas-fired generation capacity*." (p,158)

The Cashla Peaker Plant project directly supports the achievement of this and depending on, depending on the technology that is used, the turbines will have a total output capacity between 325MW and 334MW (refer to Chapter 8: Climate of EIAR) and as such is aligned with Government policy on security of electricity supply and the transitional pathway set out in national climate and energy policy.

As set out in the letter prepared by Mason, Hayes and Curran LLP (MHC) enclosed in Appendix 1-2, Volume 3 of the EIAR, under S34(13) of the Planning and Development Act 2000 (as amended) "*A person shall not be entitled solely by reason of a permission under this section to carry out any development*" (p.2). In this regard it is important to note that the Proposed Development has been allocated a capacity contract in the 2028 / 2029 T-4 Capacity Auction. As stated by MHC in the enclosed letter, the importance of the capacity contract is twofold:

> "*Firstly, this is an important requirement outside of planning to facilitate development...*
>
> *Secondly, it is notable that the capacity auctions, run by EirGrid and SONI in their roles as Transmission System Operators in Ireland and Northern Ireland respectively, through the joint venture SEMO (Single Electricity Market Operator) were designed by the electricity regulators in Ireland and Northern Ireland to ensure sufficient capacity is secured to meet demand across the island."* (p.3)

It is clear from the awarding of the capacity contract to the Cashla Peaker Plant that the project is deemed necessary by the electricity regulators to ensure that sufficient capacity is secured to meet demand, and there is a need for this project in line with the actions set out in the national energy security package.

The allocation of a capacity contract does not confer any planning entitlement and is not relied upon as such; rather, it is material evidence that the Proposed Development forms part of the regulated framework designed to ensure sufficient generation capacity is secured to meet forecast demand.

In planning terms, electricity generation infrastructure of this nature serves a strategic, national function and is not directed by local demand in the manner of conventional land uses. While national policy establishes the need for such development in principle, the suitability of the Proposed Project at this location has been assessed having regard to the availability of grid and gas infrastructure and the capacity of the receiving environment to accommodate the development without significant environmental effects, as addressed in this EIAR.

1.3.2 Open Cycle Vs Combined Cycle Technology

As set out above, the purpose of the Cashla Peaker Plant is to provide backup or 'flexible' generation during critical periods when renewable energy sources are not sufficient to meet demand. It is therefore essential that the project is designed to allow for a quick response to shortfalls in power generation at times of high demand and low outputs of renewable energy. This is a critical factor when considering whether to use open-cycle or

combined-cycle technology in the design of a peaking power plant. For the proposed development, open-cycle technology was selected and the rationale for this is set out in detail in Chapter 3 Reasonable Alternatives of this EIAR.

In summary, the open-cycle technology configuration provides a much quicker response time to start and begin generation in comparison to combined-cycle. This fast response time is required to meet the rapid changes in the transmission grid electrical supply and demand imbalance. The time to reach maximum load for an open cycle gas turbine is about 30 minutes but can be over 2 hours for a combined cycle. Therefore, if, for example, EirGrid require 1 hour of generation at a given time, the combined cycle technology would combust fuel at various loads for at least 1.5 hours more than the open cycle technology before the required 1-hour operating period. On this basis, the combined cycle technology would consume more fuel for the total period and therefore produce more total emissions in the context of a peaking plant.

While it is acknowledged that over longer operating periods combined cycle gas turbines are more efficient and produce less emissions per MW once operating at maximum load, for short generation periods to support the grid, the combined cycle can require more fuel to be combusted and therefore more emissions due to its much longer startup time compared to an open cycle. On this basis, an open cycle design is appropriate for the function of a Peaker Plant operating for occasional short peak periods to support the grid.

The consideration of reasonable alternatives, including alternative technologies, is addressed in detail in Chapter 3 of this EIAR in accordance with the requirements of the EIA Directive.

1.3.3 Operational Life

An operational life up to and including the 31st December 2050 is proposed for the project. The operational life sought is based on the use of natural gas to fuel the turbine.

As detailed above, the use of natural gas to fuel the turbine for an operational period up to the end of 2050 is anticipated in national policy where flexible gas generation in support of renewable energy sources is recognised as a critical component of the achievement of energy security in Ireland. As such the proposal is aligned with Government policy on security of electricity supply and the transitional pathway set out in national climate and energy policy as set out in the Climate Action and Low Carbon Development Act 2015, as amended by the Climate Action and Low Carbon Development (Amendment) Act 2021 (together the “Climate Act”), to achieve a climate neutral economy by no later than the end of 2050. In this regard, the letter provided by MHC in Appendix 1-2, Volume 3 of the EIAR, includes the following extracts from the judgments of the High Court and Supreme Court in Coolglass Wind Farm Limited v An Coimisiún Pleanála [2025] IEHC 1, [2026] IESC 5:

> High Court, at para132
>
> *“The concept of net zero implies a continuing necessity for some emissions in the short term at least. That relates to the fact that pending complete adaptation of the economy, there will be other imperatives of economic necessity that require projects that, in and of themselves, wouldn’t support climate goals in isolation.”*
>
> Supreme Court, at para 86
>
> *“The second reason the [High Court] judgment gives is more important. It acknowledges that the concept of net zero contemplates a balance between projects, and can encompass some which may be emission generating, but are of particular economic, social, and community advantage, and other projects. Because the national climate objectives are stated as a total global figure, the refusal of permission for a particular project which is said to be climate friendly, and the grant of permission for one which may create greenhouse gases, may still be consistent with the overall achievement of climate targets. A target is a net one to be assessed globally. But if that is so, and*

it is, the qualified consistency obligation imposed by s. 15(1) cannot be the sole or even principal determinant of the refusal or grant, or grant subject to conditions (subject to practicability) of planning permission. Considerations of proper planning and sustainable development are necessarily taken into account in any decision, and the High Court judgment correctly recognises that emission creating developments may be properly permitted."

It is noted that the turbine is technically capable of operating on alternative gaseous fuels, including biomethane and hydrogen. This is subject to the future decarbonisation of the national gas network, as anticipated in relevant Government and gas system operator policy such as Gas Networks Ireland's (GNI) strategy for decarbonisation '*Pathway to a Net Zero Carbon Network'* published in 2024 and the '*National Biomethane Strategy'* published by the Government in 2024. However, the operational life sought has been assessed on a conservative, worst-case basis assuming continued operation on natural gas, in order to ensure compliance with national climate policy and legal requirements.

The operational life applied for does not imply any entitlement to operate beyond the period sought. Any proposal to extend the operational life of the plant or to repower it would constitute a separate project and would be subject to the relevant statutory consent requirements and any associated environmental assessment, having regard to the policy and environmental context prevailing at that time.

As described in the MHC letter provided at Appendix 1-2, Volume 3 of the EIAR, the competent authority is required to perform its functions in a manner consistent with climate objectives in so far as practicable, alongside other matters of public interest, including the maintenance of security of electricity supply.

1.3.4 Policy Context

This section provides an overview of the key European and National policy documents relevant to the Proposed Project. Further detail on the planning policy context is outlined in the planning statement that accompanies the planning application, including the Regional and Local planning policy context, and should be read in conjunction with this section of the EIAR.

1.3.5 European Policy Context

Current European energy policy places strong emphasis on maintaining security of electricity supply alongside decarbonisation. As renewable generation capacity increases, the electricity system becomes more dependent on assets capable of responding quickly to fluctuations in demand and variable generation.

European policy recognises that flexible and dispatchable generation continues to play a role in safeguarding system resilience, particularly during periods of extreme weather, seasonal peak demand, and reduced renewable output. Infrastructure designed to operate at limited load factors and provide rapid response capability is therefore consistent with the objectives of ensuring a stable and reliable energy system during the transition to climate neutrality.

The recognition of transitional infrastructure reflects the understanding that the pathway to climate neutrality will require phased change, during which existing and new assets may provide essential support functions while longer-term solutions such as large-scale energy storage and renewable overcapacity continue to develop.

1.3.5.1 European Green Deal – 2019

The European Green Deal, set out in the communication from the Commission of 11 December 2019 (the 'European Green Deal'), Regulation (EU) 2021/1119 of the European Parliament and of the Council, established the objective of climate neutrality in the Union by 2050 and an intermediate target of a reduction of net greenhouse gas emissions by at least 55% compared to 1990 levels by 2030.

The Union's climate neutrality objective requires an increase in energy efficiency and significantly higher shares of energy from renewable sources.

In pursuing these objectives, European policy recognises that the transition to a climate-neutral energy system must be achieved while maintaining security of supply and system resilience. Infrastructure that supports efficient system operation and manages peak demand during periods of variable renewable generation is therefore consistent with the objectives of the European Green Deal.

1.3.5.2 European Climate Law 2021

The European Climate Law (Regulation (EU) 2021/1119) came into effect in July 2021, as part of the European Green Deal framework aimed at making the European Union climate-neutral by 2050.

The regulation legally binds the European Union as a whole to achieve climate neutrality by 2050, setting an intermediate target of at least a 55% net reduction in greenhouse gas emissions by 2030 relative to 1990 levels.

It establishes a legal obligation for Member States to ensure that their national legislation, policies, and measures are consistent with achieving the Union's 2030 and 2050 climate targets.

In this context, European climate policy recognises that measures to reduce greenhouse gas emissions must be accompanied by provisions that ensure the continued operability and resilience of the electricity system. Energy infrastructure that supports reliable system operation during periods of peak demand or reduced renewable generation is compatible with the objectives of the European Climate Law, provided it operates within the broader framework of emissions reduction and system transition.

1.3.5.3 Renewable Energy Directive (RED II & III)

The Renewable Energy Directive (Directive (EU) 2018/2001) (RED II) entered into force in 2018 as part of the '*Clean energy for all Europeans*' package aimed at maintaining the EU's status as a global leader in renewables and, more broadly, helping it to meet its emissions reduction commitments under the Paris Agreement.[1] It was subsequently amended by Directive (EU) 2023/2413 (RED III) in 2023 which set an overall binding EU-wide target of at least 42.5% renewable energy consumption by 2030, but with an aspirational goal of 45%.

While the RED III focuses on increasing the proportion of energy generated from renewable sources, it also operates within a wider policy framework that recognises the need for electricity systems capable of integrating variable renewable generation. Infrastructure that supports system flexibility and reliability during periods of low renewable output or peak demand plays an enabling role in facilitating the increased deployment of renewable energy envisaged by RED III.

1.3.5.4 RePower EU

REPowerEU is a plan published by the European Commission in 2022 to phase out Europe's reliance on Russian fossil fuels by 2030. It aims to achieve this by accelerating clean energy, diversifying energy supplies, implementing energy saving measures and providing financial support.

REPowerEU places strong emphasis on improving the resilience and security of Europe's energy system through diversification of supply and the maintenance of reliable electricity infrastructure. Within this context, energy assets that support system flexibility and provide dependable capacity during periods of supply

[1] The Paris Agreement is a 2015 international treaty under the UNFCCC aiming to limit global warming to well below 2°C, while pursuing efforts to limit it to 1.5°C.

constraint or peak demand are consistent with the objectives of strengthening energy security during the transition to a lower-carbon energy system.

1.3.5.5 EU Electricity Market Design Reform (2024–2026)

The EU Electricity Market Design Reform, adopted in 2024 and implemented across Member States from 2025 onwards, updates the regulatory framework governing electricity markets to reflect higher penetrations of variable renewable energy. The reform places increased emphasis on security of supply, system adequacy, and flexibility, recognising that dispatchable capacity remains necessary to maintain grid stability during periods of peak demand and low renewable output.

The reformed framework supports the continued role of capacity mechanisms and flexible generation assets as part of a resilient energy system, particularly during the transition to a climate-neutral electricity sector. This policy context is relevant to the consideration of infrastructure that provides short-duration, low-load-factor generation in support of renewable integration.

1.3.5.6 Fit for 55 – Implementation Phase

The Fit for 55 legislative framework represents the primary mechanism for delivering the European Climate Law's binding emissions reduction targets. By 2026, the majority of Fit for 55 measures have moved from policy adoption into implementation at Member State level, including reforms affecting energy markets, emissions trading, and renewable deployment.

The framework acknowledges that achieving net-zero greenhouse gas emissions requires both rapid expansion of renewable energy and measures to ensure electricity system resilience and reliability during the transition. Within this context, energy infrastructure that supports system flexibility and peak demand management is recognised as compatible with the European Union's decarbonisation objectives.

1.3.6 National Policy Context

1.3.6.1 Policy Statement on Security of Electricity Supply – 2021

The Policy Statement on Security of Electricity Supply sets out a number of updates to national policy in the context of the Programme for Government commitments relevant to the electricity sector, planning authorities and developers. It addresses and responds to challenges, including rising electricity demand, the planned retirement of older dispatchable generation capacity, and delays in the delivery of new flexible generation projects.

The statement confirms government approval for the development of new conventional generation (including gas-fired and gasoil/distillate-fired generation) as a national priority and should be permitted and supported in order to ensure security of electricity supply and support the growth of renewable electricity generation. The Government's approach to electricity security, as set out in the 2021 Policy Statement, has since been reaffirmed and expanded upon in the broader National Energy Security Framework (2022).

1.3.6.2 Climate Action and Low carbon Development (Amendment) Act – 2021

The Climate Action and Low Carbon Development (Amendment) Act 2015 as amended by the Climate Action and Low Carbon Development (Amendment) Act 2021 was introduced to strengthen Ireland's legislative framework for climate action in response to both domestic climate policy objectives and international obligations under European and international climate agreements, including the European Climate Law (Regulation (EU) 2021/1119).

The 2021 Act legally commits Ireland to achieving a 51% reduction in greenhouse gas emissions by 2030 (relative to 2018 levels) and to reaching net-zero emissions no later than 2050.

1.3.6.3 Climate Action Plan 2025

Under the Climate Action and Low Carbon Development (Amendment) Act 2021, the government are required to make a Climate Action Plan (CAP) annually. The Climate Action Plan 2025 (CAP25), approved by the Irish Government on 15 April 2025, is the third statutory update to the CAP under the Climate Action and Low Carbon Development (Amendment) Act 2021.

It reaffirms the national commitment to a 51% reduction in greenhouse gas emissions by 2030 (relative to 2018 levels) and climate neutrality by 2050. The Plan emphasises the importance of accelerated implementation across key sectors and highlights the need for a flexible and resilient electricity system to support increased renewable generation. The delivery of at least 2GW of New Flexible Gas Plant by 2030 is included as a national target within the CAP 25 alongside other renewable energy generation targets, recognising the role that flexible gas plants have to play in supporting a flexible and resilient electricity system.

1.3.6.4 National Energy Security Framework – 2022

The National Energy Security Framework, published by the Department of the Environment, Climate and Communications, sets out Ireland's response to energy security challenges arising from the war in Ukraine and broader market volatility. It complements existing national and energy policies, and establishes immediate, medium, and long-term, actions aimed at safeguarding the security of energy supply while advancing the energy transition.

While the Framework prioritises reducing dependency on imported fossil fuels through accelerated and renewable energy deployment and energy efficiency, it acknowledges that oil, gas, and coal supplies will continue to be required in the short-to medium-term to maintain energy security.

In this context, the framework recognises the critical role of natural gas in electricity generation, and the importance of maintaining sufficient dispatchable generation capacity and backup fuel capabilities during the transition period.

1.3.6.5 National Development Plan 2021–2030

The National Development Plan (NDP) was published by the Government of Ireland as the capital investment strategy underpinning Project Ireland 2040. It was prepared to align public infrastructure investment with the objectives of the National Planning Framework (NPF), including balanced regional development, climate action and economic resilience.

The NDP commits to over €165 billion in capital investment across sectors, with major funding allocated to energy infrastructure, including the electricity grid, renewable energy integration, and system resilience measures. The NDP outlines that ensuring continued security of energy supply is considered a priority at national level and within the overarching EU policy framework in which the Irish energy markets operate. In the short-to-medium-term, conventional (mainly gas-fired) electricity generation capacity is noted as being critical to support the operation of the electricity system and to provide security of supply for when variable generation (wind/solar) is not sufficient to meet demand. In this regard, the NDP states that at least 2 GW of new conventional electricity generation capacity will need to be delivered over the course of the coming decade with much of this needed by mid-decade.

A review of the NDP was carried out in 2025. On foot of this process, a revised NDP was published in July 2025. This plan recognises that to invest in infrastructure and address the infrastructure deficit is the best way

to safeguard Irelands economy, drive growth and opportunity, protect jobs, increase competitiveness and ensure prosperity for communities.

1.3.6.6 Revised National Planning Framework – 2025

The Revised National Planning Framework (NPF), approved by Government in April 2025, updates Ireland's long-term, spatial strategy to reflect emerging challenges including climate action targets, energy security, and infrastructure resilience. The revised framework was prepared in the context of evolving national commitments to climate neutrality by 2050, increased electricity demand projections, and heightened risks to energy supply arising from international geopolitical developments.

It places stronger emphasis on ensuring the resilience and security of Ireland's energy systems, recognising the need for fuel diversification, enhanced system flexibility, and investment in critical infrastructure.

National Strategic Outcome (NSO 8) 'Transition to a Low Carbon and Climate Resilient Society' is the main NSO that pertains to the Proposed Project. It recognises the need to:

'Reinforce the distribution and transmission network to facilitate planned growth and distribution of a more renewables focused source of energy across the major demand centres.'

Chapter 9 of the revised NPF 'Climate Transition and Our Environment' recognises the need to accelerate action on climate change for allow carbon energy future. In this regard, National Policy Objective 69 seeks to:

'Reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy, mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions as expressed in the most recently adopted carbon budgets.'

The framework acknowledges the transitional role of natural gas in supporting energy security, as follows:

'Gas will continue to play a key role to support the secure transition to an energy system, based on electrification and greatly increased renewables penetration.'

1.3.7 Energy Security in Ireland to 2030

Ireland is currently one of the most energy import dependent countries in the EU, having imported 77% of its energy supply in 2021 and 82% in 2022. Energy Security in Ireland to 2030 outlines a new strategy to achieve energy security in Ireland for this decade, while ensuring a sustainable transition to a carbon neutral energy system by 2050. The strategy outlines areas where action is required to fulfil this ambition including the introduction of gas demand flexibility measures. Demand-side mechanisms developed in the gas sector will not only reduce system stress when needed, but it can also ensure Ireland is efficiently using its gas infrastructure – an important component of meeting national emissions ambitions.

The strategy also aims to ensure that all of the required policy enablers are in place for a secure transition to a renewables-led electricity sector including to complete the implementation of the CRU Security of Supply Programme. The CRU-led Security of Supply Programme includes the procurement of at least 2 GW of new flexible, enduring, capacity through market mechanisms by 2030 as one of its key actions.

1.3.7.1 Ireland's Long-term Strategy on Greenhouse Gas Emissions Reduction – 2024

This strategy document is the first Long-term Climate Action Strategy prepared under the Climate Action and Low Carbon Development Act 2021. This strategy recognises that in the transition to a climate neutral future,

the pathway to decarbonisation must be underpinned by affordability and security in how we access and use energy, which includes the requirement for new gas-fired generation as back-up.

1.3.7.2 National Climate and Energy Plan 2021 – 2030

National Energy and Climate Plans (NECPs) are the framework within which European Union Member States must set out their climate and energy objectives, targets, policies, and measures to the European Commission. Energy Security is a key priority in the NECP and the plan recognises that continuing secure supply of gas is crucial to support a highly renewable electricity system given the variability of wind and solar energy. It is a specific objective in the NECP to ensure that there is sufficient flexibility in the energy system to maintain energy security of supply and facilitate the integration and transition to clean energy sources in the most cost-effective way.

1.3.7.3 All-Island Resource Adequacy Assessment 2025 – 2034

The All-Island Resource Adequacy Assessment looks at the balance between electricity demand and supply on the island of Ireland for the next 10 years. It is an evolution of the Generation Capacity Statement (GCS), supported by the CRU. The assessment predicts a challenging outlook for Ireland with capacity deficits identifies in some years across the study horizon due to the closure of some older conventional generators, the declining performance of other generators on the system and the demand for electricity forecast to increase. The analysis shows that further new electricity generation will be required to secure the transition to high levels of renewable electricity over the coming decades.

1.3.8 T-4 Capacity Auction

The CRU and EirGrid, Irelands' Transmission System Operator (TSO), collaborate on capacity market auctions in Ireland. These auctions ensure sufficient electricity generation capacity to meet demand. The auctions are designed to incentivise investment in new generation and ensure security of supply. They take place every year to secure the necessary capacity is secured, typically for four years in advance of the delivery year (T-4). These T-4 auctions are crucial mechanisms for ensuring the security of electricity supply by procuring capacity well in advance of when it's needed.

The CRU uses "Directions to Connect" to set the framework for how electricity system operators (EirGrid and ESB Networks) handle connection requests from generators, storage facilities, and other large energy users to the electricity grid. These directions ensure that connections are managed efficiently and in a way that prioritizes security of supply. The CRU issued a "Direction to Connect" for successful capacity market auction winners in 2021. This meant projects were assessed initially by EirGrid as possible to connect and adding useful capacity to the electricity system to alleviate security of supply concerns. The auction winners were then guaranteed an electricity connection. That "Direction to connect" has been reissued every auction since, including the auction BGE were successful in, during December 2024, for delivery in 2028/29.

1.4 Development Description

The following provides a summary description of the project assessed as part of the EIAR. The overall project is subject to two separate planning applications: one for the proposed Cashla Peaker Plant and one for the electricity transmission infrastructure. The project will function as a balancing asset, operating intermittently during periods of low renewable energy generation and high electricity demand. Notwithstanding the dual consenting approach, the developments constitute a single, integrated project, whereby the peaker plant will generate electricity for supply to the national grid. The submission of separate planning applications arises solely from planning legislation requirements, which necessitate distinct applications for Strategic Infrastructure Development.

Each application will seek a 10-year permission and detail on the relevant statutory development description is set out in the planning application form.

The proposed operational life is up to and including the 31st of December 2050, which is tied to Ireland's Climate Action Plan 2025.

The project site is approximately 19.17 hectares. This is broken down into the 'Cashla Peaker Plant Site' which is approximately 11.54 hectares and is located within the townlands of Pollnagroagh and Rathmorrissy, Athenry, Co. Galway. The balance, 7.63 hectares, relates to the grid connection and substation and is located across the townlands of Rathmorrissy, Pollnagroagh, Moanbaun, Castlelambert, Knocknacreeva, Caraunduff, Caherbriskaun, Lisheenkyle East, Barrettspark, Cashla, Athenry, Co. Galway. The grid connection route traverses approximately 8.1km including along the L7109, L71093, L7108 and L3103 roads.

The project comprises the following infrastructure:

a) The construction of an open-cycle gas turbine (OCGT) and generator with ancillary equipment including a 30m high stack and emissions monitoring unit, fuel storage and supply systems, cooling and air systems, compressed air and gas handling skids, a grid step-up transformer within a bund, an auxiliary transformer, a generator circuit breaker and an emergency diesel generator. The construction of ten buildings on-site including one single-storey administration building (approximately 390sqm), one-single storey ESB Substation building (approximately 32.5sqm), one single-storey workshop building (approximately 750.5sqm), one single storey water treatment plant building (approximately 104sqm), fuel forwarding and unloading area (approximately 104sqm), one single-storey electrical control building (approximately 243.5sqm), one single storey gas analyser kiosk (approximately 6.25sqm), one single-storey boiler house kiosk (approximately 37sqm), one single-storey ancillary pressure reduction kiosk (approximately 21.7sqm) and a single-storey electrical and instrumentation kiosk (approximately 19sqm). The installation of five above-ground tanks including two bunded fuel tanks (approximately 11.1m high), one fire and service water tank (approximately 13m high), one demineralised water tank (approximately 15.4m high) and one demineralised waste tank (approximately 5m high).

b) The construction of a Gas Networks Ireland (GNI) above ground pressure regulating installation, known as an Above Ground Installation (AGI). The AGI (named Rathmorrissy AGI) will connect to the mains transmission gas network which exists within the site. The AGI infrastructure will occupy an enclosed area of approximately 2,500 sq.m. It encompasses five single-storey buildings: the gas analyser kiosk (approximately 6.25 sqm), the boiler house kiosk (approximately 37 sqm) including 10 no boiler flues approximately 5.67 m above ground level and emergency generator, two pressure reduction kiosks – main (approximately 72 sqm) including approximately 5.24 m high vents, and ancillary (approximately 26 sqm) including approximately 3.72 high vents – and the electrical and instrumentation kiosk (approximately 19 sqm). Ancillary infrastructure will include a gas meter, filters, heat exchangers, and above-ground pipework. The compound will include lighting, 3 no. parking spaces, internal access routes, concrete bases to support the infrastructure, and stone-chipped surfacing. It will be secured by an approximately 2.4 m high fence with an access gate.

   It is noted that the connection to the existing mains gas network (Mayo–Galway pipeline (BGE/85)) will be undertaken via a new transmission pipeline (named GNI146). The GNI146 gas pipeline is subject to Section 39A Consent under the Gas Act 1976, as amended.

c) Ancillary works including the provision of a new gated vehicular entrance off the L3103, the construction of an access road from the proposed Cashla Peaker Plant Site entrance to the new entrance off the L3103, the demolition of one farm outbuilding (in ruin), construction of internal access roads, hardstanding, security fencing (2.4m high), CCTV and gates, provision of a wastewater treatment system and associated underground wastewater storage tanks,

drainage (foul and storm), soakaway retention pond, propane tank, construction of underground firewater retention tanks, provision of parking (12 no. spaces including mobility and EV Parking) and laydown area, 20 no. cycle parking spaces, landscaping and all ancillary on-site development works.

d) The electricity transmission infrastructure comprises the construction of an ESB substation compound within the Cashla Peaker Plant site. The infrastructure will include a 4-bay 220 kV substation incorporating a single-storey Air-Insulated Switchgear (AIS) substation building (approximately 388sqm) and access road; a 36m high telecommunications mast; a shunt reactor, ancillary works including lighting, security fencing (2.4m high), internal tracks, and 4 no. carparking spaces. It also consists of the construction of approximately 8.1 kilometres of an underground grid connection route and laying of cable from the proposed ESB Substation in the Cashla Peaker Plant Site to the Cashla 220kV Substation. The construction methodology includes three horizontal directional drilling (HDD) operations beneath the M6 and M17 motorways to minimise surface disruption.

The Cashla Peaker Plant involves an activity that will require an Industrial Emission Licence from the Environmental Protection Agency (EPA). This ensures that the project meets all necessary environmental standards related to emissions and other factors impacting the surrounding area. This does not apply to the electricity transmission infrastructure.

Additionally, the Cashla Peaker Plant includes the establishment of a facility where safety measures under the Major Accident Directive (Seveso) will apply. These regulations are designed to prevent and limit the consequences of potential industrial accidents, ensuring the project is both safe and compliant with industry best practices. This does not apply to the electricity transmission infrastructure.

As a ‘peaking plant’ this Proposed Project is only intended to operate when requested by EirGrid to support the electrical transmission network and ensure continuity of supply. Such requests are only expected to be on rare occasions when the electricity demand is particularly high and there is insufficient renewable generation to fully meet this demand e.g. during a high atmospheric pressure period during wintertime when the wind is low. Such rare requests would only be expected to occur during a period of the day when the demand is particularly high and not at traditionally low peak demand times.

Furthermore, there is potential for the turbine to operate using low sulphur diesel (secondary fuel) in an emergency scenario should there be an interruption to the gas supply to the site. In this case the dual fuel turbine will operate using low sulphur diesel (secondary fuel) until the gas is restored, but no more than 500 hours per year, which is commensurate with the European BREF upper limit for a dual fuel gas turbine’s use of diesel fuel for emergency purposes.

For detail on the statutory development description of the elements of the Proposed Project that are the subject of this application, please refer to the planning application form.

1.5 Strategic Infrastructure Development Regulations

The Proposed Project comprises four main elements, as previously noted: the Peaker Plant, Gas Networks Ireland (GNI) above-ground installation and gas pipeline, Electricity Supply Board (ESB) substation, and underground grid connection.

The GNI gas pipeline is subject to a separate consenting process via. GNI under section 39A of the Gas Act 1976, as amended. The remaining three elements (i.e. (1) the Peaker Plant, (2) above-ground installation, and (3) electricity transmission infrastructure (substation and underground grid connection)) constitute strategic infrastructure development (SID) under the Planning and Development Act 2000, as amended.

Different provisions of the Act apply depending on the type of SID:

- Standard SID development is applied directly to An Coimisiún Pleanála under section 37E of the Act.
- SID comprising electricity transmission infrastructure must be applied for under section 182B, as provided in section 182A of the Act.

Accordingly, the substation and underground grid connection will be the subject of a separate section 182B planning application by BGE, while the Peaker Plant and above-ground installation will be the subject of a section 37E planning application also via. BGE.

The rationale for the separate planning applications, including details regarding pre-application consultation (PAC) with An Coimisiún Pleanála (ACP) for each application, and the reasons why the Project comprises SID (via. 2no. SID planning applications, namely under Section 37E, and under Section 182B) is clearly outlined in the Planning Statement prepared by McCutcheon Halley Planning Consultants, submitted under separate cover.

1.6 Requirement for Environmental Impact Assessment Report

The Proposed Project comprises SID, as noted above. SIDs require an EIA under s37E(1) and under s182A(1)(b) of the Planning and Development Act 2000 as amended:

37E.— (1) An application for permission for development in respect of which a notice has been served under section 37B(4)(a) shall be made to the Board and shall be accompanied by an environmental impact statement in respect of the proposed development.

s182A "(b) Where the proposed development required, as appropriate—
(i) an environmental impact assessment,
(ii) an appropriate assessment, or
(iii) both an environmental impact assessment and an appropriate assessment,
to be carried out, paragraph (a) shall not apply to the development concerned unless that assessment was, or those assessments were, as the case may be, carried out before the grant of the licence concerned."

Accordingly an EIAR is required, and has therefore been prepared for the Proposed Project. The Proposed Project has been screened against the classes of development, various processes and activities listed in Schedule 5 Part 1 and Part 2 of the Planning and Development Regulations 2001, as amended.

In accordance with Section 5 part 2 class 3(a) an Environmental Impact Assessment Report (EIAR) would be required if the proposed infrastructure consists of industrial installations for the production of electricity, steam and hot water not included in Part 1 of this Schedule with a heat output of 300 MW or more.

The Proposed Development is a 325MW or 334 MW gas-fired Peaker Plant, hence this relevant threshold is exceeded and thus a mandatory EIAR is required.

1.7 Legislation and Guidance

This EIAR has been prepared in accordance with European Union (Environmental Impact Assessment Directive (2011/92/EU as amended by 2014/52/EU) and European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2001 (as amended) and with in accordance with the following EIAR guidance.

- Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports', published in 2022
- EPA 'Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)', published in September 2003
- European Commission (EC) 'Environmental Impact Assessment of Projects Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU)', published in 2017
- EC 'Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)', published in 2017, and,
- Department of Housing, Local Government and Heritage (DoHPLG) 'Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment', published in August 2018.

Additionally, discipline-specific best practice guidance has been adhered to by each specialist for each of the topics (Population & Human Health; Biodiversity; Landscape and Visual; Air Quality; Climate; Noise & Vibration; Traffic; Land, Soils & Geology; Water; Cultural Heritage; Material Assets and Major Accidents and Disasters) during the preparation of the EIAR.

1.7.1 Other Relevant Legislation

Other legislation relevant to this planning application includes (but is not limited) to the following:

- Environmental Protection Agency Act 1992, as amended
- SI No 138/2013 - European Union (Industrial Emissions) Regulations 2013
- SI No 137/2013 - Environmental Protection Agency (Industrial Emissions) (Licensing) Regulations 2013
- SI No 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011 (as amended)
- SI No 566/2012 - European Union (Large Combustion Plants) Regulations 2012
- SI No 282/2012 - European Union (Environmental Impact Assessment) (Integrated Pollution Prevention and Control) Regulations 2012
- Energy Efficiency Directive - Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955
- Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources
- S.I. No. 208/2015 - European Union (Control of Major Accident Hazards Involving Dangerous Substances) (Revocation) Regulations 2015;
- Fluorinated Greenhouse Gas Regulations (S.I. No. 404/2022 - European Union (Fluorinated Greenhouse Gases) Regulations 2022);
- Hazardous Area - Above Ground Installation (Gas Act 1976; S.I. No. 177/2004 - Gas (Amendment) Act 1987 (Section 2A) Regulations 2004)

1.7.1.1 Licences, Permits and Approvals

The following is a non-exhaustive list of licences, permits and approvals which will be required during the construction and operational phases of the Proposed Project:

- The grid connection works will require a road opening licence under Section 254 of the Planning and Development Act 2000-as amended from Galway County Council.
- An IE Licence will be required from the EPA in order to operate the facility. The IE Licence application will be submitted in early 2027 but cannot be granted until planning is approved.
- A Greenhouse Gas Emissions (GHG) Permit will also be required from the EPA to operate the facility.

Other consents which may be required during the construction phase include the following:

- Haulage permits and disposal/ recovery licences / permits / certificates of registration (in accordance with the Waste Management Act 1996 and its amendments, relevant statutory instruments and EU Directives).
- Abnormal load Permit (as per Road Traffic (Construction and Use of Vehicles) Regulations 2003).
- Archaeological Licence (issued under the National Monuments Acts 1930 to 2004).

1.8 Contributors

This EIAR has been prepared by competent experts. Table 1-1 clearly sets out a list of the experts who have contributed to this EIAR, showing which parts of the EIAR they have worked on, their qualifications, experience and any other relevant credentials.

Table 1-1 – Qualifications and Competencies of key authors of the EIAR

Name	Company	Area of Expertise	Relevant Chapter/Input	Relevant Qualifications / Professional Accreditation	Relevant Experience
Deirdre Larkin	AtkinsRéalis	Geology, Hydrogeology, Hydrology, Human Health Risk Assessment	Chapter 1 –- Introduction & Methodology Chapter 2 – Project Description Chapter 3 – Reasonable Alternatives Chapter 11 –- Land, Soils & Geology Chapter 12 –- Water Chapter 16 – Cumulative Impacts Chapter 17 – Interactions Review of technical chapters and supporting appendices.	BSc. (Hons) Geology (2003) UCC MSc. Applied Hydrogeology (2012) University of Newcastle. IGI PGeo No. 223 EurGeol No 1064	22 years'
Dr Eimear Egan	AtkinsRéalis	Water, Ecology, Mitigation	Chapter 1 –- Introduction & Methodology Chapter 2 – Project Description Chapter 3 – Reasonable Alternatives	Advanced Diploma Planning and Environmental Law (Kings Inns, 2024)	14 years'

			Review of technical chapters and supporting appendices.	PhD Ecology (2017) – New Zealand BSc Environmental Science (2011; UCC)	
Dr Jovanna Arndt	AWN	Air Quality & Climate	Chapter 7 – Air Quality Chapter 8 – Climate Chapter 16 – Cumulative Impacts Chapter 17 – Interactions	BSc. in Environmental Science and a Ph.D. in Atmospheric Chemistry from University College Cork. She is an Associate Member of both the Institute of Air Quality Management and the Institute of Environmental Sciences.	8 years
Justin Kwan	AWN	Noise and Vibration	Chapter 9 –9 Noise and Vibration Chapter 16 – Cumulative Impacts Chapter 17 – Interactions	MEng. and PhD. In Mechanical Engineering from University of Leeds. Corporate Member of the	7 years

				Institute of Acoustics	
Mike Simms	AWN	Noise and Vibration	Chapter 9 Noise and Vibration Chapter 16 – Cumulative Impacts Chapter 17 – Interactions (Review rôle)	BE and MEngSc in Mechanical Engineering. Member of Institute of Acoustics & Institution of Engineering & Technology	20 years
Jennifer Harmon	AWN	Noise and Vibration	Chapter 9 Noise and Vibration Chapter 16 – Cumulative Impacts Chapter 17 – Interactions (Review rôle) (Checker rôle)	BSc in Environmental Science and a Diploma in Acoustics and Noise Control. Member of Institute of Acoustics.	26 years
Robert Holohan	AWN	Noise and Vibration	Chapter 9 Noise and Vibration (Noise monitoring / survey)	BA(Hons) in Geography and Business Marketing from Maynoo Certificate from the Institute of Acoustics in environmental noise monitoring and building acoustics	ca. 5 years

				testing th University	
Alex Round	AWN	Noise and Vibration	Chapter 9 Noise and Vibration (Noise monitoring / survey	BSc in Agri-Environmental Science Certificate from the Institute of Acoustics in environment.	ca. 5 years
Ciarrai O'Sullivan	Rubicon	Cultural Heritage	Chapter 13 –- Cultural Heritage Chapter 16 – Cumulative Impacts Chapter 17 – Interactions	MPhil Territory and Community in Early Medieval Ireland: A Landscape Archaeology of the Túatha of Uí Chonaill (UCC)	8 years
Rachel Morgan-James,	Rubicon	Cultural Heritage	Chapter 13 –- Cultural Heritage Chapter 16 – Cumulative Impacts Chapter 17 – Interaction (Reviewer role)	MA Conservation Studies BSc in Archeology, Cardiff University	10 years
Dermot Moore	Rubicon	Cultural Heritage	Chapter 13 –- Cultural Heritage Chapter 16 – Cumulative Impacts Chapter 17 – Interactions (test Excavation Works)	BA in Heritage Studies from GMIT, a Post-Graduate Diploma in Archaeology from NUIG and	10 years

				a PhD from NUIG.	
Dr. Enda O'Flaherty	Rubicon	Cultural Heritage (Geophysical Survey)	Chapter 13 –- Cultural Heritage Chapter 16 – Cumulative Impacts Chapter 17 – Interactions (test Excavation Works)	PhD Member of the Institute of Irish Archaeologists.	20 years
Paddy McEntee	AtkinsRéalis	Population & Human Health	Chapter 4 – Population and Human Health Chapter 16 – Cumulative Impacts Chapter 17 – Interactions	BA, Geography, 1995, Queens University Belfast MSc, Environmental Science, 1996, Queens University Belfast	27 years
Kevin McCaffrey	AtkinsRéalis	Ecology	Chapter 5 – Biodiversity Chapter 16 – Cumulative Impacts Chapter 17 – Interactions	BSc. Applied Freshwater and Marine Biology from Atlantic Technological University MSc. Environmental Sustainability from University College Dublin.	13 years
Hugh Rowlands	AtkinsRéalis	Ecology	Chapter 5 – Biodiversity	BA (mod) Zoology from	3 years'

			Chapter 16 – Cumulative Impacts	Trinity College Dublin MSc. Biodiversity and Conservation from Trinity College Dublin	
Dr Caroline Shiel	Independent Ecologist	Bats	Chapter 5 – Biodiversity (Survey)	BSc Zoology from National University of Ireland, Galway PhD Leisler's bat ecology from National University of Ireland, Galway	28 years'
Eamonn Delaney	Delichon Ecology	Ornithology	Chapter 5 – Biodiversity (Survey)	BSc Botany from National University of Ireland, Galway MSc. Environmental Science from Trinity College Dublin	19 years'
Chris Parker	AtkinsRéalis	Contaminated land risk assessment and remediation	Chapter 11 –- Land, Soils & Geology Chapter 16 – Cumulative Impacts Chapter 17 – Interactions (reviewer role)	BSc (Hons) Environmental Management MSc Soils and Environmental Pollution	18 years

				Chartered Scientist Fellow of Geological Society of London	
Mark Boobyer	AtkinsRealis	Contaminated Land Land, soils & Geology	Chapter 11 –- Land, Soils & Geology Chapter 16 – Cumulative Impacts Chapter 17 – Interactions (checker role)	MSc, MIEnvSc, FGS	21 years
John Morgan	Indepenant Tree Services	Tree Survey / Assessment	Chapter 5 – Biodiversity (Tree Survey) (Tree Surveyor)	BSc (Hons) Tech Cert (Arbor A) M Abor A (Membership number PR407)	> 5 years
Niall Hogan	AtkinsRealis	Hydrogeology	Chapter 12 – Water Chapter 16 –- Cumulative Impacts Chapter 17 – Interactions	Masters of Earth Science MEarthSci, Fellow of the (British) Geological Society	3 years
Eamonn Byrne	EBLA Landscape Architects	Landscape and Visual	Chapter 6 –- Landscape & Visual Chapter 16 –- Cumulative Impacts Chapter 17 – Interactions	CMLI Chartered Member of the Landscape Institute (2006, UK) Dip. Landscape Design (2003,	25 years

				University of Sheffield) Dip. Hort. Kew (1999, Royal Botanic Gardens Kew, London) HND Landscape Management (1996, Writtle University College, Essex) NCH Hort. (1993, Glasnevin, Dublin) CMLI Chartered Member of the Landscape Institute (2006, UK) Professional Member of Institute of Horticulture (MCI Hort)	
Nicholas Van Den Berg	AtkinsRéalis	Traffic and Transportation	Chapter 10 –- Traffic & Transportation Chapter 16 –- Cumulative Impacts Chapter 17 – Interactions	BSc Eng (2013) Member of the Institute of Engineers of Ireland (MIEI)	11 years

Nerita Venketasen	AtkinsRéalis	Environmental Science	Chapter 14 – Material Assets Chapter 16 –- Cumulative Impacts Chapter 17 – Interactions	BSc Environmental Scient (2015, University of KwaZulu-Natal)	8 years
Tashfeen M Hammad ud din	AWN	Environmental Science	Chapter 15 – Major Accidents and Disasters Chapter 16 - Cumulative Impacts Chapter 17 – Interactions	BSc. Environmental Sciences MSc. In Sustainable environmental management, University of Greenwich, United Kingdom.	3 years
Maeve McKenna		Environmental and process safety assessment COMAH land use planning quantitative risk assessments	COMAH land use planning assessment.	BEng (Chemical Engineering), MEngSc, CEng, MIEI.	20 years

1.9 Consultations

While scoping is a stage in the EIA Directive, it is not a mandatory requirement. Instead, the scope of this EIAR has been informed by consultation with key stakeholders as identified below.

1.9.1 Statutory Consultation

As part of the EIAR assessment process, consultation was undertaken with statutory organisations at various stages of the pre-planning process. All environmental consultees (except where noted) were consulted by letter or email in April 2025 (during the informal Environmental Scoping phase of EIAR) regarding any environmental or planning interests that they may have in relation to the Cashla Peaker Plant development. A full list of consultees consulted including date and method of correspondence is presented in Appendix 1-1.

In addition, as part of the consultation process individual meetings were arranged with a number of key stakeholders to effectively discuss the key potential issues of the project as detailed further below.

A summary of all relevant feedback in relation to the Proposed Project is presented in Table 1.2. A copy of all pre-application consultation correspondence received from statutory organisations for this EIAR is presented in Appendix 1-1.

All relevant comments received from the various consultees have been fully addressed as required within this EIAR and the accompanying Natura Impact Statement (NIS).

1.10 Meetings

As part of the consultation process individual meetings were arranged with a number of key stakeholders to effectively discuss the key issues of the project. Pre-planning discussions were undertaken with ACP on 20 January 2025 and 28 May 2025, and Galway County Council Roads Department on the 1 April 2025, 28 April 2025, 5 June 2025, 2 July 2025 and 10 September 2025. Furthermore, pre-planning discussions were held with the HSA on 15 September 2025. All relevant recommendations from both ACP and Local Authority pre-application consultation meetings, as well as the HSA meeting, have been addressed within this EIAR and the accompanying NIS. As advised during the ACP meeting, contact was made with Irish Water between the Pre-Application Stage and Application stage to confirm the details of the Proposed Project and the proposed design. All responses from relevant stakeholders received have been addressed within the EIAR.

1.10.1 An Coimisiún Pleanála (ACP) Meeting Number 1 (20th January 2025)

The minutes of the meeting record is presented in Appendix 1-1, Volume 3 of the EIAR. Refer also to the Planning Statement submitted with this planning application.

1.10.2 An Coimisiún Pleanála (ACP) Meeting Number 2 (28th May 2025)

The minutes of the meeting record is presented in Appendix 1-1, Volume 3 of the EIAR. Refer also to the Planning Statement submitted with this planning application.

Table 1-2 - Consultation responses from Statutory bodies

Consultee	Consultation Date	Date of response	Comment summary	Response
Galway County Council (GCC)	01/04/2025 (In-person meeting) to present and discuss Extraordinary Abnormal Loads (EAL) feasibility study	01/04/2025	At the meeting between AtkinsRéalis and GCC: AtkinsRéalis presented the feasibility study of proposed Exceptional Abnormal Loads (EAL). GCC requested that the project is designed and delivered in such a way so as to reduce EAL as much as possible. Department of Transport National Flowchart for delivery of abnormal loads was shared and discussed. GCC shared details for the proposed Athenry Bypass scheme. GCC informed AtkinsRéalis that this would be constructed before Peaker Project construction takes place. GCC requested that AtkinsRéalis make contact with additional Stakeholders (e.g., Public-Private Partnership (PPP) companies, Iarnród Éireann (Irish Rail).	Actions undertaken by AtkinsRéalis in response, during the project: ▪ Surveys of bridge soffits were undertaken. ▪ A bridge comparative review was carried out in accordance the agreed methodology. ▪ A 'swept path analysis' was undertaken to determine vehicle space requirements for the Athenry Bypass. ▪ 'Falling weight deflectometer testing' was undertaken along the EAL transport routes, to evaluate the structural capacity of these roads. ▪ The EAL feasibility study was updated based on information in the Athenry Bypass drawings provided by GCC. ▪ The following, additional stakeholders were contacted as requested by GCC: ▫ Galway County Council ▫ Galway City Council ▫ Transport Infrastructure Ireland ▫ Roughan O'Donovan ▫ N6 Concession (PPP) ▫ Motorway Maintenance and Renewals Contracts (MMaRC) ▫ Gardai ▫ Iarnród Éireann ▫ Landowners ▫ Galway Port
Galway County Council (GCC)	28/04/2025 (Virtual Meeting) with BGE and AtkinsRéalis to discuss EAL feasibility study	28/04/2025	Call discussed the EALs feasibility study presentation previously issued to GCC. GCC's main comments related to the structural integrity of the bridges to be crossed by EALs. GCC stated that studies were required to show that such bridge structures were sufficient to carry the EALs. GCC also requested that a suitable underwriter be engaged to insure such bridges against any damage that may be caused by EALs crossings.	▪ AtkinsRéalis stated that an insurer will be obtained to satisfy the relevant stakeholders that damage to structures is covered. ▪ This will be provided closer to the date of operation by BGE.

Consultee	Consultation Date	Date of response	Comment summary	Response
Galway County Council (GCC)	05/06/2025 (In-person Meeting) at which AtkinsRéalis presented the EALs Feasibility Study		GCC requested that AtkinsRéalis contact the N6 Concession, the motorway PPP company, in order to obtain more information relating to the discussed structures to be crossed by EALs.	AtkinsRéalis continued 'comparative bridge assessment studies' and requested an additional meeting with GCC to seek assistance in identifying bridge structures and requesting any additional information.
Galway County Council (GCC) Roads Dept.	02/07/2025 (In-person Meeting)	02/07/2025	AtkinsRéalis justified the route selection and utilisation of the public road network for installation of the underground cable connection into the Cashla substation. These points were noted by GCC. GCC raised considerations with regard to potential future service conflicts and sterilisation of road space. GCC requested that the abnormal load methodology be set out in more detail and include surveys undertaken as part of this, such as the falling weight deflectometer and topographical studies. GCC also requested AtkinsRéalis to consider and assess the cumulative impacts of the proposed Gannow windfarm.	Issues raised during the consultation(s) were addressed fully within the design of the Proposed Project and relevant EIAR chapters. Routing options for the Underground Cable, as well as issues related to EALs are discussed in EIAR Chapter 3 (Reasonable Alternatives), whilst Chapter 10 (Traffic and Transportation) addresses remaining EALs concerns.
Galway County Council (GCC) Roads Dept.	10/09/2025 (In-person Meeting)	10/09/2025	GCC and AtkinsRéalis discussed the following: **Underground Cable Route** AtkinsRéalis presented route options to GCC. **Traffic Management** AtkinsRéalis presented a high-level concept for proposed traffic management along the preferred route. GCC requested sample drawings from the concept for their review. **Ground Penetrating Radar (GPR) Survey Data** GCC requested topographic survey and GPR data.	The concerns raised by GCC at this meeting have been addressed where relevant within Chapter 10 Traffic and Transport and Chapter 14 Material Assets. BGE have engaged with EirGrid to date as follows; ▪ 10 of April 2025, early engagement meeting with EirGrid, where BGE Grid Engineer presented the project, layout and 2 bay extendable AIS substation: No feedback provided at meeting by EirGrid. ▪ 22 of April 2025, grid route drawing along the public route, which was prepared by TLI, is issued to EirGrid: No feedback provided by EirGrid to date. ▪ 30 of April 2025, Cashla 220kV substation layout drawing prepared by TLI and showing two options for

Consultee	Consultation Date	Date of response	Comment summary	Response
			Multi-Criteria Analysis (MCA) The MCA was discussed – there were no matters arising from this **Planning Submission** GCC requested AtkinsRéalis to confirm the timeline. **EirGrid Contact** GCC requested AtkinsRéalis for EirGrid's contact details. **Public Communication** GCC requested more detail on how the public will be informed during the planning process, and suggested weekly website updates on cable route installation. GCC suggested continued engagement with the local community.	connecting into bays along the east side of the substation, with associated grid route drawings for public roads with joint bays, are issued to EirGrid. No feedback has been provided to date on these. ▪ 18 of June 2025, EirGrid provide feedback on substation design asking whether the proposed AIS station can be transposed 90° anticlockwise to allow for future extension to the North. ▪ Connection agreement and charging report issued on the 21 of July 2025. ▪ 22 of August 2025, EirGrid agree to wording, which places the onus on them rather than developer, to procure third party lands for a possible future expansion to a 8 bay ring substation ▪ Substation Positioning: Bord Gáis agrees to rotate the proposed two bay AIS substation 90° anticlockwise vs. the original design, this will allow for EirGrid to proceed with any subsequent expansions at a later date, albeit explicitly noting that the land required for any such subsequent expansion falls outside the current site footprint and will need to be procured separately by EirGrid, if required. ▪ 7th of September 2025– EirGrid confirm that if a loop in connection needs to be considered, the agreement would need to be modified, and this will take 4-5 months for EirGrid to fully assess. ▪ A loop-in connection was avoided due to concern around EirGrid's ability to schedule outages to deliver the project to the required Capacity contract milestones (see Chapter 3)
Port of Galway	Phone call made on 29/05/2025. Information emailed on 29/05/2025		Port of Galway were contacted to review optimum arrangements to transport the extraordinary abnormal loads into the port, offloading and transport into the public road network.	Port of Galway responded, and: ▪ Set out details for arrangements to transport extraordinary abnormal loads through the port and into the public road network. ▪ Suggested tandem lift using ship's cranes rather than shore based cranes. ▪ Provided maximum vessel dimensions for use of Galway Port ▪ Provided details of the Lough Atalia bridge ▪ Provided existing abnormal load vehicle swept path analysis drawings from the port into the public road network.

Consultee	Consultation Date	Date of response	Comment summary	Response
Environmental Protection Agency (EPA)	27/06/2025 (MS Teams Pre-Planning Application Meeting)	27/06/2025	BGE met with EPA to provide notice of planning application. Items discussed were: **Use of double skinned tanks.** EPA confirmed that the use of double skinned tanks would still be subject to a licensing condition on three yearly bund integrity. **Applicability of Closure Restoration and Aftercare Management Plan (CRAMP)**. EPA confirmed that CRAMP would apply as the site will be lower tier Control of Major Accident Hazards (COMAH). In terms of financial provisions associated with CRAMP / ELRA EPA stated the Cork office would be the best contact for this. A financial provision would need to be in place before commencement of operation. EPA said that **Parent Company Guarantees** (PCGs) are not preferred and that bonds are preferred. **Carbon Capture and Storage Assessment**. EPA said that in the licence application, it may be sufficient to confirm that BGE have suitable storage capability on site, and that any further work would be a licence condition to be managed by the (OEE) team. **Timing of submission.** EPA stated that a licence cannot be issued until planning has been granted. However, they said that there was precedent (particularly with energy projects) for applications to be submitted.	EPA did not ask for any additional information or clarifications.
Uisce Éireann (UE)	03/04/2025 (Letter)	14/08/2025 (Letter)	Uisce Éireann's written response raised the following points: **Overlap with Existing Infrastructure** Uisce Éireann stated that the proposed underground cable route	Issues raised during the consultation(s) were fully addressed within the preliminary design of the Proposed Project and relevant EIAR chapters: Chapter 2 Project Description, Chapter 11 – Land, Soils and Geology, Chapter 12 – Water, and Chapter 14 Material Assets, as follows:

Consultee	Consultation Date	Date of response	Comment summary	Response
			intersects with water and wastewater assets, and that Building over assets is not permitted; there must be a minimum separation distances maintained. **Protection of Drinking Water Sources** Uisce Éireann noted the potential risk of negative impacts on drinking water sources, reservoirs, and hydrogeology during construction and operation, and stated the Need to assess hydrological / hydrogeological pathways, potential contamination risks, and required mitigation. **Capacity and Connections** Stated the need for confirmation whether existing water services can accommodate the project, and stated that a Pre-Connection Enquiry (PCE) and Confirmation of Feasibility are required before planning application. Identify any infrastructure upgrades needed. **Environmental and Operational Risks** Uisce Éireann stated the need to develop an Environmental Management Plan and Incident Response Plan with mitigations for water sources, and to Assess impacts on assimilative capacity of receiving waters and sensitive / protected areas, and that No new surface water discharges to combined sewers will be allowed.	▪ Chapter 2 Project Description identifies that a Pre-Connection Enquiry (PCE) has been submitted. ▪ Chapter 11 – Land, Soils and Geology, Chapter 12 – Water and Chapter 14 Material Assets fully address Uisce Éireann concerns. Furthermore, TLI, on behalf of BGE, submitted a response to Uisce Éireann's 14/08/2025 letter on 30/09/2025. This included the requested, supporting documentation. This response: ▪ attached the following dataset of details regarding the proposed project currently at Pre-Planning stage: - Completed '*building over or near an Uisce Éireann Irish Water Asset application form'* - Crossing Schedule for known Uisce Éireann assets (including relevant details) - Trench Sections For Undercrossing Existing Watermain / Wastewater - Drawings showing all known Uisce Éireann assets, and proposed 220 kV UGC Grid Connection Route. ▪ Noted that the project details relate to a Transmission Grid Connection from the existing 220kV Cashla Substation to a proposed Gas facility plant. This detail was shared to enable discussion and allow for Uisce Éireann to make any observations and introduce any utility considerations into the project delivery. ▪ Noted availability for further engagement at this preliminary stage if required. It is considered that the information as provided by TLI to Uisce Éireann has closed TLI engagement process with Uisce Éireann at this stage of the project.

Consultee	Consultation Date	Date of response	Comment summary	Response
			Recommendations / Requirements Uisce Éireann stated the need for Surveys and Asset Protection, and to Undertake a site survey to locate all Uisce Éireann assets, and Provide evidence of compliance with Irish Water Codes of Practice for separation distances, and undertake Trial investigations only with Uisce Éireann agreement and supervision, and Submit Diversions Enquiry if asset relocation is required. **Technical and Environmental Measures** Uisce Éireann requested the preparation of a waste sampling strategy for inert material if backfilling is needed, and to: Assess and mitigate impacts on reservoirs, groundwater, and surface water, and Include measures to ensure zero risk to drinking water sources. **Connection Agreements** Uisce Éireann requested completion of a Pre-Connection Enquiry and to obtain Confirmation of Feasibility, and to Enter into water/wastewater connection agreements before development starts, as well as that Existing connections and revised agreements may be required.	

Consultee	Consultation Date	Date of response	Comment summary	Response
			Trade Effluent and Discharges Uisce Éireann requested the requirement to identify any need for upstream treatment or attenuation before discharge, and to Assess and minimise any surface water entering combined sewers. The full response of the 14/08/2025 Uisce Éireann letter and subsequent 30/09/2025 clarification provided by TLI are presented in Appendix 1-1.	
Fáilte Ireland	03/04/2025 (Letter)	30/04/2025 (Letter)	Fáilte Ireland sent a copy of their 2023 EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects. The full response from Fáilte Ireland is presented in Appendix 1-1.	Chapter 4 Population and Human Health fully addressed Fáilte Ireland concerns.
Inland Fisheries Ireland (IFI)	03/04/2025 (Letter)	30/04/2025 (Letter)	IFI stated that the proposal does not appear to have any implications on the Clarin River. The full response from IFI is presented in Appendix 1-1.	N/A
Office of Public Works (OPW)	03/04/2025 (Letter)	02/05/2025 (Letter)	OPW raised the following points: **Watercourse Crossings** That any new culverts or bridges, or modifications to existing ones, require Section 50 consent under the Arterial Drainage Act 1945 (as amended). That grid connection routes crossing water courses may trigger Section 50 consent application, depending on crossing method used. **Design Standards** That bridges/culverts must be designed for a 1% Annual Exceedance Probability (AEP) (100-	▪ Issues raised during the consultation were fully addressed within the design of the Proposed Project and relevant EIAR chapters. ▪ Chapter 5 Biodiversity and Chapter 12 – Water fully addresses OPW concerns. A flood risk assessment has been completed.

Consultee	Consultation Date	Date of response	Comment summary	Response
			year flood) + 20% climate change allowance. That structures must convey this design flood without significantly altering hydraulic characteristics. **Cable Routing** That, if cables are buried in the road and cross bridges without interfering with openings, there are no issues. That if cables pass through bridge openings or on new support structures, a Section 50 consent is required. That if cables are buried under the natural bed of a water course, a Section 50 does not apply, but ducts must be deep enough to allow for erosion and stream mobility. **Flood Risk** That a Flood Risk Assessment (FRA) is recommended, considering sources, pathways, and receptors, including nearby drainage district channels. The full response from OPW is presented in Appendix 1-1.	
Gas Networks Ireland (GNI)	03/04/2025 (Letter)	15/04/2025 (Letter)	GNI raised the following points: The Gas Transmission Pipeline in the general area of interest is a high pressure transmission pipe. An Aurora Telecom Duct was also identified in Mauve broken line within the Proposed Project. Work in the vicinity of a Gas Transmission Pipeline must be completed in compliance with 'Code of Practice 2021'.	Points raised during the consultation were addressed fully within the design of the Proposed Project and relevant EIAR chapters. Chapter 14 – Material Assets accounts for these assets.

Consultee	Consultation Date	Date of response		Comment summary	Response
				The Gas Transmission Pipelines exist within Gas Networks Ireland Wayleaves. No excavation may take place within any such Wayleave unless consent, in the form of a valid Excavation Permit, has been granted by Gas Networks Ireland. The full response from GNI is presented in Appendix 1-1.	
Transport Infrastructure Ireland (TII)	3 April 2025 (Letter)	19 May 2025 (Letter)		TII raised the following issues: **Proximity to National Roads** The proposed site is near the M6/M17/M18 motorway junction and extends to the motorway reservation boundary, and thus that there could be Potential significant impacts on the national road network and junctions, including haul routes. **Visual and Environmental Impacts** That visual impacts from national roads require screening measures, and that The EIAR must consider cumulative impacts with other road schemes and comply with TII Environmental Guidelines and noise regulations. **Traffic and Transport** A Traffic and Transport Assessment (TTA) is required (including sub-threshold cases) per TII guidelines. Identify and cost any road improvements needed. It was clarified that TII will not fund these. **Haul Routes and Abnormal Loads** That haul routes must be assessed for capacity, safety, and structural integrity and that	Issues raised during the consultation(s) were addressed fully within the design of the Proposed Project and relevant EIAR chapters. TII concerns have been addressed fully where relevant within Chapter 6 – Landscape and Visual; Chapter 10 Traffic and Transport; Chapter 12– Water; Chapter 14 Material Assets.

Consultee	Consultation Date	Date of response	Comment summary	Response
			Separate approvals are required for abnormal weight/length loads and Exceptional Abnormal Loads. There should be consultation with Public-Private Partnership (PPP) companies, Motorway Maintenance and Renewals Contracts (MMaRC) contractors, and road authorities for operational requirements. **Crossings and Cable Routing** That multiple motorway crossings are anticipated and thus that consents/licenses will be required. That Horizontal Directional drilling (HDD) will be required for crossings, and that launch/reception pits for such should be located outside motorway boundary. That works should avoid interference with motorway drainage and TII infrastructure (traffic counters, weather stations). That no bolted joints are allowed within the motorway fence-line, and That pre- and post-construction surveys are required. **Damage and Liability** That any pavement damage resulting from movement of (extraordinary) abnormal loads must be repaired to TII Pavement Standards. That any works within MMaRC boundaries will require a Deed of Indemnity and prior approval. **Recommendations / Requirements** TII stated that early consultation is required with the relevant Local Authority / National	

Consultee	Consultation Date	Date of response	Comment summary	Response
			Roads Design Office and TII. That the EIAR should address TII guidelines, noise regulations, and cumulative impacts. That a TTA, per TII's 2014 guidelines, should be completed. That all Haul Routes should be fully assessed and documented, and that permits be obtained for abnormal loads. That any crossings using HDD; comply with TII technical requirements and have secured consents under Roads Act. That records should be maintained with detailed documentation and that there is a need for liaison with TII for all works affecting national roads. The full response from TII is presented in Appendix 1-1.	
Geological Survey Ireland (GSI)	03/04/2025 (Letter)	16/04/2025 (Letter)	GSI requested a copy of project reports detailing any site investigations carried out. GSI stated that that any data within these would be redacted to ensure confidentiality and then the reports would be added to the GSI national site investigation database. The full response from GSI is presented in Appendix 1-1.	Refer to Chapter 11 – Land, Soils and Geology.
Department of Transport (DoT)	03/04/2025 (Letter)	30/04/2025 (Letter)	The response from DoT focused on the following aspects: **Impact on Public Roads** DoT highlighted that cables within public roads may restrict the Road Authority's ability to maintain and upgrade roads, increasing future costs. That installation could affect road stability, especially on legacy roads or bog ramparts	**Impact on Public Roads** ▪ The cable will be laid in accordance with EirGrid 110 kV, 220 kV and 400 kV Underground Cable Functional Specification requirements (CDS-GFS-00-001-R2). This will ensure that the cable and associated joint bays will be installed below the surface course, binder course and sub-base layers. The road will be fully reinstated following the installation. ▪ The cable will be installed at a depth which will not impact on road drainage.

Consultee	Consultation Date	Date of response		Comment summary	Response
				with poor subgrade conditions. That the proposed development would result in reduced available road space for future utilities or drainage (important for climate adaptation). **Safety and Operational Risks** That with the cable situated within the road, there would be a need for power shutdown during road repairs or emergencies. That a full operation and maintenance manual will need to be developed and agreed with the Local Authority. **Environmental and Routing Considerations** Potential environmental impacts from construction and grid connection works. That there is a need to explore alternative routes and technologies (Overhead Line vs Underground Cable) to minimise road impact and comply with CAP24. That the developer should consider connecting to the grid at a closer point to reduce road disruption. The full response from DoT is presented in Appendix 1-1.	Issues raised during the consultation(s) were addressed fully within the design of the Proposed Project and relevant EIAR chapters. DoT concerns have been addressed where relevant within Chapter 3 Reasonable Alternatives and Chapter 10 Traffic and Transport and Chapter 14 Material Assets
Department of Housing, Local Government and Heritage (DHLGH)	03/04/2025 (Letter)	12/05/2025 (Letter)		The DHLGH raised the following points: **Insufficient Information** They stated that the initial referral lacked enough detail for a full archaeological assessment **Potential Archaeological Impacts** That there is a risk of direct impacts on recorded and unrecorded archaeological remains, including those with no	Issues raised during the consultation were addressed fully within the design of the Proposed Project and relevant EIAR chapters: Chapter 6 – Landscape and Visual and Chapter 13 – Cultural Heritage.

Consultee	Consultation Date	Date of response	Comment summary	Response
			visible surface expression, and Possible indirect impacts on setting and amenity of monuments from vibration, dust, and construction activity. **Archaeological Impact Assessment (AIA)** That an AIA should be conducted by a suitably qualified archaeologist. Must cover access areas, haul roads, temporary compounds, etc. and, Results to be incorporated into the EIAR. **Baseline Studies** That there is a need for desk-based research, including of historical, cartographic, and aerial sources, as well as Walkover surveys and field inspections, a Archaeological / Historic Landscape study, and a Visual Impact Assessment. **Further Investigations** That there is a need for non-intrusive geophysical surveys (e.g., ground penetrating radar), where appropriate, as well as Targeted archaeological test excavations, and Archaeological monitoring of all intrusive investigations (e.g., ground investigations for soils/geology). **Impact Statement & Mitigation** That the AIA/EIAR must include an Archaeological Impact Statement with mitigation measures to protect heritage. **Design Considerations** That the design must avoid or minimise impacts on the setting of	

Consultee	Consultation Date	Date of response	Comment summary	Response
			monuments and sensitive landscapes. **Nature Conservation** DHLGH made no additional comments on nature conservation due to a lack of scoping information. The full response from DHLGH is presented in Appendix 1-1.	
The Health and Safety Executive (HSE)	03/04/2025 (Letter)	09/06/2025 (Letter)	The consultation request to the HSE in April 2025 was referred to the Environment Climate Change Network Support Unit of the National Environmental Health Service (NEHS), for observations. HSE Emergency Planning, HSE National Capital Estates Office, HSE Director of National Health Protection and HSE REO West & North West also inputted. The following issues were raised by the above stakeholders: **Proximity to Residential Areas**: NEHS flagged comments about the location of the pipeline relative to homes and the motorway, and noted a requirement for a risk assessment in the EIAR, especially regarding sensitive receptors. **Population and Human Health** The NEHS stressed that human health impacts can often be under-assessed. They recommended using a **source-pathway-receptor model** to assess exposure and health risks. They emphasized adopting a Population Health approach, with: A focus on **land use and service provision** (e.g. schools, healthcare facilities), rather than	Issues raised during the consultation(s) were addressed fully within the design of the Proposed Project and relevant EIAR chapters: Chapter 4 Population and Human Health; Chapter 7 Air Quality; Chapter 9 Noise and Vibration; Chapter 12 Water. Refer also to CEMP submitted as part of this planning application.

Consultee	Consultation Date	Date of response	Comment summary	Response
			individual sensitivities, and that Sensitive receptors should be identified at a **community level**, not individual level. **Opportunities for Health Gain** It was suggested that the EIAR should consider **positive health impacts**, such as: Creation of recreational spaces; and Promotion of **active travel** (walking, cycling) **The EIAR** Should be clear, concise and written in plain language **Noise & Vibration** An assessment must be made of impacts on noise-sensitive locations, this should Include a baseline noise survey, and Evaluate mitigation effectiveness **Air Quality & Dust (Construction Phase)** The EIAR must include a Construction Environmental Management Plan (CEMP) with dust control measures (e.g. spraying, wheel washing, speed limits) **Water Quality** The EIAR should detail measures to prevent runoff into surface and groundwater **Ancillary Facilities** The EIAR must specify locations and provisions for site offices, fuel storage, sanitation, first aid, and potable water The full response from HSE is presented in Appendix 1-1.	
The Health and Safety Authority (HSA)	03/04/2025 (Letter)	15/09/2025 (Meeting)	The HSA raised the following points: Notwithstanding the proposed use of double-	Issues raised during the consultation were considered within the design of the Proposed Project, COMAH Technical Land-Use Planning (TLUP) assessment and the relevant EIAR chapters: Chapter

Consultee	Consultation Date	Date of response	Comment summary	Response
			containment atmospheric storage tanks, the catastrophic failure of the two diesel tanks should still be considered, for risks to people. A discussion was also held on the methodology for overtop pool fires and on the approach to be adopted by for Land-Use Planning (LUP) purposes outlined.	4 Population and Human Health; Chapter 15 Major Accidents and Disasters.
Other Stakeholders	03//2025 (Letters)	n/a	The following stakeholders confirmed receipt of confirmation with no additional responses received: ESB Commission for Regulation for Utilities (CRU) EirGrid Commission for Railway Regulation The Arts Council Irish Aviation authority.	N/A

1.11 Non-Statutory Consultation

A Consultation Report was prepared to summarise and assess the feedback received from the Non-Statutory Public Consultation Events on the Proposed Project (AtkinsRéalis, 2026). A summary of key feedback is given in Table 1-3. The relevant feedback has been considered as part of this planning submission and incorporated into the EIAR as required. A summary of key considerations from the non-statutory public consultation is given in Table 1-4.

Two non-statutory public consultation events were held in May 2025 (along with a third event in December as discussed further in Section 1.11.1 below) to present the emerging proposals and gather feedback. These events provided an opportunity for stakeholders to learn more about the project, ask questions, and share their views directly with the project team (including the Applicant, design team and environmental team). The two events were held at the Raheen Woods Hotel, Athenry, on 7 and 13 May 2025. A total of 90 no. people attended across both sessions. A community liaison officer facilitated engagement on behalf of BGE.

As part of the public consultation processes in May 2025, the following non-exhaustive scope of work has been carried out:

- 20 no. posters were erected on local notice boards in community centres, libraries, civic buildings, and business premises.
- A non-technical brochure was developed to provide stakeholders with a clear and accessible overview of the Proposed Peaker Plant. The brochure was designed to explain the project in plain language and included visual materials to help communicate key aspects of the project and was available at the public events.
- A dedicated project website was launched to serve as a central hub for all information related to the Cashla Peaker Plant consultation. The website was designed to be accessible, informative, and user-friendly, enabling stakeholders to engage with the project at their convenience. This was maintained and updated as necessary.
- 3D visualisations were commissioned to provide stakeholders with a clear picture of what the Peaker Plant will look like. These images were included on the non-technical brochure and also the project website.
- To ensure local residents and businesses were informed about the consultation, a project leaflet was prepared and distributed to approximately 320 no. addresses within the vicinity of the proposed Peaker Plant site. The leaflet served as a formal invitation to participate in the consultation and provided key information about the project and how to engage with it.
- To coincide with the launch of the public consultation, BGE issued a press release to local and regional media outlet. The press release outlined the purpose of the Cashla Peaker Plant project, its importance in supporting Ireland's energy security, and the opportunity for the public to provide feedback. The press release helped generate media interest and was followed by a feature segment on Galway Bay FM's "*Galway Talks*" programme, where Councillor Declan Kelly shared his views of the project and encouraged local participation.
- To further promote the public consultation and reach a wider audience, a newspaper advertisement was published in the Tuam Herald on Wednesday, 30 March 2025. The advertisement provided a summary of the Proposed Peaker Plant and included key details to encourage public participation.
- In advance of the non-statutory public consultation events, BGE issued invitations to local elected representatives from Galway County Council and Dáil Éireann to introduce the Cashla Peaker Plant project and offer opportunities for direct engagement with the project team. Several representatives availed of this opportunity.
- Non-statutory public consultation events were held at the Raheen Woods Hotel, Athenry, as follows;
  - Public Consultation Event No. 1: 7 May 2025.
  - Public Consultation Event No. 2: 13 May 2025.

- BGE responded to these concerns through a combination of technical clarifications, regulatory commitments, and ongoing engagement. The project team remains committed to transparency, safety, and environmental responsibility throughout the planning and development process.

Table 1-3 - Summary of key feedback from non-statutory public consultation events

Feedback	Description	Response
Human Health Considerations	Comments relating to concern about emissions, Electromagnetic Fields (EMFs), and health impacts on nearby residents and schools.	Refer to Chapter 4 Population and Human Health; Chapter 7 Air Quality; Chapter 8 Climate; Chapter 9 Noise and Vibration; and Chapter 15 Major Accidents and Disasters.
Project Management and Planning	Comments relating to issues around transparency, notification timelines, and future planning permissions.	Refer to Chapter 2 Project Description, and Construction Traffic Management Plan (CTMP) (Volume 3 Appendices of this EIAR)
Plant Operational Queries	Comments relating to operational hours, fuel types, and comparisons with other Peaker Plants.	Refer to Chapter 2 Project Description
Construction and Local Traffic Management	Comments relating to road disruption, safety, and access during construction.	Refer to Chapter 10 - Traffic & Transportation, and Construction Traffic Management Plan (CTMP) (Volume 3 Appendices of this EIAR)
Impact on Future Development and Local Properties	Comments relating to concerns of property devaluation and restrictions on future land use.	Refer to Chapter 2 Project Description
Visual Impact	Comments relating to the appearance of the plant and emissions stack, and requests for landscaping.	Refer to Chapter 2 Project Description; Chapter 6 - Landscape & Visual
Audible Impact	Comments relating to noise of turbines, generators, and construction activities.	Refer to Chapter 4 Population and Human Health; Chapter 9 Noise and Vibration; Chapter 18 Schedule of Commitments, and Construction Environmental Management Plan (CEMP) (Volume 3 Appendices of this EIAR)
Construction Safety Concerns	Comments relating to safety risks related to infrastructure proximity, vibration, and service disruption.	Refer to Chapter 4 Population and Human Health; Chapter 9 Noise and Vibration; and

Feedback	Description	Response
		Chapter 15 Major Accidents and Disasters.
Route Selection and Options	Comments relating to clarification on grid connection routes and alternative options.	Refer to Chapter 2 Project Description and Chapter 3 Reasonable Alternatives
Comments on Ancillary Works	Comments relating to unrelated infrastructure projects and regional energy developments.	Refer to Chapter 2 Project Description and Chapter 16 Cumulative Impacts
Local Impact and Community Benefits	Comments relating to direct benefits to the community and interest in funding opportunities.	Refer to Chapter 4 Population and Human Health
Future Use and Change of Use	Comments relating to increased future operation or changes in plant function.	Refer to Chapter 2 Project Description
Practical Advice	Comments relating to suggestions on landscaping, cable routing, and integration with existing infrastructure.	Refer to Chapter 2 Project Description; Chapter 6 - Landscape & Visual
Ecological and Environmental Impact	Comments relating to potential effects on local ecology, wildlife, and livestock.	Refer to Chapter 5 – Biodiversity; Chapter 18 Schedule of Commitments and Construction Environmental Management Plan (CEMP) (Appendix 2-10, Volume 3 of this EIAR)
Future Monitoring	Comments relating to how the plant will be monitored and by whom post-construction.	Refer to Chapter 4 Population and Human Health; Chapter 5 – Biodiversity; Chapter 7 Air Quality; Chapter 8 Climate; Chapter 9 Noise and Vibration; Chapter 10 - Traffic & Transportation; Chapter 11 Land, Soils and Geology; Chapter 12 Water; Chapter 13 - Cultural Heritage; Chapter 14 - Material Assets; Chapter 15 Major Accidents and Disasters; Chapter 18 Schedule of Commitments and Construction Environmental Management Plan (CEMP) (Appendix 2-10, Volume 3 of this EIAR)

As noted above, BGE are in the process of establishing a Community Benefit Fund which will make a meaningful, long-term contribution to the Pollnagroagh, Rathmorrissy and the wider community as a responsible and supportive new corporate neighbour. In the short term, BGE have set up a sponsorship fund to support the valuable work being done by local sports clubs, charitable organisations, and community groups in the area.

1.11.1 Further Public Information Event

Following the two public events in May 2025, BGE continued to engage with local residents living near to the proposed Peaker Plant. BGE took the decision to hold a further Public Information Event in the Raheen Woods Hotel on 4 December 2025 to provide an update to all local stakeholders in advance of the planning submission.

As part of this further round of engagement the following non-exhaustive scope of work has been carried out:

- 15 no. posters were erected on local notice boards in community centres, libraries, civic buildings, and business premises.
- A project leaflet was developed to reinforce to stakeholders BGE's commitment to engaging with the local community via the three pillars: Inform, Involve, Respond. The leaflet also highlighted that BGE's Community Liaison Officer is available to answer any queries in relation to the project.
- The project website was updated with the latest information in relation to plant operations, as well as some preliminary outputs from some of the environmental assessments, including air quality, noise, lighting, landscape and visual, and Health and Safety. The project FAQs on the website were also updated with the latest information. The website address and QR code was included on all print material for the public information event e.g. leaflet, event display boards etc.
- The 3D visualisations were updated with the latest design layout of the plant and these updated images were included on the website and on the event display boards.
- To ensure local residents and businesses were informed about the public information event, an A5 postcard was distributed via An Post Admailer to over 2000 properties in a 5 km radius around the Proposed Peaker Plant site – this included the town of Athenry. The postcard included the date, time and venue for the public information event, as well as the website address and QR code.
- To coincide with the launch of the public consultation, BGE issued a press release to local and regional media outlets.

This third public information event provided BGE with the opportunity to update local stakeholders on the current stage of the project and provide information that will be included in the planning submission.

The event was attended by local stakeholders, including several elected representatives.

Similar to the public consultation events in May 2025, the most frequently raised considerations related to emissions, and the potential health impacts of the plant, particularly in proximity to schools and homes. Stakeholders also expressed interest in the proposed cable route to connect the Peaker Plant to the Cashla substation, in particular the potential disruption any road closures may have on local residents.

BGE will continue to engage with all local stakeholders during the planning phase of the project.

1.12 Appropriate Assessment

An Appropriate Assessment (AA) Screening was undertaken as part of this application to consider the potential impacts of the Proposed Project on the conservation interests of Natura 2000 Sites (AtkinsRéalis, 2026), and to determine if there was a requirement for a Natura Impact Statement (NIS). The project does not lie within any European Site. Based on the Source – Pathway – Receptor model there are 5 no. European Sites within the potential zone of influence (ZoI) of the Proposed Project; 3 no. Special Areas of Conservation (SACs) and 2 no.

Special Protection Areas (SPAs). The nearest European Site is Lough Corrib SAC (Site Code: IE000297) which is located ca. 6.95 km NW of the Proposed Project. There s no overlap with any European Site and so there is no potential for direct impacts from the Proposed Project.

There is no indirect connectivity from the Proposed Project to any European Site via surface waters, hedgerows or treelines. The proposed site is located on Karst Limestone, therefore, there is potential for indirect connectivity with Cregganna Marsh SPA (Site Code:IE004142), Inner Galway Bay SPA (Site Code:IE004031) and Galway Bay Complex SAC (Site Code: IE000268) which are located ca. 8.69 km, 9.11 km and 7.04 km respectively from the site.

Based on the findings of the AA Screening the following conclusions have been made '*Following the precautionary principle Cregganna Marsh SPA, Inner Galway Bay SPA and Galway Bay Complex SAC have been screened in due to potential impacts to groundwater during the construction phase and so a Stage 2 AA is required*'. An NIS has been prepared which sets out mitigation measures which will reduce both the likelihood and scale of any potential impacts to such a degree that any residual impacts will not adversely affect the integrity of the SAC. The NIS concluded that '*Following a comprehensive evaluation of the potential direct, indirect and in-combination impacts on the qualifying interests of Galway Bay Complex SAC, Cregganna Marsh SPA and Inner Galway Bay SPA and the implementation of the proposed mitigation measures, it has been concluded beyond reasonable scientific doubt by the authors of this report that there will be no residual impacts and the Proposed Project, alone or in combination with other plans and projects, will not have an adverse effect on the integrity of these, or any other, European sites'.*

1.13 Transboundary Impact Screening

A transboundary impact screening has been prepared (AtkinsRéalis, 2026), and concluded that:

'The potential for transboundary impacts have been considered throughout the assessment of the Proposed Project. This consideration has shown that no likely significant adverse environmental impacts across boundaries will occur and as such there is no requirement to notify adjacent jurisdictions of the Proposed Project'.

Refer to Appendix 1-3, Volume 3 of the EIAR.

1.14 Structure of this Environmental Impact Assessment Report

This EIAR includes all necessary technical studies to address the likely significant environmental impacts of the construction, operation and decomissioning of the Proposed Project (specifically in accordance with Table 3-4 of the EIAR guidelines (EPA, 2022) with respect to standard terminology used to describe significance of effects).

The disciplines identified for inclusion in this EIAR, along with the technical content, were determined based on baseline environmental surveys, monitoring and sampling, completion of an informal environmental scoping exercise (to inform the content and extent of matters covered in the environmental information) and consultation with statutory bodies.

The EIAR is presented in three volumes:

- Volume 1 - Non-Technical Summary;
- Volume 2 - EIAR;

- Volume 3 - EIAR Appendix 1 to Appendix 16.

The main body of the EIAR (Volume 2) contains:

- Chapter 1 Introduction and Methodology
- Chapter 2 Project Description
- Chapter 3 Reasonable Alternatives
- Chapter 4 Population and Human Health
- Chapter 5 Biodiversity
- Chapter 6 Landscape & Visual
- Chapter 7 Air Quality
- Chapter 8 Climate
- Chapter 9 Noise & Vibration
- Chapter 10 Traffic & Transportation
- Chapter 11 Land, Soils & Geology
- Chapter 12 Water
- Chapter 13 Cultural Heritage
- Chapter 14 Material Assets
- Chapter 15 Major Accidents and Disasters
- Chapter 16 Cumulative Impacts
- Chapter 17 Interactions
- Chapter 18 Schedule of Environmental Commitments
- Chapter 19 Reference List

1.14.1 Technical Chapter Structure

Technical chapters are generally structured as follows:

- An introduction describing the purpose of the section;
- A description of the methodology used in the section;
- A description of the aspects of the existing environment relevant to the environmental topic under consideration;
- Characteristics of the Proposed Project under consideration;
- An assessment of the impact of the Proposed Project on the environmental topic (in accordance with Table 3-4 of the EIAR guidelines (EPA, 2022) with respect to significance of effects, as previously noted);
- Recommendations for mitigation measures to reduce or eliminate any significant negative impacts identified; and,
- An assessment of the residual impact that will remain, once recommended mitigation measures are fully and successfully implemented.

Further details of the methodology and discipline-specific best practice and guidance are presented in each Chapter. Sources of information mentioned in the text are either i) listed in full in the bibliography (Chapter 19 – References) or ii) are referenced in full in the text.

The full planning application pack, including this EIAR will be available for public viewing from the ACP Office, Galway County Council Office, or the SID Application Website www.cashlapeakerplantsid.ie

2. Project Description

This Chapter provides a detailed overview of the Proposed Project including its construction, operation and decommissioning phases. The constituent elements of the project can be broadly categorised under four key elements:

- Peaker Plant (Section 2.2.1.)
- An Above Ground Installation (AGI) (Section 2.2.2)
- A Gas Networks Ireland (GNI) Underground Gas Transmission Pipeline (Section 2.2.3)
- 220 kV On-Site Substation And Underground Cable Grid Connection Route (Section 2.2.4)

The interrelationship of these elements is outlined in Figure 2-1.

The overall purpose of the project is to provide additional electricity generating capacity, ensuring security of supply during periods when electricity demand is higher than average and cannot be met by existing renewable energy technologies on the system. It is proposed that the project will operate It is proposed that the Peaker Plant will operate until 31 December 2050.

Chapter 3 presents Reasonable Alternatives to the Project.

2.1 General Overview

In brief, the Cashla Peaker Plant comprises a single open-cycle gas turbine and generator with associated auxiliary support equipment. Natural gas is combusted in a dry low NOx combustion system which pre-mixes natural gas with air prior to combustion and then dilutes the combustion products with excess air from the compressor. This system serves to minimise the generation of thermal NOx from air borne nitrogen whilst also ensuring complete combustion minimising the generation of Carbon Monoxide (CO). The hot compressed air from the combustor expands in the gas turbine which absorbs the thermal energy and turns a directly connected electrical generator (Section 2.2.4). The air leaving the turbine then passes through a noise reducing silencer before exiting via the gas turbine vertical exhaust stack (Section 2.2). The generator produces electricity for transmission via the proposed onsite 220 kV air-insulated substation (Section 2.2.4) to EirGrid's network at the Cashla substation (Section 2.2.4).

To comply with Commission for Regulation for Utilities (CRU) requirements to ensure security of energy supply, low sulphur diesel will be stored (via. 2 no. above ground 11.1 m high storage tanks with a total combined capacity of 5470 tonnes (or 6670m^3)) as a backup fuel for the gas turbine and is considered a secondary fuel source. A quantity of propane gas is used to establish combustion in the gas turbine when starting with diesel fuel. One tonne of propane gas will be stored which is sufficient for around 30 start events. It should be noted that it is expected that operation on low sulphur diesel would only occur in exceptional circumstances such as an interruption to gas supplies or other electricity grid system emergencies. Other than occasional diesel system testing for short periods, the use of diesel fuel is expected to be rare with most years having no requirement other than mandatory testing. Mandatory testing on the diesel backup fuel is anticipated to occur for up to 18 hours per annum in accordance with EirGrid's Requirements (the Transmission System Operator) Grid Code. This testing involves starting up the gas turbine on diesel fuel for a brief period sufficient to confirm this backup function remains reliable.

A Flow Diagram depicting the main components of the Cashla Peaker Plant is presented in Figure 2-1.

2.1.1 Planning Strategy

The Proposed Project comprises four main elements: the Peaker Plant, GNI above-ground installation and gas pipeline, ESB substation, and underground grid connection. The GNI gas pipeline is subject to a separate consenting process under section 39A of the Gas Act 1976, as amended.

The remaining three elements, the Peaker Plant, above-ground installation, and electricity transmission infrastructure (substation and underground grid connection) constitute strategic infrastructure development (SID) under the Planning and Development Act 2000, as amended. Different provisions of the Act apply depending on the type of SID:

Standard SID development is applied directly to An Coimisiún Pleanála under section 37E of the Act.

SID comprising electricity transmission infrastructure must be applied for under section 182B, as provided in section 182A of the Act.

Accordingly, the substation and underground grid connection will be the subject of a separate section 182B planning application, while the Peaker Plant and above-ground installation will be the subject of a section 37E planning application.

The rationale for the separate planning applications, including details regarding pre-application consultation (PAC) with An Coimisiún Pleanála for each application, is outlined in the Planning Statement prepared by McCutcheon Halley Planning Consultants.

For the purposes of this Environmental Impact Assessment (EIA), the Proposed Project has been assessed as a single, combined project. A single Environmental Impact Assessment Report (EIAR) has therefore been prepared to assess the environmental effects of the overall project. An EIAR which assesses the Proposed Project as a single, combined project will be submitted with both planning applications.

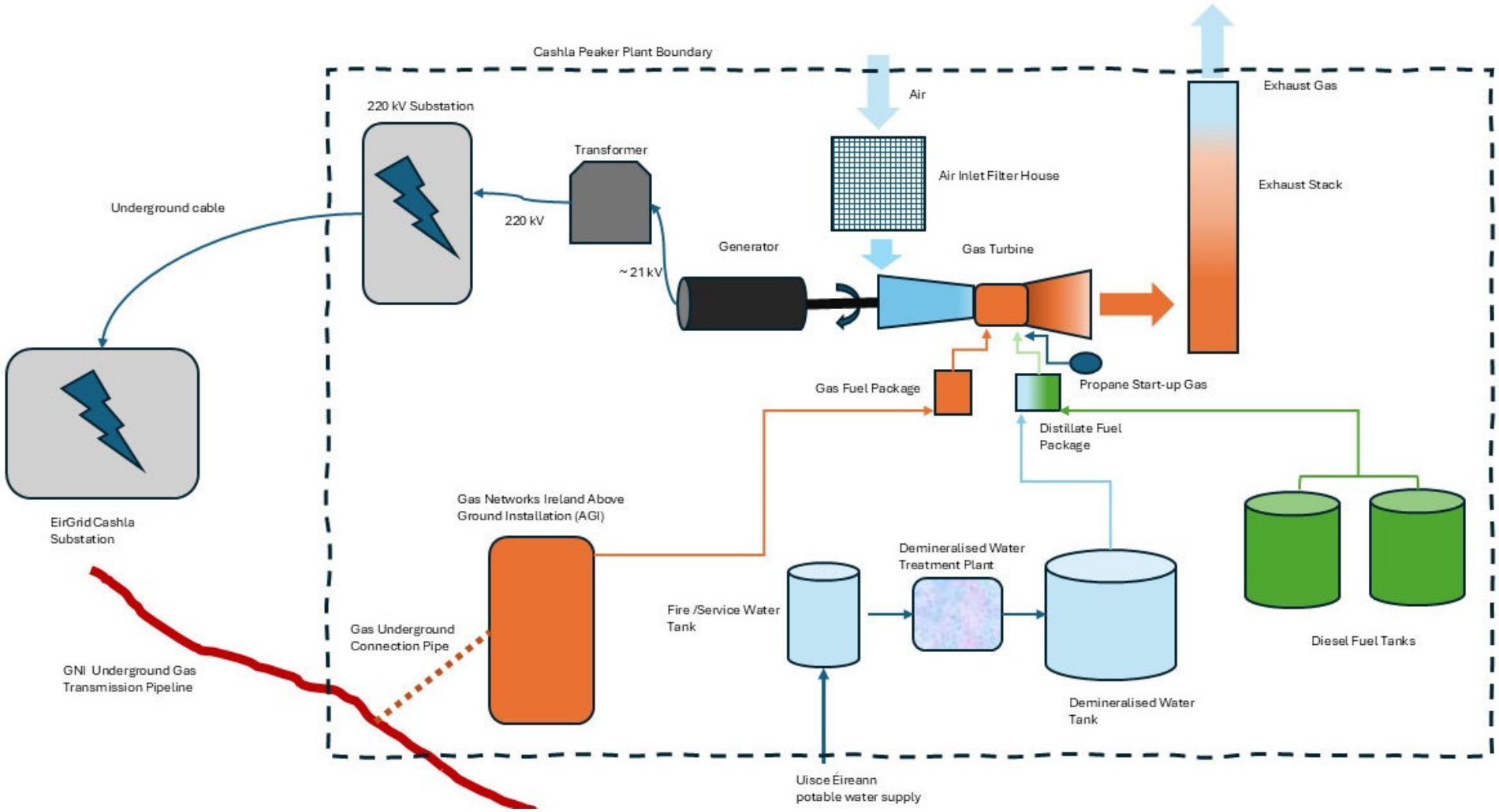

Figure 2-1 - Flow Diagram depicting the main components of the Proposed Project

2.2 Main Features

2.2.1 Peaker Plant

2.2.1.1 Gas Turbine Generator

The gas turbine generator will consist of 1 no. open-cycle gas turbine powering a generator that will provide an electrical supply of 325 MW or 334 MW to the EirGrid 220 kV transmission system (Section 2.2.4). Depending on the technology that is used, the turbine will have a total output capacity of either 325 MW or 334 MW. The turbine parameters are the same in both cases, it is only the output capacity that will change depending on the technology used.

The gas turbine draws in air through an air inlet filtration system, compresses the air to raise the pressure, heats the air by combusting it with fuel, expands the hot pressurised air through a turbine connected to an electrical generator to produce electrical power and finally exhausts the air via a vertical exhaust stack. The gas turbine combusts natural gas as the primary fuel and, if required, low sulphur diesel as a secondary backup fuel (Section 2.2.5).

The air inlet filtration system consists of a filter house structure containing bag filters which catch any sizeable incoming particles to prevent contamination of the gas turbine components. Once the differential air pressure across the filters becomes too great the filter bags are replaced and the used filters removed to an off-site licenced disposal facility. The filter house also contains a silencer (noise silencing panels in-line with the air flow) internally which serves to limit external noise produced by the gas turbine's compressor. The filtered air enters the gas turbine's compressor and after compression passes into the combustion section.

The gas turbine and generator support bearings are cooled and lubricated by a lubrication oil system. The lubricating oil module contains an oil tank which will contain round 13 m^3 of turbine lubricating oil.

2.2.1.1.1 Secondary Fuel - Low Sulphur Diesel

To comply with Commission for Regulation for Utilities (CRU) and EirGrid requirements in order to ensure security of energy supply, low sulphur diesel will be stored as a backup fuel for the gas turbine and generator and is considered a secondary fuel source. In total, ca. 5470 tonnes (or 6670m^3) of low sulphur diesel will be required to be stored onsite via. 2 no. above ground storage tanks (each tank will be 11.1 m high). The gas turbine can combust the secondary diesel fuel if requested by EirGrid to generate electricity at a time when there is insufficient gas supply from GNI. If this request is made, low sulphur diesel fuel will be combusted in the same combustion system and process as for gaseous fuel[2]. As previously noted, it is expected that operation on low sulphur diesel would only occur in exceptional circumstances such as an interruption to gas supplies or other electricity grid system emergencies. Other than occasional low sulphur diesel system testing for short periods, the use of low sulphur diesel fuel is therefore expected to be rare with most years having no requirement other than mandatory testing (Section 2.2.5).

Mandatory testing on the low sulphur diesel backup fuel is anticipated to occur for up to 18 hours per annum in accordance with EirGrid (the Transmission System Operator) Grid Code. This testing involves starting up the gas turbine on low sulphur diesel fuel for a brief period sufficient to confirm this backup function remains reliable.

[2] Note: there is no prescribed emission limits within the Industrial Emissions Directive (2010/75/EU) for gas turbines operating for less than 500 hours per year on liquid fuel. Instead, exhaust emissions when combusting diesel are controlled to within the European Large Combustion Plant BREF Best Available Techniques limits for <500 hours operation.

Demineralised water (Section 2.2.7) will be injected into the combustion zone during secondary fuel combustion to prevent excess temperatures which would otherwise result in excessive thermal NO_x generation occurring.

2.2.1.1.2 Demineralised Water

As part of the Peaker Plant's gas turbine operation requirements, demineralised water is required. Demineralised water will be injected into the gas turbine:

1. For power augmentation (the injected water increases the air mass flow passing through the gas turbine) when combusting gas fuel or,
2. To reduce NOx gases when combusting low sulphur diesel fuel (i.e., the secondary fuel source). Demineralised water is injected into the gas turbine combustion system in a defined ratio to the volume of low sulphur diesel fuel being combusted to control the maximum combustion temperature.

In both cases, the injected demineralised water vaporizes and exits the turbine through the stack. Once potable water from the Uisce Éireann supply is demineralized in the water treatment plant, the water will be stored in a single steel demineralised water tank and pumped to the gas turbine as required. Up to 25% of the water used will be rejected as heavily mineralised waste water. This waste water will be stored in a waste water tank and removed off-site as required to an external wastewater treatment plant for disposal by a licensed contractor (Section 2.2.7). Occasionally to maintain the gas turbine compressor efficiency it will be washed with demineralised water mixed with a cleaning fluid. After washing, the drained wash water is also passed to the waste water tank. Demineralised water will also be used as heat transfer fluid within the closed circuit cooling water system.

As discussed, the Cashla Peaker Plant is required by EirGrid to have a secondary fuel stored on site in case support is required for the electrical transmission network when the primary gas fuel is unavailable. The electrical generation capacity that is required to be achieved using secondary fuel is stipulated by EirGrid to be at least 90% of the capacity achieved with gas fuel. The available technology providers all require water to be injected into the combustion system at this 90% capacity to enable the exhaust emissions to remain within legally allowable limits. If water was not used, these limits would be exceeded. The actual water usage is related to the capacity demanded from the gas turbine and will be optimised during the commissioning testing to avoid excessive usage.

During the life of the Peaker Plant the use of secondary fuel (i.e. low sulphur diesel), outside of occasional testing, is expected to be very infrequent with the potential for no use during most years.

It should be noted that the available gas turbines are capable of operating on secondary back-up low sulphur diesel fuel and maintain legally allowed air emission limits without the addition of water injection. However, the electrical capacity that can be achieved is lower than that stipulated by EirGrid in their electrical transmission Grid Code (rules for users of the electrical transmission system). Therefore, if water was not to be injected when secondary low sulphur diesel fuel would be required there is a risk that the Peaker Plant would be non-compliant with the transmission system grid code.

2.2.1.2 Gas Turbine Stack

The gas turbine cylindrical stack will be 30 m high, with a diameter of 7 m. Its purpose is to safely expel exhaust air from the gas turbine in compliance with environmental regulations for air quality. During operation the exhaust air flow is continuously sampled with a continuous emission monitoring system (CEMS) to ensure compliance with the Industrial Emissions Licence.

2.2.1.3 Buildings and Structures

2.2.1.3.1 Administration Building with ESB Substation

The Administration Building with ESB Substation (ca. 390sqm) is a purpose-designed, dual-function facility combining administrative and operational functions within a single structure. The administrative zone accommodates open-plan office space alongside meeting rooms and support facilities, designed to promote efficient workflow and visual connectivity. The building includes a kitchen, toilets and shower facilities to support the site personnel. The building is sited adjacent to the main site entrance gate and includes an integral site security office facility.

The adjoining substation annex contains the ESB electrical distribution transformer and electrical fiscal meter which provides auxiliary power to the site essential to the power plant's operation.

2.2.1.3.2 Materials and Finishes

The architectural treatment will reflect the industrial character of the Proposed Project while incorporating refined, low-maintenance finishes. The external envelope will comprise a Kingspan insulated metal panel system, chosen for its thermal performance, robustness, and rapid installation benefits, particularly suited to challenging operational environments.

Openings will be formed using powder-coated aluminium window units, fitted with double glazing for improved energy efficiency and comfort. Where required, windows are specified with enhanced security features. External doors will be constructed from high-grade steel, including louvred units for ventilation to plant areas and certified fire-rated doors in accordance with current fire safety standards.

The roof will be a continuation of the insulated panel system, designed to integrate with concealed rainwater goods, ensuring a clean, industrial profile while managing surface water efficiently. It is envisaged that this building's structural form will be a steel frame with cladding type. The substation will be masonry with cladding envelope in conjunction with ESB/EirGrid Standards. Steel columns to rest on suitable foundations and the ground floor slab to be a 200 mm reinforced concrete ground bearing slab type to support plant loads.

2.2.1.3.3 Workshop

The Workshop building (750 m^2) is a hard-wearing industrial facility designed to accommodate routine plant maintenance, equipment servicing, tool storage, and light fabrication activities. The internal layout prioritises functionality, with generous internal heights to facilitate crane access and the manoeuvring of large plant components. Floor construction is specified to support heavy static and dynamic loads. The workshop is also used to store equipment spare parts and consumables such as gaskets for routine maintenance. A small quantity of lubrication grease would also be stored for the occasional lubrication of equipment bearings.

The workshop building also contains a chemical testing laboratory used to test water and oil samples to determine their condition and will contain standard laboratory test equipment. The laboratory is a room within the workshop building.

2.2.1.3.4 Chemical Storage

Chemicals and anticipated volumes expected to be stored are listed in Table 2-1. These chemicals will be stored in sealed containers in a store room in the plant's workshop building. The exception being sulphuric acid which will be stored in the demineralised water treatment plant in a double walled or bunded Intermediate Bulk Container (IBC).

Table 2-1 - Chemical Storage and estimated volumes

Chemical	Volume
Lubricating oil to top-up equipment bearing lubrication systems	100 litres
Lubricating grease to top up equipment bearing grease	50 kg
Water system biocide to protect the closed-circuit cooling system	100 litres
Biocide for low sulphur diesel storage	1000 litres
Corrosion Inhibitor to protect the closed-circuit cooling system	100 litres
Weak sulphuric acid	1no. IBC (1000 litres)

2.2.1.3.5 Materials and Finishes

The external envelope will be formed using Kingspan insulated metal panel systems, selected for their excellent thermal insulation, durability, and efficiency in construction. The system ensures long-term performance in demanding operational conditions. Security-rated ironmongery is included where appropriate, in line with site safety protocols.

Access is provided via steel security doors, including louvred configurations to support natural ventilation in plant zones. Fire-rated doors are included in line with statutory fire protection requirements. The roofing is finished with an insulated panel system, integrated with concealed rainwater drainage to provide a streamlined industrial aesthetic and ensure effective water management.

Flooring will be constructed from reinforced concrete, specified with epoxy coatings in workshop areas to resist chemical exposure and mechanical wear. It is envisaged that this building's structural form will be a steel portal frame with cladding type. Steel columns to rest on suitable foundations and the ground floor slab to be a 200 mm reinforced concrete ground bearing slab type to support plant loads.

2.2.1.3.6 Electrical Control Building

The Electrical Control Building (243.5 m^2) is designed as a standalone facility housing the electrical and control equipment which manage the power generation and auxiliary equipment. The equipment interfaces with the control equipment within the Administration and Control Building. This building will not be occupied during normal operation but only accessed to undertake occasional control and maintenance functions.

2.2.1.3.7 Materials and Finishes

Externally, the building adopts a robust and durable envelope suited to its industrial setting. The external wall finish comprises scud render and float in sand white cement plaster with a roughcast texture. This finish provides a textured, tactile quality, balancing functionality with a refined appearance and was chosen for its weather resistance, longevity, and cohesive integration within the architectural language of the wider site. This finish provides a textured, tactile quality, balancing functionality with a refined appearance.

The roof will be finished with, blue/black natural slates offering a traditional profile that enhances the building's visual character while delivering proven performance in weather protection and durability. The pitched roof form supports efficient rainwater runoff and contributes to the structure's distinctive presence within the energy facility.

Access and service doors are constructed from high-strength steel. Fire-rated and louvred door types are specified where required to ensure compliance with fire safety regulations and mechanical ventilation needs.

The overall design prioritises functional clarity, material durability, and a cohesive aesthetic that aligns with both the operational requirements and the architectural standards of the power generation facility. It is envisaged that this building's structural form will be a load bearing masonry structure with rendered finish. The ground floor slab will be a 200 mm Reinforced Concrete ground bearing slab type to support plant loads.

2.2.1.3.8 220 kV AIS Substation Building

The 220 kV AIS substation Control Building contains control and communication equipment for ESB to operate the substation and communicate with their external facilities. The building also contains a back-up low sulphur diesel generator to power the site in an exceptional case when neither the transmission connection nor the local ESB distribution connection electrical power are available. Additionally, the building contains a workshop space, mess room and toilet facility. The back-up low sulphur diesel generator in the plant is expected to be circa. 1 MW and 6 m x 2.5m.

2.2.2 Gas Networks Ireland Gas Infrastructure

2.2.2.1 Above Ground Installation

To supply gas to the gas turbine and generator, an above ground installation (AGI) will be built within the Proposed Project boundary. GNI will own and operate the AGI asset with the purpose of supplying a gas connection to the (BGE) Peaker Plant, which requires this to operate. GNI will exclusively operate the underground transmission gas pipeline (Section 2.2.3) and carry out routine maintenance for the lifetime of the asset as per I.S. 328: 2021 and I.S. EN 12186: 2014.

For clarity, the Rathmorrissy AGI is described in detail as follows:

A Gas Networks Ireland Above Ground Installation (AGI) will be installed and connected to the existing mains gas network within the south-western boundary of the site. The AGI (named Rathmorrissy) will be within a 2500 m^2 enclosure secured by a 2.4 m high fence with an access gate and will include internal access routes, concrete bases to support the infrastructure, and stone-chipped surfacing. The AGI installation comprises five single-storey buildings: the Gas Analyser Kiosk (6.25 m^2), the Boiler House Kiosk (37 m^2) including 10 no. boiler flues 5.67 m above ground level and emergency generator, two Pressure Reduction Kiosks – main (72 m^2) including 5.24 m high vents, and ancillary pressure reduction kiosk (21.7 m^2) including 3.72 m high vents – and the Electrical and Instrumentation Kiosk (19 m^2). The compound includes 4 no. floodlighting columns (each 8 m in height). The project will include a gas meter, filters, heat exchangers, and above-ground pipework, and other ancillary works.

The AGI will perform the function of receiving the gas, metering the gas and passing it onward in a suitable process condition to the Peaker Plant's gas turbine combustion system gas supply connecting pipe. It is expected the gas supply from the GNI AGI will be supplied at a pressure of 35 barg[3] to suit the requirements of the gas turbine combustion system.

Heaters within the proposed main project site will raise the temperature prior to transmitting the gas to the turbine. The gas turbine control system will then control the gas into the turbine's combustion system as required.

The AGI will be designed and constructed in accordance with IS 328:2021 and ISEN 12186:2014 standard. The AGI equipment will be designed to EN standards for the processing of natural gas.

[3] barg = pressure measured relative to atmospheric pressure (about 1 bar).

In line with GNI's Heating System Functional Specification Requirements, the proposed gas pre-heating system for this site will include a Packaged Boiler Unit (PBU), water system and shell and tube heat exchangers. The modulating boilers within the PBU will maintain the water temperature circulating in the water system for the gas pre-heating. The boilers will operate in condensing mode across the full range of pre-heating requirements. The installed capacity of the boilers will have N+1 redundancy (i.e. there is an additional spare boiler at full heat requirement). Assuming maximum gas pressure reduction from 88 barg to 35 barg, the design heat requirement at max. station flow is 1,149 kW. It is proposed that there are 10 no. boilers installed within the boiler house, each with a thermal input of 144.3 kW. Each boiler output is 140.4 kW. NOx emission levels < 40 mg/kWh. CO_2 is 8.9% at maximum boiler output. The Medium Combustion Plant Regulations would not apply to the boilers (as MCP only apply to plant >1 MWth). The boilers will only operate when the Peaker Plant is operating so running time will be minimal.

2.2.2.1.1 Gas Networks Ireland Building Structures

The AGI installation comprises five single-storey buildings: the Gas Analyser Kiosk (6.25 m^2), the Boiler House Kiosk (37 m^2) including 10 no. boiler flues 5.67 m above ground level and emergency generator, 2 no. Pressure Reduction Kiosks – main (71.92 m^2) including 5.24 m high vents, and ancillary (21.7 m^2) including 3.72 m high vents – and the Electrical and Instrumentation Kiosk (19.25 m^2).

2.2.2.2 Gas Supply

Gas will be supplied to the AGI at transmission pipeline normal operating pressure of between 40 to 85 barg. The gas will be filtered to remove any contaminants e.g. pipeline corrosion particles, prior to being metered and analysed for chemical content as required for fiscal purposes. The gas will the be heated using a Packaged Boiler Unit (PBU), water system and shell and tube heat exchangers. Heating is required due to the Joule-Thomson cooling effect and potential condensation forming as a result of pressure reduction. After heating, the gas is reduced in pressure via gas regulating valves to 35 barg and is then connected to the Bord Gáis gas supply system which will pass via an underground gas supply pipe. The gas pipe will then transition above ground and the gas will then be heated, measured for flow, analysed for composition and passed through a liquid removal vessel and on to the gas turbine gas control valve.

2.2.3 Underground Gas Transmission Pipeline

The fuel source for the Peaker Plant will be natural gas, supplied from an existing high-pressure gas transmission line (existing Mayo-Galway pipeline [BGE/85]) from GNI national gas grid (see Chapter 3 for a summary of potential fuel sources and alternatives). An underground connection (referred to as GNI146 Rathmorrissy Gas Pipeline) will be made to this existing high-pressure pipeline by GNI using hot tapping (a technique used to create a connection to an existing pressurised pipeline without the need to shut down or decommission the system and routed underground via a trench to the AGI). Design and operating parameters for the proposed GNI146 Rathmorrissy Gas Pipeline are presented in Table 2-2.

Table 2-2 - Design and operating parameters of the GN146 Rathmorrissy Gas Pipeline. Source: Gas Networks Ireland Basis of Design (August 2025; Fingelton White and Neo Dyne)

Parameter	Value	Source
Design Pressure	88 barg	BGE/8500/2/1
Maximum Operating Pressure	85 barg	BGE/TN/01
Minimum Operating Pressure	40 barg	BGE/8500/2/1
Design Flow rate	92,585 standard cubic metres per hour	Connection Agreement

Design Temperature (min / max)	-20 C / +60 C	-

Note: The GNI146 Rathmorrissy gas pipeline does not form part of the proposed development subject of the SID planning application but will be subject to a Section 39A Consent under the Gas Act 1976, as amended.

2.2.4 Grid Connection Infrastructure

The electricity generated by the gas turbine and generator is increased in voltage via a step-up transformer before being supplied to the on-site 220 kV AIS. The electrical power will then be exported from the on-site 220 kV AIS via an underground grid connection cable to the existing Cashla 220 kV Substation which is owned and operated by EirGrid. The electricity for the Plant's electrical equipment will be supplied via a Unit Auxiliary Transformer which shall either be supplied from electricity generated by the gas turbine generator when in operation or from imported power from the 220 kV grid connection when the gas turbine generator is not in operation.

2.2.4.1 Step-Up Transformer

The proposed step-up transformer will raise the voltage of the electricity produced by the gas turbine generator to the export voltage of 220 kV. The electricity is expected to be produced at a voltage of approximately 21 kV. The delivery and installation of the 220 kV transformer will be managed in accordance with regulations governing the movement of abnormal loads (Section 2.3.4). Once the transformer is installed in a bunded location, it will be filled with approximately 100 m^3 of insulating oil required for its safe operation. The bund capacity will be designed to contain not less than 110% of the total oil volume of oil contained within the equipment.

2.2.4.2 Unit Auxiliary Transformer

The proposed Unit Auxiliary Transformer (UAT) will reduce the voltage level of the electricity produced by the gas turbine generator, expected to be approximately 21 kV, down to a level suitable for direct use by electrical equipment (e.g., motor driven pumps, lights, control system equipment etc). The UAT will be installed in a bunded location and filled with approximately 30 m^3 of insulating oil required for its safe operation. The bund capacity will be designed to contain not less than 110% of the total oil volume of oil contained within the equipment.

2.2.4.3 Proposed On-Site 220 kV 4-Bay Air-Insulated Substation (AIS)

A 220 kV 4-Bay Air Insulated (AIS) substation will be built on Site. This will be designed and constructed to meet EirGrid requirements and standards. The substation construction methodology is detailed in Section2.3.7.2.3 .

2.2.4.4 Shunt Reactor

The proposed 220 kV AIS will include the installation of a 220 kV Shunt Reactor. The Shunt Reactor is an oil-immersed electrical device designed to absorb reactive power and thereby stabilise voltage on the transmission network. The Shunt Reactor will be installed within a bunded enclosure. The bund capacity will be designed to contain not less than 110% of the total oil volume of oil contained within the equipment. Once installed, the reactor will be filled with approximately 20 m^3 of insulating oil required for its safe operation. All oil-filled equipment, including the Shunt Reactor, will be provided with oil containment bunds and leak detection systems. These measures are required to mitigate the risk of accidental spillage and to comply with EirGrid's technical specifications and environmental protection standards.

2.2.4.5 220 kV Underground Cable Grid Connection Route

The proposed 220 kV underground cable (UGC) is 8.1 km in length and will transport electricity from the proposed 220 kV substation connecting the Peaker Plant to the existing 220 kV Cashla substation. For the majority of the route, the UGC navigates the public road network in an eastward direction from Cashla 220 kV substation to the Peaker Plant. The UGC route predominantly traverses within the public road curtilage (7.63 Ha.), with some minor sections traversing within privately owned lands (1.78 Ha.). Horizontal directional drilling (HDD) is required to cross the M6 motorway in two separate locations, and the M17 motorway in one location. This method is the least intrusive installation method and will avoid any damage to the motorway corridor and associated furniture.

Drawings 300101269-DR-100 through 300101269-DR-115 submitted with the drawing pack for this planning application show the proposed UGC route (Appendix 2-12, Volume 3 of the EIAR).

An overview of the proposed UGC route is shown in Figure 2-2.

Figure 2-2 - Proposed Underground Cable Route (showing relevant chainage)

2.2.4.6 Proposed Underground Cable Route

2.2.4.6.1 Section 1: 0 m-1600 m

The proposed UGC route commences by exiting the proposed joint bay, residing within the bell mouth outside the gate of Cashla 220 kV substation. The UGC route sweeps right converging onto the L-7109, where the UGC will traverse in a southern direction within the public road network. The route will continue within the local roadway, residing within the centre median of the narrow road for circa 840 m, towards the townland of Lisheenkyle. The UGC encounters the right junction for the L-71093 public roadway. The UGC route will sweep right and converge onto this public road section where it will traverse southwards, following the centre alignment of the roadway in a similar method as the previously mentioned road section. Remaining within the curtilage of the public road for approximately 500 m, the UGC reaches the boundary of the public road section upon entering private lands at Ch. 1300 m. The UGC route remains within the curtilage of the discarded road section (public domain before the construction of the motorway) that is now under private ownership. The UGC continues south for 20 m and reaches the M6 motorway infrastructure (Ch. 1350 m). HDD will be implemented to facilitate underground cabling crossing the motorway asset. The UGC then emerges in private lands at Ch. 1450 m. The UGC route remains within the road curtilage of the discarded road section (public domain before the construction of the motorway) that is now under private ownership. Remaining within the curtilage of the public road for approximately 50 m, the UGC continues south trajectory, entering the boundary of the public road section and departing privately owned road section.

Section 1 contains 3 no. Joint Bays located below ground and finished/reinstated to the required roads specification. Joint bays will have associated communication chambers and link boxes which will have a surface access hatch which will match existing ground levels.

- Joint Bay 01 (JB-01) will be located outside the gate and within the bell mouth of Cashla 220 kV substation, Chainage – 0 m
- Joint Bay 02 (JB-02) will be located south of JB01 within the public roadway L-7109, Chainage – 760 m
- Joint Bay 03 (JB-03) will be located south of the M6 Motorway HDD crossing within the private land road within Chainage – 1520 m

2.2.4.6.2 Section 2: 1600 m-3000 m

The UGC progresses for approx. 80 m before sweeping left and heading north, departing the local roadway L-71093 and converging onto the L-7109 local roadway. The UGC route traverses within the left lane heading in a south-eastward trajectory for approx. 100 m, and within the centre of the public road as the road width becomes narrow for another 420 m before encountering the T junction onto the L-7108. The UGC will sweep left, heading eastward within the middle of the L-7108 for approximately 480 m. On traversing the distance of 480 m, the UGC Route will encounter the right-hand junction for L-71082 roadway. The UGC will converge onto the local roadway L-71082 within the townland of Caherbriskaun. The UGC changes trajectory heading eastwards parallel with the L-7108 roadway and passing the residences to the south of the spur road for an approx. 300 m. Upon traversing this section of road, the underground cable route encounters the M6 motorway asset on a second occasion. HDD trenchless technology method will be implemented to facilitate underground cabling crossing the motorway asset. The UGC then emerges north of the M6 within Galway County Council owned lands. The UGC route remains within the road curtilage of the maintenance road section traversing approximately 40 m north where the UGC will return to the L-7108 and converge right, heading eastward on the L-7108.

Section 2 contains 1 Joint Bays located below ground and finished/reinstated to the required roads specification.

Joint bays will have associated communication chambers and link boxes which will have a surface access hatch which will match existing ground levels.

- Joint Bay 04 (JB-04) will be located within the public roadway within L-7108 Chainage – 2290 m.
- Section 2 will require 1 No. HDD crossing.

2.2.4.6.3 Section 3: 3000 m-6750 m

The UGC progresses eastward within the centre of the L-7108 towards the residential townlands of Knocknacreeva and Caraunduff, remaining within the extents of the public road network of the carriageway along the L-7108, the UGC saliently traverses within the roadway in parallel to existing watermain services, and passes numerous residential entrances along the public road corridor for approximately 2200 m. Upon navigating the roadway, the UGC route will encounter the junction for the L-3103 in the townland Castlelambert. The UGC route sweeps right at the junction, continuing eastward within the public road curtilage eastward of Castlelambert for 250 m. Upon traversing the 250 m distance, the UGC sweeps away from the public road and navigates into Galway County Council lands in an offroad section for an approximately 90m within the offroad terrain before encountering the M18 motorway asset. A third, and final HDD is implemented as the least intrusive method of crossing the motorway. Upon traversing the Motorway section via HDD method, the UGC emerges to the other side of the M6 within the Galway County Council lands. The UGC traverses eastwards for approximately 45 m within Galway County Council where the UGC will encounter the L-3103 local secondary road and converge onto the public road section and continue in an eastward trajectory within a single lane. The UGC traverses along the public road corridor for approximately 850 m, where the route continues within an access track to the Peaker Plant.

Section 3 contains 5 no. Joint Bays located below ground and finished/reinstated to the required roads specification. Joint bays will have associated communication chambers and link boxes which will have a surface access hatch which will match existing ground levels.

- Joint Bay 05 (JB-05) will be located east of JB04 within the public roadway L-71082 at Chainage – 3180 m
- Joint Bay 06 (JB-06) will reside within the curtilage of the public roadway L-7108. Chainage – 4080 m
- Joint Bay 07 (JB-07) will be saliently located within the extents of the L-7108.Chainage – 4970 m
- Joint Bay 08 (JB-08) will be saliently located, in close proximity, east of the identified area for HDD receptor area infrastructure within the public owned area at Castlelambert Bridge (L-3103). Chainage – 5840 m
- Joint Bay 09 (JB-09) will be located within the public roadway L-3103. Chainage – 6710 m
- Section 3 will require 1 No. HDD crossing

2.2.4.6.4 Section 4: 6750 m-8000 m

From this point, the UGC will turn right, to continue within an access track to the Peaker Plant facility. Carrying within private lands, traversing in a south-westerly direction for approximately 350 m. The UGC then departs and maintains a south-west traversal for approximately 700 m onto the site of the proposed Peaker Plant facility. The UGC will terminate at the cable ceiling ends of within the Peaker Plant facility.

- Section 4 contains 1 no. Joint Bay located below ground and finished/reinstated to the required roads specification.
- Joint bays will have associated communication chambers and link boxes which will have a surface access hatch which will match existing ground levels.
- Joint Bay 10 (JB-10) will be located within the access track to the Peaker Plant facility at Chainage – 7560 m.

2.2.4.7 Horizontal Directional Drilling locations

Horizontal Direction Drilling (HDD) is a method of drilling under obstacles such as motorways, bridges, railways, and watercourses in order to install cable ducts under the obstacle. This method is employed where installing

ducts using standard installation methods is not possible. TII's current policy is not to facilitate the crossing of HV cables in TII bridge infrastructure. HDD will therefore need to be implemented for any UGC motorway crossings. The proposed HDD launch/receptor pit locations are presented as follows.

2.2.4.7.1 HDD Location 1 – M6 Motorway Crossing Point 1

HDD will be used for the UGC grid connection route to cross the M6. The UGC grid connection route will traverse beneath the motorway carriageway, adhering to the Transport infrastructure Ireland (TII protocol guidelines (DN-STR-03012-06, -8). The first HDD crossing will cross the M6 motorway at Ch. 1350 m. At this location, the L-71093 crosses the M6 with a flyover bridge before reconverging onto this section of local primary roadway.

2.2.4.7.2 HDD Location 2 – M6 Motorway Crossing Point 2

The second HDD crossing point is on the M6 motorway at Ch. 2950. The proposed crossing point is within an area of slight undulating geographical gradients. Upon traversing the Motorway section via HDD, the UGC emerges north of the M6 within the Galway County Council owned lands.

2.2.4.7.3 HDD Location 3 – M17 Motorway Crossing Point 1

The third, HDD crossing is considered the least intrusive method to cross the M17 motorway (Ch 5670 m). The proposed crossing point is within an area of slight undulating geographical gradients. Upon traversing the Motorway section via HDD method, the UGC then emerges to the other side of the M17 within the Galway County Council lands.

2.2.4.8 Existing Cashla Substation

The existing Cashla substation is an Air Insulated Substation (AIS; Figure 2-3). At this substation facility, there are two operational voltages: a primary voltage side (220 kV) and a secondary voltage side (110 kV). There is no other voltage potential at this substation node and there are currently no planned works to deep retrofit or reinforce this EirGrid node for Distribution connections. This Transmission system operated (TSO) substation can and will only accept transmission connections (110 kV & 220 kV) from renewable generators, with a potential megawatt export, ranging from circa 80 MW to 450 MW on the primary bus bar.

The Proposed Project has obtained a connection offer to the electrical grid, subject to approval by EirGrid via an auction process. BGE was successful in the SEMO T-4 2028/29 auction for a 10-year contract covering Oct 2028 – Sept 2038. This means that BGE were deemed successful to connect to Cashla substation by EirGrid. BGE have engaged with EirGrid to present a proposed grid connection route along public road (22 April 25), in lieu of the approved connection offer to Cashla substation.

Figure 2-3 - Drone image of the existing Cashla substation. Source: TLI (2026)

2.2.5 Fuel and Water Storage

2.2.5.1 Secondary (Back-up) Low Sulphur Diesel Fuel Storage

Secondary (back-up) low sulphur diesel fuel will be offloaded on site from road tankers in a hard standing area with provision to collect any spilled low sulphur diesel to prevent any discharge to ground. The low sulphur diesel will be offloaded into two steel double skinned full containment tanks contained within a sealed concrete bunded area for storage. The tanks will contain a combined quantity of ca. 5470 tonnes (or 6670m^3) of low sulphur diesel fuel. The tanks will be designed in accordance with EN 14015 inclusive of all safety features required by the standard and as the result of safety design reviews during the detailed design stage. Fuel is pumped to the gas turbine fuel control valve using electrically driven fuel pumps. The stored low sulphur diesel will periodically be pumped through a water removal filtration system and back into the storage tanks to maintain the low sulphur diesel quality level. Water removed from the low sulphur diesel will be removed from site by tanker to a licensed treatment facility.

2.2.5.2 Emergency low sulphur Diesel Generator

In the event that the facility were to be disconnected from the EirGrid transmission network and an alternative power supply was not immediately available from the local ESB distribution connection, a back-up power supply is required.

The back-up power supply will be provided by an emergency low sulphur diesel generator and will provide power until the plant can be safely shutdown. The low sulphur diesel generator will contain a quantity of low

sulphur diesel fuel (1000 L) in a co-located tank sufficient for an estimated 24 hours operation. This back-up power supply serves to enable the gas turbine to shut down in a controlled manner and to maintain basic utility services (lights, communications etc) within the facility. The back-up power is initially provided with essential service battery storage and then over a longer term by a back-up generator until either the ESB distribution or transmission electrical connections are restored. The back-up generator will consist of an engine fuelled by low sulphur diesel. The engine's design including exhaust emissions will be compliant with the latest regulatory requirements which will be stated in the Site's Industrial Emissions (IE) operating licence.

2.2.5.3 Low Sulphur Diesel Start-up Propane Gas Storage

If the gas turbine[4] is required to start-up with secondary low sulphur diesel fuel, a small quantity of propane gas (circa 35 kg) would be used. The propane is required to reliably establish a flame in the combustion system prior to injecting the low sulphur diesel fuel. To facilitate numerous start up events prior to refilling the tank, 1 tonne of propane gas will stored on site. This will be stored in a 5 m^3 storage tank. The propane gas tank is located adjacent to the gas turbine to minimise the distance for the connection pipe. The tank will be of steel cylindrical construction with an internal heater.

2.2.5.4 Demineralised Water

Service water from the nearest suitable Uisce Éireann mains will be stored in a combined fire water and service water tank (approximate volume of 1480 m^3). This service water will then be pumped to the water treatment plant to undergo a demineralization process. Once demineralised, the water will be stored in a single steel demineralised water tank and pumped to the gas turbine as required. The storage volume will be up to 7,555 m^3. Waste from demineralised water production will be stored in a contaminated firewater tank of usable volume 1,087 m^3, constructed from sealed GRP or reinforced concrete. Wastewater will be removed as required by tanker for off-site disposal. It is anticipated that that this process will require 2 no. tankers per day and between 15-20 tankers per year total.

2.2.6 Firefighting System

2.2.6.1 Site wide

In the unlikely event of a fire and loss of electrical power, a low sulphur diesel driven fire water pump will supply fire water if needed. The pump will contain a quantity of low sulphur diesel fuel in a co-located tank of sufficient volume capacity to provide firewater in compliance with the regulatory requirement. The exact volume capacity will be calculated during the detailed design stage.

A dedicated fire-main system will be installed to encircle the entire site, designed to deliver up to 70 litres per second volume flow rate. This system will be supplied by a static firefighting and water service tank, which will hold a dedicated capacity of 540 m^3 – sufficient to support two hours of firefighting operations. Double hydrants will be provided throughout the site and will be positioned at least 6 metres away from any structure to ensure safety and accessibility.

The potable water supply, estimated at 6 litres per second, is not intended for firefighting use. Instead, all firefighting needs are expected to be met using the water stored in the static tank. The flow rate, tank volume and time to refill the tank will be calculated at detailed design stage. The tank will be sized in accordance with the "I.S. 391:2020 Fire mains for buildings - Installation, commissioning, maintenance and testing" and "UK National Guidance Document on the Provision of Water for Firefighting", specifically for sites exceeding 5 Ha.

[4] Depending on the gas turbine model selected.

2.2.6.2 Electrical Fire Control

2.2.6.2.1 Inside

The electrical building contains medium and low voltage electrical control and power switching systems. The building is protected by heat and smoke detectors to detect the potential for fire. In the event of a fire being detected the electrical supply to the power control equipment will be isolated and the automatic fire suppression system activated. The fire suppression system consists of an automatic gas-based system which is released and fills the room with sufficient concentration over a period of time to extinguish the fire. There are several types of gas-based systems available, and they include but are not restricted to CO_2 (Carbon dioxide), very effective in fire suppression (pneumatic siren activation required as life safety device). FM-200 or Novec which are highly effective and safe as they add an extra level of safety by not depleting oxygen levels completely.

The gas turbine enclosure contains hot surfaces and the potential for leakage of gaseous or low sulphur diesel (secondary fuel), or lubricating oil. In the event of a fire being detected, the automatic fire suppression system will isolate the gas turbine fuel supply and automatically release a gas-based system which fills the enclosure with sufficient concentration over a period of time to extinguish the fire. Options also include but are not restricted to other automatic gas-based such as CO_2 (Carbon dioxide), very effective in fire suppression (pneumatic siren activation required as life safety device), FM-200 or Novec which are highly effective and safe as they add an extra level of safety.

2.2.6.2.2 Outside Building Protection

Equipment containing stored volumes of flammable liquids (step up transformer, unit auxiliary transformer, gas turbine lubrication oil tank and the low sulphur diesel fuel tanks) are protected with water deluge systems. This consists of a number of water spray nozzles arranged around the equipment connected to the site fire water distribution system. In the event of heat detectors detecting fire on the equipment the water deluge system is deployed to cool the equipment and extinguish the fire.

2.2.7 Water / Waste Streams

2.2.7.1 Demineralised Water Production Wastewater

Demineralised water will be produced onsite using a treatment plant that converts potable water supplied by Uisce Éireann. The treatment process—expected to be either reverse osmosis, ion exchange (see Chapter 3 Reasonable Alternatives) or a combination of both—will be selected based on the chemical composition of the incoming water and Best Available Techniques (BAT).

The treatment system will be housed in containerized enclosures and is expected to operate at approximately 75% efficiency, with 25% of the input water rejected as heavily mineralised wastewater. This waste stream will be stored in the contaminated firewater tank (which has been appropriately sized) and removed off-site to a licensed wastewater treatment facility.

The demineralised water will be stored in a single-skinned steel tank designed in accordance with EN 14015. The tank will be filled over several weeks during commissioning, with a total capacity of approximately 7,555 m³. Thereafter, the system will only operate intermittently—either to replenish water used during low sulphur diesel combustion events or for routine gas turbine compressor washing (typically ca. 2 m³ every few months).

The service water tank, which also supplies the firewater system, will feed the treatment plant. Its offtake is located above the reserved firewater volume to ensure firefighting capacity is not compromised. Service water is also used for general maintenance and cleaning via hose points distributed across the site.

Treatment Process Details:

- Reverse Osmosis (RO): Potable water is pressurised through semi-permeable membranes over multiple cycles, producing a demineralised stream and a concentrated reject stream (sent to the contaminated firewater tank).
- Ion Exchange: Water passes through anion and cation resin beds. When exhausted, the resins are regenerated using acid or alkali solutions, which are stored in bunded IBCs. Spent regenerants are also directed to the contaminated firewater tank and removed off-site.

2.2.8 Site Drainage Infrastructure

2.2.8.1 Foul Sewer

The onsite foul sewer will be designed and constructed in accordance with Uisce Éireann standards (IW-CDS-5030-03). A small foul sewer network which will be partly gravity fed and partly pumped will be installed. The pumped section of the sewer will lift the effluent from the Administration Building to the proposed waste water treatment plant (WWTP; refer to Section 2.2.8.1.1). The proposed welfare facilities for the operational phase of the project will be located within the Administration Building. There are also welfare facilities in the 220 kV AIS Substation Building.

2.2.8.1.1 Proposed Waste Water Treatment Plant

The proposed WWTP will be designed and installed in accordance with the current EPA Code of Practice Domestic Waste Water Treatment Systems[5]. The proposed pump station will consist of a small package pump station with duty/standby pump arrangement. The rising main is approximately 35 m long and will discharge to an Uisce Éireann decompression manhole before entering the proposed WWTP.

The WWTP will be a package domestic plant such as a 10 Person ONE2CLEAN Wastewater Treatment System by Graf G50006 (or similar). This will discharge to underground storage tanks which will be emptied by tanker once a week and taken to a WWTP for disposal by a licensed disposal company. The onsite WWTP is to prevent septicity occurring in the storage tanks during collection times.

The Proposed Peaker Plant will be remotely controlled where possible and as such the staff on site will generally comprise 2-3 maintenance staff or security with an expected maximum population of 10 persons at any one time. The storage tanks will be sized for:

- Maximum population on site = 10 persons. Uisce Éireann allowance of 100 litres/person/day for onsite canteen Storage for 7 days = 7 x 10 x 100 = 7000 litres.
- It is therefore proposed to install a 10cu.m underground cesspool tank to contain the waste. The foul sewer design parameters are in the Engineering Planning Report.

2.2.8.1.2 Domestic Effluent Pollution Control

Domestic wastewater is conveyed to a treatment system, then stored in a sealed underground cesspool for off-site disposal by tanker. The system will be designed, installed, and tested in accordance with Uisce Éireann and Local Authority standards (IW-CDS-5030-03). No additional pollution controls are required due to the systems self-contained nature.

[5] Code of Practice for Domestic Waste Water Treatment Systems

2.2.8.2 Storm Sewer Network

Site drainage will also be installed. The drainage system will discharge into a soakaway located within the AGI boundary, within the Peaker Plant Storm Network. The main area of the AGI is gravel and will allow surface water to percolate away to subsoil naturally. The hardstanding areas will be collected via gullies and pipework and discharged to ground via a soakaway and petrol interceptor. It should be noted that the AGI will not form part of the EPA IE license.

The site will be provided with a new storm sewer network which will include SuDS measures where practicable. There are no storm sewers or culverts in the immediate site surroundings. As such, it is proposed to discharge stormwater generated by the project by infiltration to ground in a soakaway pond to the northeast of the site via a piped network.

The Peaker Plant will be an EPA IE licensed site and as such is limited in its discharge of stormwater to ground due to the possibility of contaminated firewater in the discharge. Any stormwater captured on hardstanding areas that is not contaminated will be discharged to ground via soakaway. Any stormwater which falls outside of the hardstanding areas will be allowed to discharge to ground.

The new storm sewer network will be gravity fed and segregated into different sections to facilitate contaminated fire water collection. The areas will be controlled by actuator valves to control the flow path of the segregated areas.

2.2.8.2.1 SuDS Strategy

The proposed SuDS measures comprise:

- Filter drains (external to the site)
- Soakaway pond with hydrocarbon interceptor
- Sealed permeable paving (car parking areas)

Storm runoff will be collected through a series of gullies, linear drains and filter drains and will ultimately discharge to the soakaway pond to the north of the site via a Class 1 full retention hydrocarbon interceptor to IS EN858 standards.

A BRE365 infiltration test was done and is presented in the Ground Investigation report (Priority Geotechnical, 2025; see Appendix 11-1, Volume 3 of the EIAR). The worst-case test results are the basis for the design of the infiltration pond and are given in Appendix 2 of the GI Report. The infiltration pond has been sized for the 100 year storm event + 20% climate change. The storm drainage network has been designed with the following design criteria:

- For collection and conveyance systems, the following storm events are to be considered with the associated surcharge requirements:
- 1 in 5 year + 20% climate change – Surcharge of the drainage system is allowed.
- 1 in 30 year + 20% climate change – No flooding of the drainage system. For Swales this means 150 mm of freeboard should be achieved.
- 1 in 100 year + 20% climate change – Some short-term flooding managed such that it does not enter buildings or disrupt emergency access routes.

2.2.8.2.2 Stormwater Runoff Pollution Control Measures

Stormwater is collected via a piped network and directed to a soakaway pond in the northeast. Hardstanding areas and kerbed roads ensure containment, with runoff captured by linear drains and gullies. Parking areas use sealed permeable paving. Pollution control includes hydrocarbon interceptors (IS EN858), a full retention forecourt separator at the fuel delivery area, and a Class 1 bypass separator prior to discharge via. soakaway.

2.2.8.3 Contaminated Firewater

The IE licensed site (i.e. the peaker plant excluding the GNI AGI) must retain all potentially contaminated firewater generated during a fire event. This water must be stored on-site for subsequent off-site disposal via tanker. Contaminated firewater typically originates from high-risk areas such as buildings, generators, and turbines. Low-risk areas such as roads without structures and grassed zones are excluded from this requirement.

To accommodate this, a dedicated contaminated firewater storage tank will be sized to hold:

- Two hours of firefighting water, and
- Runoff from a 10-year, 24-hour storm event.

According to UK national guidance on firefighting water firefighting[6], industrial sites over 3 hectares must supply 75 litres per second. As Uisce Éireann cannot meet this demand, a static firefighting tank with a capacity of 540 m³ will be installed to fulfil this requirement.

To manage contaminated firewater effectively, the stormwater drainage network will be divided into multiple zones. Each zone will be equipped with a sensor-controlled actuator valve. In the event of a fire, runoff from the affected zone will be diverted to the contaminated firewater storage tank, while rainfall from unaffected zones will continue to discharge to the site's soakaway system. This zoning approach helps minimize the required size of the contaminated firewater storage tank .

The maximum runoff from a 10 year, 24 hour storm is calculated at 197 m³, resulting in a total required firewater storage volume of:

- 540 m³ (firefighting water)+ 197 m³ (storm runoff) = 737 m³ total

In the unlikely event of a fire, the stored contaminated firewater will be removed from site by tanker and treated at an appropriate licenced offsite wastewater facility.

Additionally, the contaminated firewater storage tank will serve as a holding tank for unrecoverable demineralised production water, requiring an extra 350 m³ of capacity. This brings the final total tank volume to 1,087 m³.

2.2.8.3.1 Contaminated Firewater Runoff Pollution Control

Contaminated firewater will be captured via the stormwater system and directed to containment tanks for off-site treatment. The system accounts for concurrent rainfall (10 year, 24 hour storm event) and firefighting water. The site is divided into three catchments with actuator valves controlled by pH/contaminant probes (trigger range: pH <5.5 or >9). Only affected catchments divert runoff to containment, minimizing tank size while meeting EPA licensing requirements. This will link into the site SCADA system. No additional controls are required.

2.2.8.4 Other Waste Streams

2.2.8.4.1 Generator / Turbine solvent clean down

Routine maintenance of the gas turbine involves cleaning the machine with solvents. These solvents are injected internally and drain down for collection beneath the machine. The collection system is closed and discharges all solvents to a sealed underground tank, from where they are collected by tanker and disposed of

[6] National guidance document on the provision of water for firefighting | Water UK

off-site at a licensed waste facility capable of handling hydrocarbon waste. It is anticipated that this maintenance will occur quarterly (as required) a year, generating 2 m^3 of wash-water each time.

2.2.8.4.2 Generator/Turbine Washdown cleaning solution

Internal washdowns will be carried out as required, with an appropriate cleaning solution collected via the internal pipework into underground tanks (2 m^3). These will be emptied by tanker for licensed disposal off site by a licensed water contractor. No further pollution controls are necessary due to the closed collection system.

2.2.8.4.3 Filter Bags from Gas Turbine Generator

The filter house contains bag filters which catch any sizeable incoming particles to prevent contamination of the gas turbine components. The filter house is proposed to have a pulse cleaning system to extend the life of the bag filters. This system functions by compressing air and blowing it backwards through individual filter bags to remove some of the caught particles. These fall into a hopper for collection and removal to a licenced waste facility site.

2.2.8.4.4 Spent Oils

Lubrication oil used in the gas turbine and generator is expected to require replacement after an extended period of use due to the heat related decomposition of the oil chemistry. There is also the potential for oil to be replaced if used for pump lubrications. Spent oils will be removed from site by a licenced contractor which after treatment can be re-used in the market.

2.2.9 Potable Water

The site will be supplied with a new 150 mm diameter water main which will come from Athenry (approx. 2 km). This new section of watermain will be installed by Uisce Éireann to the site entrance on the L3103 as outlined in the Confirmation of Feasibility (Appendix 2-1, Volume 3 of the EIAR). The remaining watermain will be installed by the construction Design and Build contractor from the site entrance on the L3103 to the Proposed Peaker Plant. The water demand calculations are contained within the pre-connection enquiry to Uisce Éireann which is presented in Appendix 2-1, Volume 3 of the EIAR. The expected average daily use of potable water for 10 P.E is 1000 L/day. All new water mains have been designed and installed in accordance with Uisce Éireann Code of Practice for Water Infrastructure and standard details (IW-CDS-5020-03). The proposed watermain drawings are in Appendix 2-12, Volume 3 of the EIAR.

2.2.10 Access Routes

2.2.10.1 Proposed Main Project Site

The Peaker Plant Project Site is located between the M18/M6 interchange and will be directly accessed from the L3103 to the north. A new 6 m wide access road with fencing either side will be constructed from the L3103 to the Proposed Main Project Site. The L3103 starts from Athenry and is a branch off the R339 to the northwest. The access point will require works to the entrance of the Proposed Peaker Plant Project Site which will include realignment of an existing stone wall and reconstruction of same as well as the removal of several trees (located on private lands) to achieve sightlines. Chapter 5 (Biodiversity) assess the impact of tree removal.

The substation road and gates will be accessed via a road external to the Proposed Peaker Plant Project Site but within the Proposed Project boundary. EirGrid will be able to access these roads either by remote access control or by keypad access at the main entrance.

2.2.10.2 Rathmorrisy AGI access

The AGI will be accessed from a 6 m internal road which runs around the Proposed Peaker Plant and provides access to the AGI and EirGrid substations. This internal access road can be accessed via security gate to the north of the site from the L3103.

2.2.11 Ancillary Infrastructure

2.2.11.1.1 Lighting

The internal road lighting design has been designed in accordance with EN-13201 and XDS-GFS-14-001-R2 Roads - Class C4 EirGrid Compound: Emin 2 Lux Fuel Compound: Emin 2 Lux. The lumina proposed will be based on columns of heights 8 m and 20 m to achieve the appropriate lighting level. The luminaires will be of LED type. The lighting colour temperature will be 2700K with no upwards distribution to avoid potential impacts on bats – i.e., Imax 90 (cd/klm) should be zero.

The AGI compound includes 4 no. floodlighting columns (each 8 m in height). As supplementary lighting there will be a mixture of 6no. post-mounted luminaire and 4no. linear type of luminaire around the perimeter of the AGI buildings. The proposed lighting plan for the AGI compound is provided in Figure 2-4.

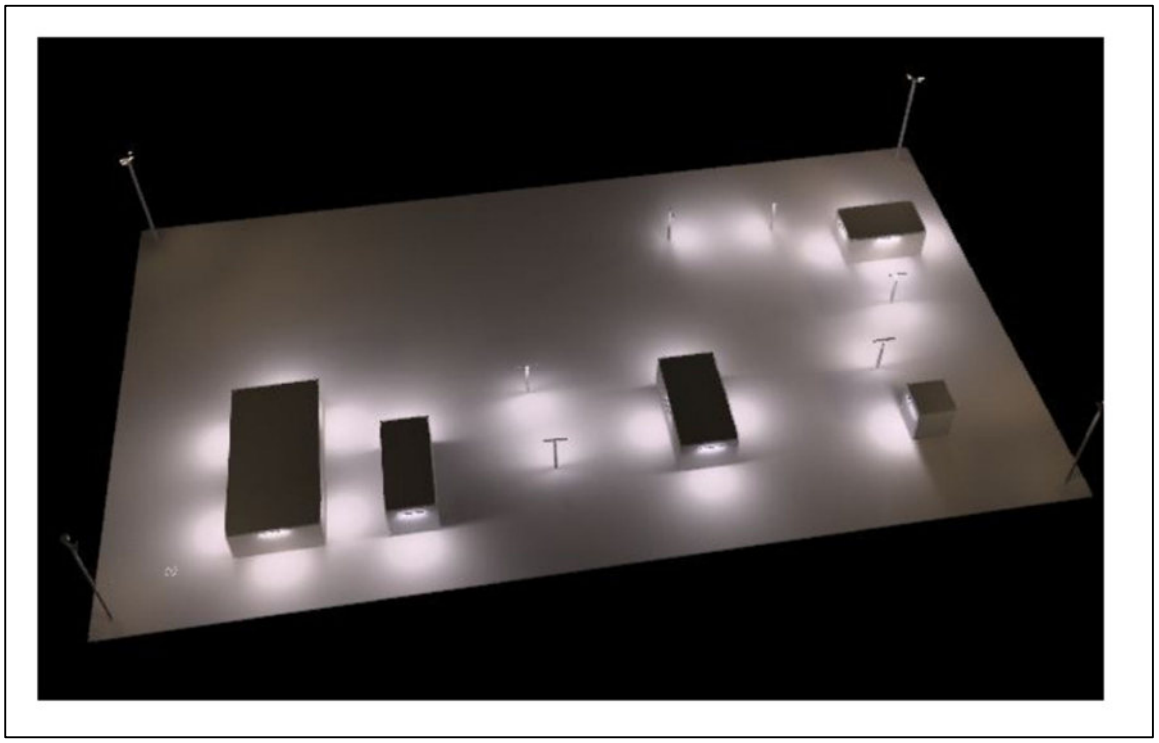

Figure 2-4 - Proposed lighting plan for the AGI compound

2.2.11.1.2 Security Facilities/Fencing/CCTV

The wider site will be surrounded by a 2.4 m high paladin security fencing with main and emergency access points to the north of the site (Section 2.2.10). The access points will be double gates and operated either remotely or from the proposed administration building (described in Section 2.2.10). A proposed stop sign will be placed at the proposed entrance.

The EirGrid on-site AIS substation (Section 2.2.4.3) will be double fenced to the external part of the site and single fenced where the substation is within the site. Separate gated access points will be provided to the EirGrid substation and the GNI AGI to the north of the site within the main site area.

A 2.4 meter-high palisade security fence will be erected around the AGI site boundary, including all associated access and emergency gates. A concrete roadway will be constructed within the site.

2.2.11.1.3 Landscape Measures

It is proposed to reuse appropriate subsoil and topsoil on site as part of landscaping works including re-shaping existing landform and creating new bunds and features. Soft landscaping comprising structural planting of mixed native woodland belts and seeding will be implemented as early as possible on areas of land to be left undeveloped or undisturbed by construction activity, to allow the establishment of new planting. Refer to Chapter 6 Landscape and Visual for further details and specific mitigation measures.

2.2.11.1.4 Roads and Surfaces

The proposed roads within the project will be kerbed asphalt roads. The summary of the concrete area composition is provided in Table 2-3. The standard buildup will be:

- 40mm SMA surf (IS EM 13108-5) 60mm AC 20 Dense Bin (IS EN 13108-1) 120mm AC 32 Dense Base (IS EN 13108-1)
- 150mm Type B Granular Material
- 600mm Type 6F2 Capping

Table 2-3 – Concrete areas composition

Material type	Concrete paved areas surrounding turbine generator	Concrete areas in the tank farm
C32/40 concrete (Suitable exposure class) A393 mesh T&B	300 mm	200 mm
Type B Granular Material	150 mm	150 mm
Type 6F2 capping	600 mm	600 mm

Gravel areas, where proposed within the Cashla Peaker Plant area, will be gravel topping on soil, lined with impermeable membrane underneath with a series of land drains to collect infiltrated runoff and discharge to soakaway via petrol interceptor, with the following details:

- 100mm pea gravel/shingle
- Separation membrane
- 300 mm soil with 100 mm perforate land drain @ 5m c/c
- Impermeable membrane

Footpaths, where proposed within the Cashla Peaker Plant area, will comprise the following details:

- 100 mm concrete
- 150 mm type B granular material

2.3 Construction Phase

2.3.1 Construction Access

2.3.1.1 Cashla Peaker Plant & AGI

The site will be accessed via the proposed roadway. This would provide access to the site from the L3103 local road. The new roadway will also be compliant with all local planning requirements. The route is shown in Figure 2-5 below.

Figure 2-5 - Construction access route to the Site

2.3.1.2 Underground Cable Installation Access

The UGC installation works will follow along the roads Lisheenkyle East (L7108), L7109 and L3103 as shown in Figure 2-6 below. This installation will require two distinct closure instances, associated with the following construction activities:

1. Main Cable Construction (all works associated with installation of cable, backfilling and resurfacing trench)
2. Resurfacing (it is anticipated that all roads will require full width resurfacing in order to reinstate the road back to the original condition).

The closure summary for each road is provided in Table 2-4 below.

Table 2-4 - Closure Periods for UGC Installation

Construction Activity	Total Duration	L3103	Lisheenkyle East (L7108)	L7109
Main Cable Construction	6 months	1 month	3 months	2 months
Resurfacing	4 months	3 weeks	2 months	1.5 months

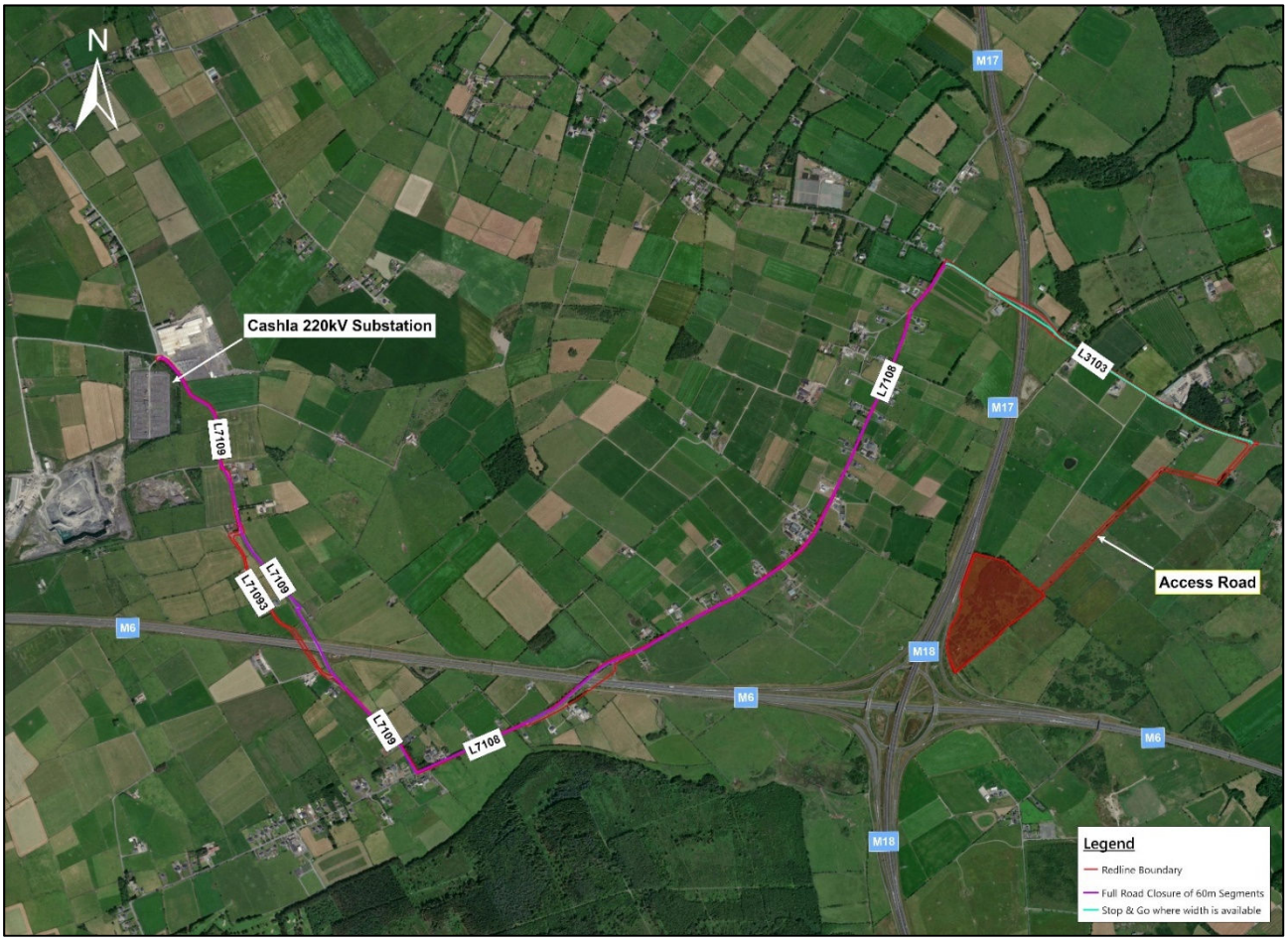

Figure 2-6 - Proposed Road Closures

It should be noted that Ground Investigation (GI) works will be undertaken on local roads which will require minor traffic management measures to ensure safety of personnel. No road closures will be required at these locations.

2.3.1.2.1 Full Road Closures

Due to limited road width along Lisheenkyle East (L7108) and L7109 roads, full road closures will be required. A section of approximately 3 km will be closed on both roads, resulting in a diversion route of ca. 8 km, which will add ca. 5 km of extra travel.

While full closure is shown on these roads, only through traffic will be significantly impacted. The cable installation will be limited to 30-50 m segments and allow for local access on either side of each closure segments as it moves down each road. Closure segments will, wherever possible, avoid local driveways in order to reduce impacts on local residents. An example of the closure procedure is shown in Figure 2-7 below.

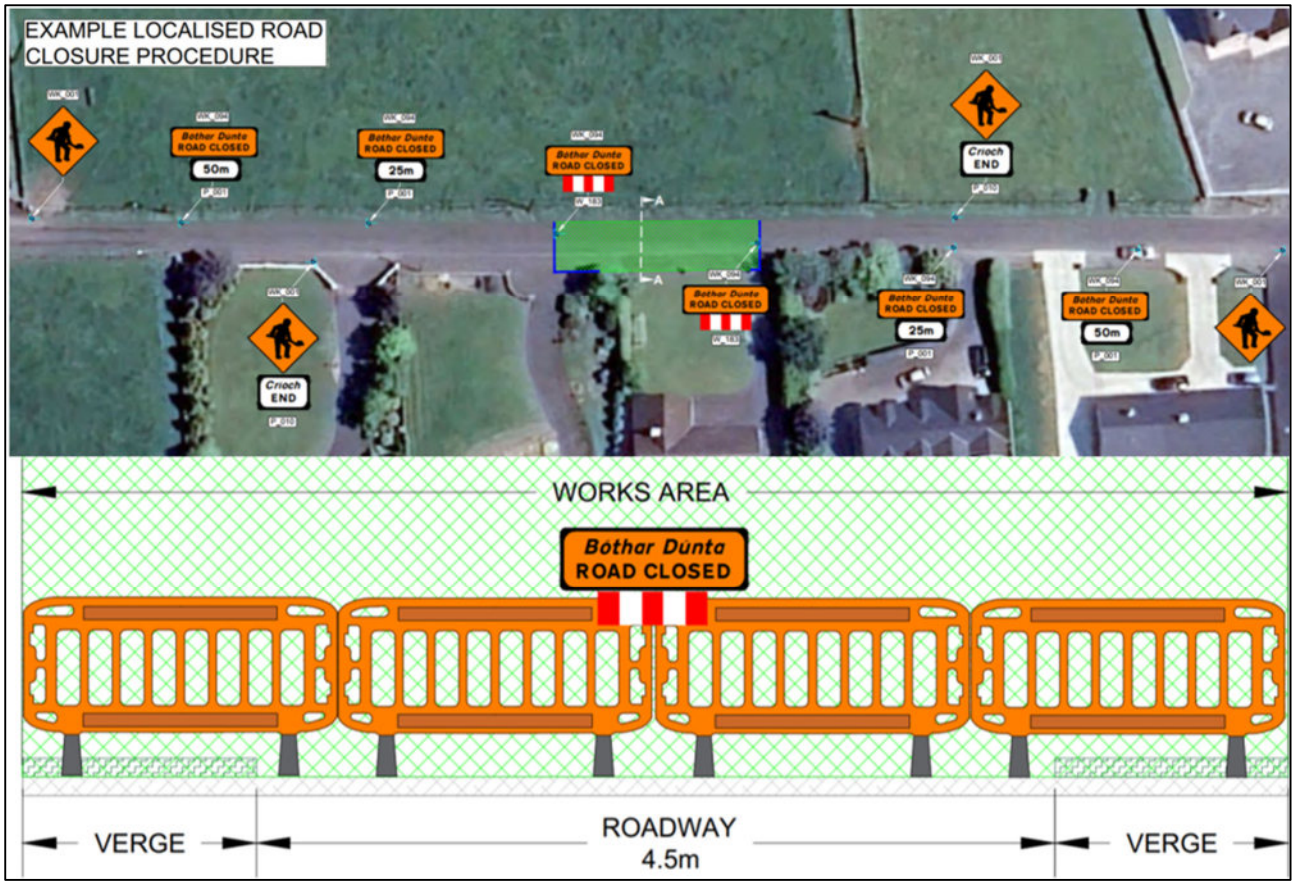

Figure 2-7 – Proposed Closure Procedure

The proposed diversions are as follows:

- **Lisheenkyle East Road (L7108) Diversion Route:** L7109 (via Lisheenkyle East (L7108) & L7109 junction) -> R339 (via L7109 road & R339 junction) -> L3103 Road (via R339 & L3103 Moor Road junction)
- **L7109 Road:** Along Lisheenkyle East Road (L7108) (Via Lisheenkyle East Road (L7108) & L7109 junction) -> L3103 road (via Lisheenkyle East Road (L7108) & L3103 junction) -> R339 (via R339 & L3103 Moor Road junction)

For more detailed layouts, refer to Drawing Nos. 068-AKR-001-02a and 068-AKR-001-03a which are included in the appendix of the Construction Traffic Management Plan (presented in Appendix 2-11, Volume 3 of the EIAR).

2.3.1.2.2 Partial Road Closures

Partial road closures are anticipated on the L3103 where sufficient width is available for one-way traffic. Installation works will be carried out on one side of the road, while a minimum 3 m wide carriageway will be maintained for traffic flow on the other side. Temporary traffic signals will be used to safely guide vehicles through the work zone. Typically, the UGC will be installed in 30-50 m sections, where no more than 60 m will be excavated unless most of the previous section has been reinstated. An example of the proposed system on the L3103 is shown in Figure 2-8. Further details are provided in Drawing No. 068-AKR-001-01, Appendix 2-12, Volume 3 of the EIAR.

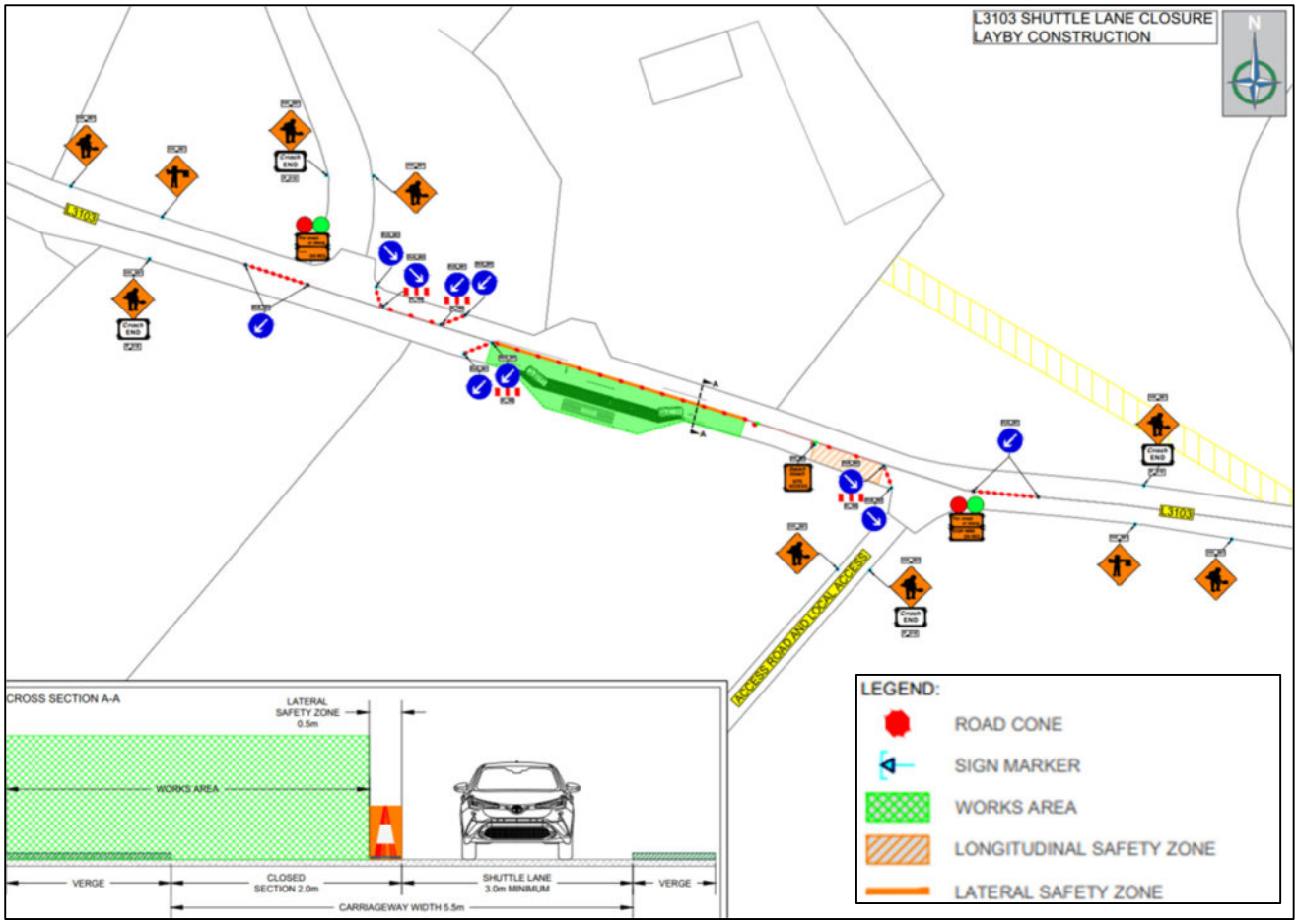

Figure 2-8 - Example of 'Stop/Go' system

The majority of the UGC will be installed within the public road network and proposed access track into the site and will therefore be accessed via the existing road network and the designated site access. Where the cable route is located on private lands for HDD, The contractor(s) will be required to utilise the local public road network in the vicinity of the work area. Only Vehicles directly required to complete the cable installation works will be allowed on site due to the constrained nature of space requirements in this environment. Access for personnel will be provided via shuttle system between the Peaker Plant/AGI site.

A detailed Construction Traffic Management Plan (see Chapter 10, and Appendix 2-11, Volume 3 of the EIAR) will be prepared and agreed with Galway County Council prior to the commencement of construction. Some work areas will require a temporary road closure where it is not possible to safely implement a Stop/Go system. Where temporary road closures are necessary, a suitable diversion will be implemented using appropriate signage, following consultation and agreement with Galway County Council. Careful and considered local consultation will be carried out, as per conditions of planning, to minimise the amount of disturbance caused during works. All plant and equipment employed during the works (e.g. diggers, tracked machines, footwear etc.) will be inspected prior to arrival and departure from site. Vehicles will be cleaned on access and egress to prevent the spread of invasive species, dust and soil to the surrounding areas. Refer to Chapter 10 – Traffic and Transportation of the EIAR for further detail.

2.3.2 Emergency Access

2.3.2.1 Cashla Peaker Plant & Rathmorrisy AGI

The proposed access road (access from the L3103) will serve as the emergency access to the site and is Illustrated in Figure 2-9 below.

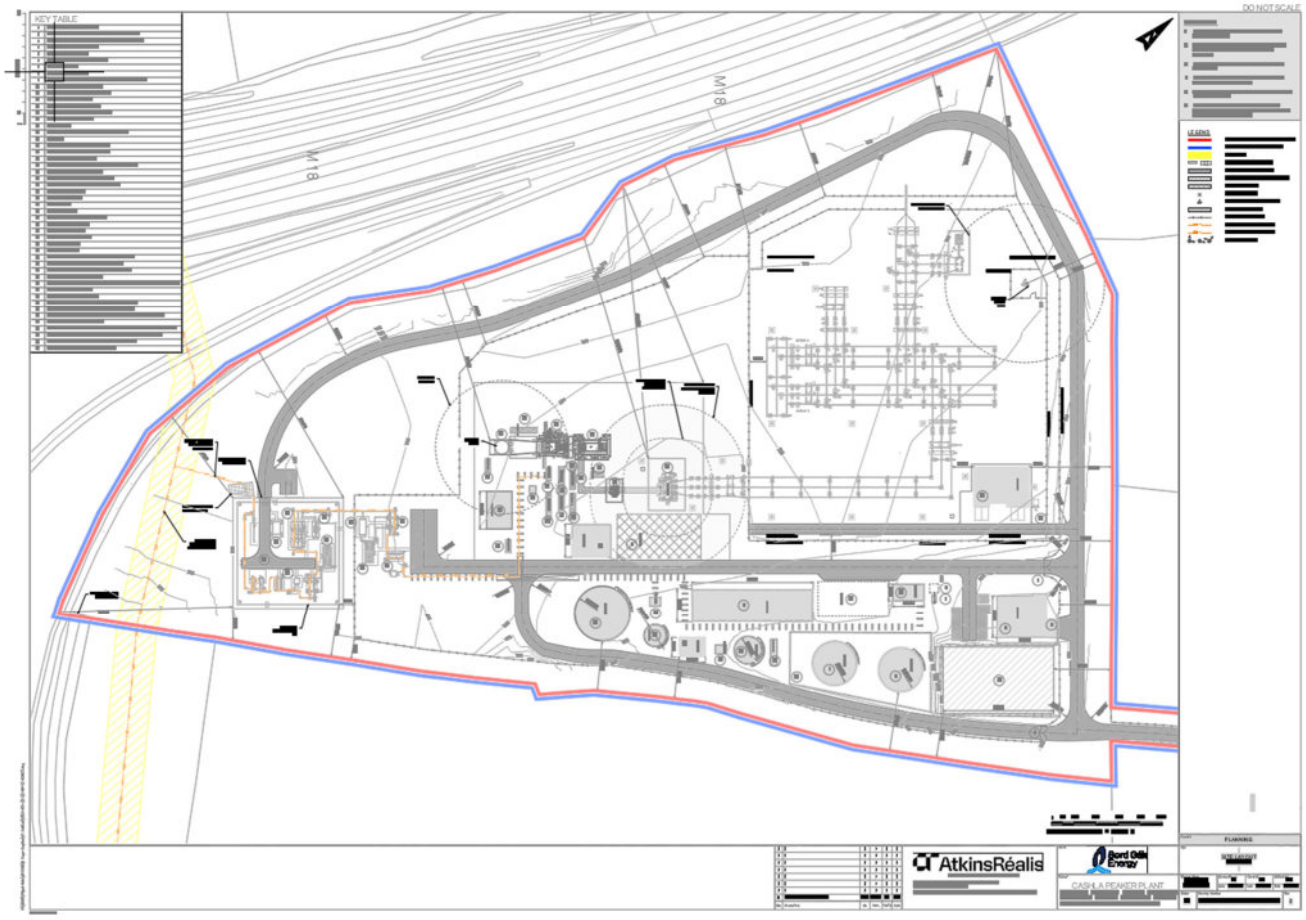

Figure 2-9 – Emergency Access to Cashla Peaker Plant

2.3.2.2 UGC Installation

For the UGC installation, emergency access will be provided via the existing road network. For sections currently subject to 30-50 m closures, works are to be suspended with steel road plates placed to cover excavations, the traffic management equipment is to be moved to the verge and a temporary traffic lane created in order to facilitate emergency vehicles (Figure 2-10).

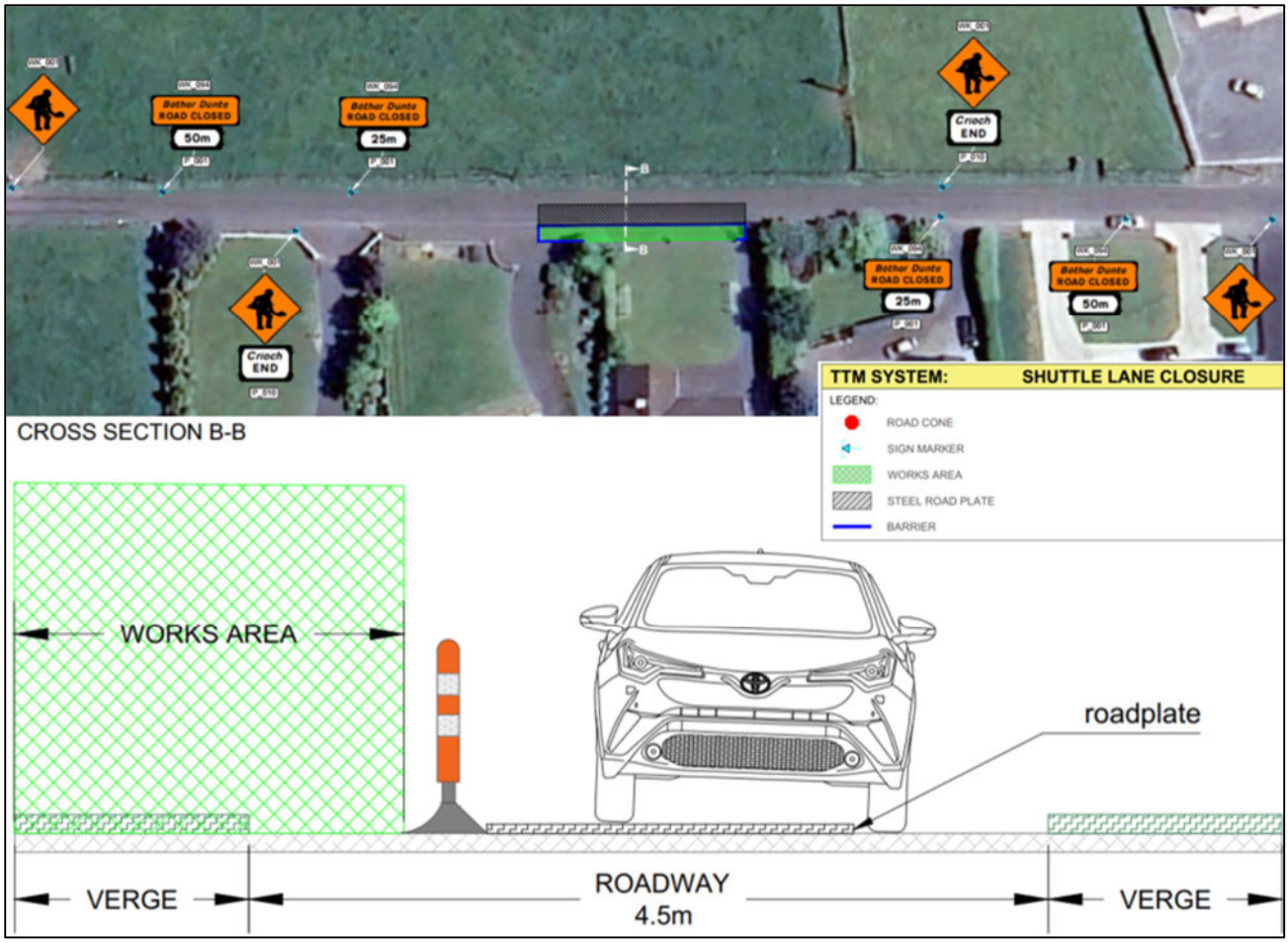

Figure 2-10 – Emergency Access – UGC Installation

2.3.3 Parking

The Proposed Project will be remotely operated for the majority of its operation but will require parking for security and maintenance. While it is not possible to calculate the number of vehicles associated with maintenance and security, it is assumed that the site will provide capacity for 2 no. security vehicles and 10 no. site maintenance vehicles. Of the total 19 no. parking bays, 1 no. is to be accessible while a further 4 no. bays will be provided with EV charging capabilities, and 14 standard bays.

All parking during the construction period will be provided on the Cashla Peaker Plant/AGI site within the site compound. No additional parking is to be provided. UGC installation will be facilitated via a shuttle service for all operatives.

2.3.4 Extraordinary Abnormal Loads

There are 3no. Extraordinary Abnormal Loads (EAL) scheduled for delivery to the Proposed Peaker Plant Site that require special transport permits due to their size and weight (Table 2-5). The generator, with an estimated net weight of approximately 380 tonnes, is the heaviest item and will be transported using a girder truck by a specialist haulage contractor. The girder truck has an overall length of approximately 90 m (Figure 2-11).

The delivery and installation of the 21/220 kV step-up transformer and gas turbine also constitute EAL These operations will be carried out in full compliance with relevant regulations governing the transport of oversized loads. All necessary permits will be secured in accordance with Circular RW18 2024, which outlines the procedures for managing EAL. The specifications in Table 2-5 represent the most demanding EAL scenarios based on information provided by potential suppliers for these components.

Table 2-5 - Components Requiring Special Transport Permits

Component	Weight (tonnes)	Length (mm)	Width (mm)	Height (mm)	Delivery vehicle Type
Gas Turbine	360	12,000	5,500	5,020	Girder Truck
Generator	380	14,000	4,250	4,850	Girder Truck
Step-up Transformer	288	11,300	4,730	4,750	Girder Truck

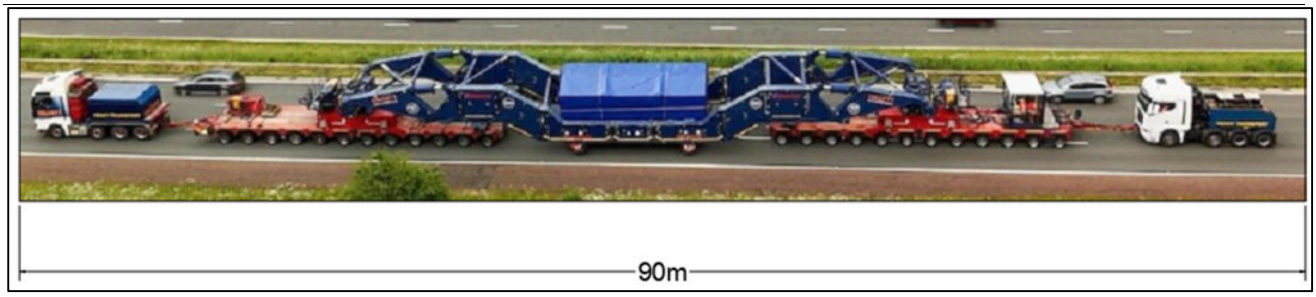

Figure 2-11 - Example of a typical girder truck

2.3.4.1 Temporary works for Extraordinary Abnormal Loads

Temporary works are expected in the form of removal of street furniture (lighting poles, crash barriers road signs etc). This will be temporary removal in nature in that it will be expected to be taken down and re-erected the same day. There will be no vegetation removal or cutting of any trees. Hedgerows may need to be trimmed (Chapter 5 Biodiversity).

Temporary overbridging will be required for one of the structures along the proposed haul route, however it is expected to be erected and disassembled during the same day.

2.3.4.2 Description of Haulage Route for Extraordinary Abnormal Loads

The EAL route starts at the Port of Galway. The load will leave the port and travel along Lough Atalia Road until it joins the R339. From here the load will continue along the R339 northeast until it turns left at the Raddison RED Galway heading north to the R336. The load will turn right here and follow the R336 to the junction of the R336 and N6 where the load will turn right and follow the N6. The load will follow the N6 out of the city to the Coolagh Roundabout where the load will continue along the N6 northeast heading for the M6. The load will join

the M6 at Junction 19 and continue along the M6 to Athenry where the load will leave the M6 at Junction 17. From here the load will travel the R348 northeast to Athenry Roundabout. The load will turn off at the first exit heading north along the R348 for approximately 430 m to a roundabout. The load will continue straight across the roundabout in a north-westerly direction along Ballygarraun South.

There is currently a new road and roundabout under construction by Galway County Council from this roundabout bypassing a section of the L3103 (The load will be required to travel this new route as the existing road from the connecting roundabout will be severed by Galway County Council to prevent rat-run formation. Discussions with Galway County Council indicated that this new road will be completed prior to the Cashla Peaker Plant starting. Once the EAL has traversed the new diversion road, the EAL will turn left on to the L3103 and proceed approximately 1300 m due east to the proposed site entrance.

The EAL vehicle is deemed suitable for transport from Port of Galway to the Proposed Peaker Plant via the preferred EAL route. This conclusion is based on:

- Controlled speed of 10 mph or less,
- Travel in the slow lane,
- No other loading present on the same carriageway during passage.

The EAL report is presented in Appendix 2-6, Volume 3 of the EIAR .

Figure 2-12 - Extraordinary Abnormal Load Route

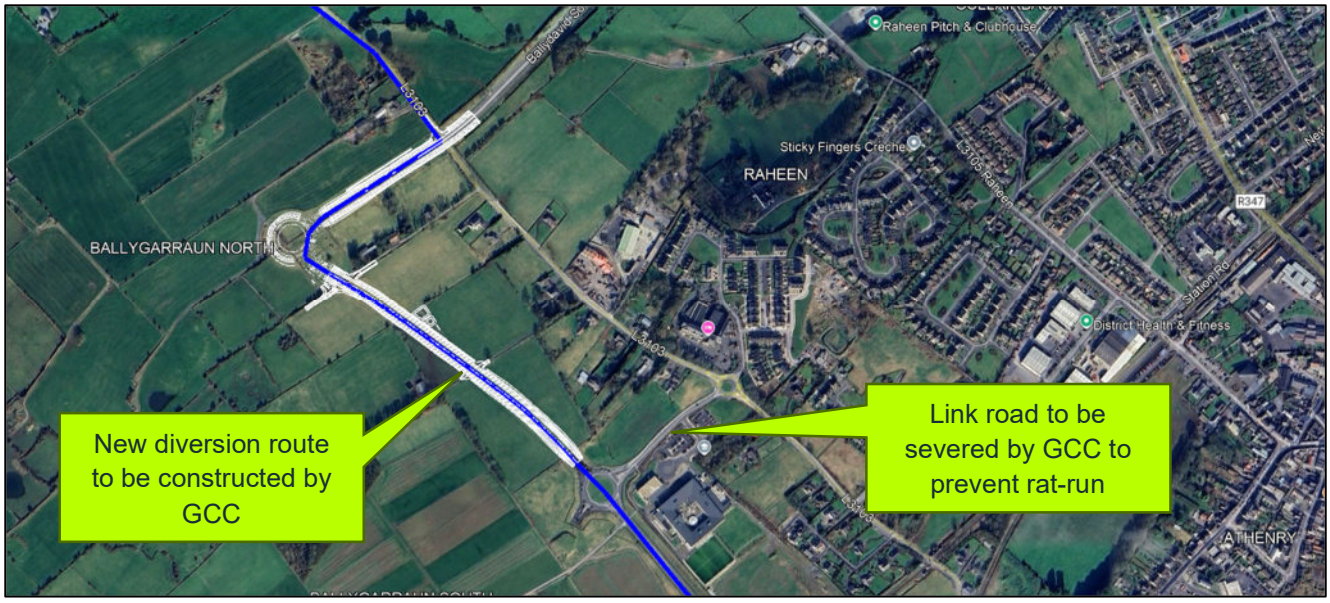

Figure 2-13 - Extraordinary Abnormal Load Route

2.3.5 Traffic Management During Construction

2.3.5.1 Working Period and Hours

Construction is expected to commence in Q2-2027 and last approximately 18 months.

- Working Hours and Flexibility: While standard working hours will generally be observed, flexibility in scheduling is required to ensure the efficient delivery of the project.
- Extended Hours: On certain occasions, work may need to be undertaken outside of the typical working day to expedite progress, meet critical milestones, or address unforeseen circumstances that could impact the programme, however all such works would be carried out following prior consultation with Galway County Council.
- Minimising Disruption: Where work is scheduled beyond standard hours, measures will be implemented to minimise disturbance to the local community, including noise, lighting, and traffic management controls (refer to Chapter 4 – Population and Human Health; Chapter 9 – Noise and Vibration, and Chapter 10 – Traffic and Transportation).
- Communication: Stakeholders (including local authorities and nearby residents where relevant) will be informed in advance of any planned out-of-hours activities, and appropriate lines of communication will be maintained to address concerns.
- Out of hours working could potentially be required in an emergency.

The standard working hours are provided in the table below:

Time Period	Peaker Plant	UGC Installation	AGI
Weekdays: Mon - Fri	07h00 – 18h00	07h00 – 18h00	07h00 – 18h00
Saturdays	07h00 – 14h00	No Work	07h00 – 14h00
Sundays, Bank Holidays and Public Holidays	No Work	No Work	No Work

2.3.5.2 Material Deliveries and Underground Cable

To reduce potential impacts on local communities and residents adjacent to the proposed sites, it is proposed that material deliveries will be restricted to between 09h00 and 16h00.

Traffic management and road signage will be in accordance with the Department of Transport: Traffic Signs Manual - Chapter 20: Temporary Traffic Measures and Signs for Road Works and in agreement with Galway County Council.

All work on public roads will be subject to the approval of a road opening license application. The contractor will prepare detailed traffic management plans for inclusion as part of the road opening applications. Where road widths allow, the UGC installation works will allow for one side of the road to be open to traffic at all times by means of a 'Stop/Go' type traffic management system, where a minimum 2.5 m roadway will be maintained at all times. Where it is not possible to implement a 'Stop/Go' system a temporary road closure will be required. Suitable traffic diversions will be implanted. The UGC will be usually installed in 30 m sections, and no more than 50m will be excavated without the majority of the previous section being reinstated. Further details are provided in Chapter 10 - Traffic & Transportation.

2.3.5.3 Traffic Management for Ground Investigations

Ground investigations will be carried out to inform the UGC route prior to works commencing, comprising some or all of the following works:

- Slit trenches at locations of service crossings (full road/track width).
- Trial holes at all joint bay positions to ascertain ground conditions and thermal resistivity of the soil.
- Boreholes at HDD locations to ascertain ground conditions.

Traffic Management for ground investigations will require single Lane closure with a Stop/Go system in place as required. Typical equipment required (but not limited to) for ground investigations will be:

- 4x4 vehicle
- Concrete vibrator
- Wheeled dumper
- Soil compactor
- 360° tracked excavator (only rubber tracked machines will be allowed on public roads)
- HDD rig.

2.3.6 Environmental Management

2.3.6.1 Waste Management

Waste generated during the construction phase will be carefully managed according to the accepted waste hierarchy which gives precedence to prevention, minimisation, reuse and recycling over disposal with energy recovery and finally disposal to landfill.

This hierarchy will be implemented by identifying opportunities to firstly prevent waste from being produced and secondly minimise the amount of waste produced. Where prevention and minimisation will not be feasible, ways to reuse or recycle waste will be sought, preferably on-site to avoid the impacts caused by transporting it. If this is not feasible, opportunities to reuse or recycle the waste off-site will be investigated. If this is not feasible, then waste will be sent to a recovery facility, and only where there is no alternative, will waste be disposed of to landfill. To achieve this, existing waste management programmes and networks will be used such as the National Waste Prevention Programme (implemented by the Environmental Protection Agency) and material exchange networks, for example 'Freecycle'.

All waste removed from the site will be collected only by contractors with valid waste collection permits (under the Waste Management (Collection Permit) Regulations 2007 as amended). The associated documentation for all facilities, to which waste will be taken, will be checked in advance, to ensure that they have appropriate waste licences or permits allowing them to accept the type of waste that is to be sent there (under the Waste Management Act 1996 as amended by the Protection of the Environment Act 2003, and the regulations thereunder). Hazardous waste generation will be minimised, and such waste will be recovered where feasible, and only disposed of if recovery is not feasible. Hazardous waste will be managed in accordance with the Waste Management (Hazardous Waste) Regulations 1998 and 2000.

Construction material will be sourced locally as much as possible to minimise the environmental impact of transportation. It is intended that all suitable stone recovered on the site will be reused as hardcore during the building construction. For this purpose, rock crushing and screening plant will be provided. Additional rock, stone and sand materials will be procured from local quarries as required.

2.3.6.2 Hazardous Waste Management

Any hazardous waste residues or potentially contaminated sludge resulting from spill clean-up activities will be:

- Stored in appropriate metal or plastic containers.
- Placed in temporary bunded storage areas within the construction compound.
- Removed from site by an approved, permitted/licensed waste management contractor for appropriate off-site treatment, recycling, or disposal. Documentation will be maintained.

2.3.6.3 Site Compound/Site Office/Welfare Facilities

Construction compounds will be established on-site and will include:

- Welfare facilities (e.g., toilets, canteens, drying rooms).
- Site offices for construction management and staff.
- Own individual security fencing which will be removed at the end of the construction process.
- Temporary Heras fencing or solid hoarding 2.4 m high.

2.3.7 Construction Methodologies

2.3.7.1 Construction Programme

Construction of the Cashla Peaker Plant is expected to commence in Q2-2027 and last approximately 18 months, while the construction of UGC Route is estimated to take nine months and some of the elements may happen concurrently if necessary.

For the AGI, estimates for the duration of the construction works are included in Table 2-7. If hot tap and pipeline works proceed concurrently, the overall start-to-finish duration is expected to be between 8 and 10 months.

Table 2-6 - Estimated Construction Phasing Program

Milestones	Timeframe[7]
Submission of planning application	Q1 2026
ACP Planning Application decision	Q1 2027 (Q1 2028)
Civil, Mechanical, Electrical Design, Site Survey works & Mobilisation start. EPA licence application	Q1 2027 - Q2 2027 (Q1 2028 - Q2 2028)
Construction and Installation	Q2 2027- Q3 2028 (Q2 2028 – Q3 2029)
Commissioning	Q3 2028 (Q3 2029)
Commercial Operational Date	Q4 2028 (Q4 2029)

Table 2-7 - Estimated Construction Duration

Works Type	Estimated Construction Duration (Months)
Peaker Plant	*Refer to Table 2-6*
Underground Cable	9
AIS Substation	12
Electrifying the Substation	3
GNI146 Rathmorrissy Gas Pipeline	2
Hot tap	3
AGI	8

2.3.7.2 Construction Staff

2.3.7.2.1 AGI pipeline and hot tap

It is estimated that there will initially be 30-40 no. personnel on site on a typical day. However, during peak construction periods (with a duration of 1 month) this is expected to fluctuate up to a maximum of 70 no. personnel and contractors on site per day. Site personnel will include management, engineers, construction crews, supervisors, environment health and safety personal, and pipeline specialist contractors.

[7] These timelines are estimated at this juncture, and assume that there will be no significant delays to the overall delivery programme through the planning, detailed design, mobilisation, construction / installation and commissioning phases.

2.3.7.2.2 Peaker Plant

For the Peaker Plant, at peak construction, up to 150 workers are expected on-site. Assuming a car ownership rate of 1.5 and 100% car mode share, approximately 100 car trips are anticipated.

2.3.7.2.3 Underground Cable and Grid Infrastructure

A total of 10 no. people are expected on site for the cable installation. All personnel are to be shuttled to/from the Cashla Peaker Plant site.

2.3.8 Construction Haulage Routes

The main haulage routes during construction will be for the supply of materials such as concrete and stone, gravels, blocks etc. to site. Figure 2-14 shows some of the larger suppliers in the area with the furthest away being approximately 23 km or 39.5 km along the M17.

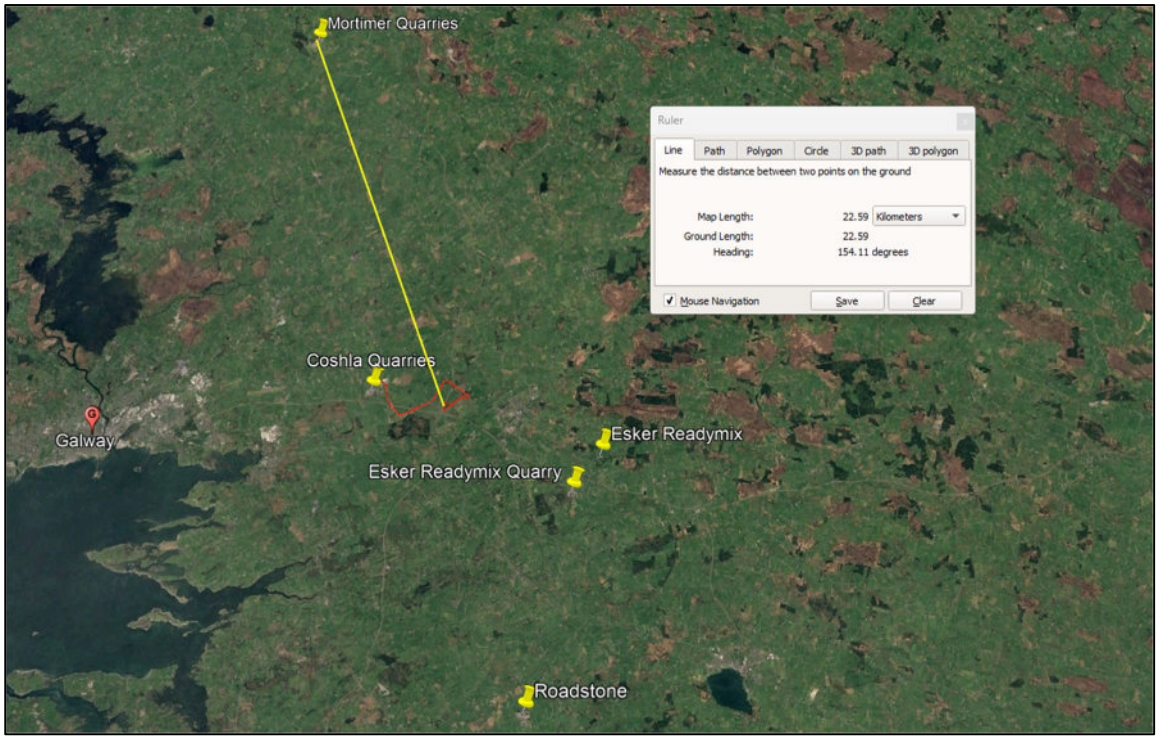

Figure 2-14 - Quarry Suppliers within the area

2.3.8.1 Plant Movements

For the construction of the Peaker Plant, it is anticipated that the majority of heavy vehicle trips will be associated with earthworks. It is estimated that 13,000 m³ of earthworks material will be hauled during the construction period. Assuming a density of 2 tonnes/m³, the total weight of haulage material is expected to be around 26,000 tonnes.

It is unlikely that all abnormal loads will be transported on a single day. Assuming a worst-case scenario of 2no. abnormal loads per day, and a Passenger Car Unit (PCU) value of 4 per abnormal load, this results in 8 PCU daily trips, or 16 PCU two-way trips. These trips will occur in the afternoon, outside of school closing hours, to minimize traffic impact.

Whilst these activities are anticipated to generate small volumes of traffic, the scale of the traffic generated is anticipated to be far smaller that the Peaker Plant itself and will not coincide with peak construction activities.

For the UGC installation, the following plant will be required:

- 4 articulated trucks
- Excavators
- 360˚ tracked excavators (13 ton normally, 22 ton for rock breaker)
- Tracked dumpers/ tractors and trailers
- General Site Equipment.

2.3.9 Confirmatory Surveys

Several confirmatory surveys are required.

2.3.9.1 Topographic Survey

Supplementary topographic surveys will be carried out within the project boundary as required.

2.3.9.2 Ground Investigations

Confirmatory Ground Investigation surveys will be required for the detailed design of the AIS substation foundations and compound build-ups prior to construction and to inform project costs prior to detailed design. The site investigation works will be scoped and specified by a geotechnical engineer during detailed design but will generally include the following:

- Boreholes: will be carried out at the location of 220 kV AIS Substation Building and Administration Buildings to determine the depth of bedrock.
- Trial holes: will be carried out in order to obtain information on the ground conditions and measure the thermal resistivity of the soil.
- Dynamic probes: will be carried out to determine soil strength/density characteristics.
- Dynamic Cone Penetrometers and Pavement Cores: will be carried out for pavement design. It is anticipated that these site investigation works will take approximately 1 week to complete for the substation and the grid connection cable route.

Ground investigations will also be carried out to inform the UGC route prior to works commencing. The following items may be done:

- Slit trenches at locations of service crossings (full road/track width).
- Trial holes at all joint bay positions to ascertain ground conditions and thermal resistivity of the soil.
- Boreholes at HDD locations to ascertain ground conditions.

2.3.9.3 Vegetation clearance

Topsoil and subsoil will be removed from the footprint of the compound using an excavator. The excavated material will be temporarily stored in adjacent berms for later use during reinstatement works.

2.3.10 GNI146 Rathmorrissy Gas Pipeline and Rathmorrissy AGI

2.3.10.1 Site Establishment

To construct the AGI, a perimeter fence will be erected around the AGI to BGE Cashla site boundary (Figure 2-15). Temporary car parking, site offices and other facilities will be established to support early works which will

primarily consist of earth moving. Adequate space will be allocated to facilitate crane or HIAB[8] access for the offloading of the hot tap, Main and Ancillary Pressure Reduction kiosk, Boiler House kiosk, Electrical and instrumentation Kiosk, Gas Analyser Kiosk. site offices and welfare facilities.

Figure 2-15 - Indicative Construction Site Boundary for the AGI

Topsoil will be cleared to a typical depth of 300 mm and stored separately to the subsoil for future reinstatement. Topsoil will be kept free from disturbance for the duration of construction to reduce risk of physical damage and compaction. All excavated material will be used onsite, and no import of soil is expected. Excess material is anticipated to be used in the laydown area. Excess excavated material will be stockpiled for use as engineering fill, landscaping and other uses throughout the site. Any material not used will be taken off-site.

A single laydown area will be established during the earthworks and site preparation phase which will be used by the main follow-on contractors to accommodate temporary construction facilities such as site offices, parking, storage of construction materials. Laydown will be constructed of excess cut material and a layer of stone will be placed over a layer of geotextile membrane as required. The laydown area will be suitably drained and any areas which will involve the storage of fuel and refuelling will have paved areas with bunding and hydrocarbon interceptors to ensure that no spillages get into the surface water or groundwater systems. During the removal of the topsoil and placement of the stone for the laydown area precautions will be taken to minimise run-off into ditches and drains.

[8] A HIAB is a type of hydraulic truck-mounted crane, often referred to as a lorry-mounted crane or loader crane.

2.3.10.2 Demolition

There are two existing structures (in ruin) located within the Proposed Project Boundary. These structures are described as follows:

Structure 1 is approximately 31 m^2 and consists of traditional stone walls and a roof of timber and corrugated iron in advanced disrepair. The roof has partially collapsed leaving the structure unsafe, structurally compromised and unsuitable for repair or reuse. There are signs of vegetation overgrowth.

Structure 2 is approximately 5 m^2 and consists of traditional stone walls. The roof is no longer remaining and the structure has been exposed to weathering. As such, the structure is now in a derelict condition with vegetation growth impacting the stability of remaining walls. The structures are unsafe and beyond economic repair, presenting a potential hazard.

The roof collapse in Structure 1 and the absence of a roof in Structure 2 leaves the structures vulnerable to further deterioration. Overgrowth of vegetation has accelerated stone displacement, further undermining structural integrity. Neither structure is of significant architectural, historical, or cultural merit warranting retention. The demolition of the two existing structures is required due to their unsafe condition and lack of reuse potential. The works will be undertaken in a controlled manner with appropriate health, safety, and environmental safeguards.

Proposed Demolition Method:

Works will be carried out by a competent demolition contractor under the supervision of the P Project Supervisor Design Stage (PSDP) and Project Supervisor Construction Stage (PSCS) in accordance with the Safety, Health and Welfare at Work (Construction) Regulations. Demolition will be conducted using hand and mechanical methods appropriate to the scale of the structures. Stone material will be salvaged where practicable for reuse or recycled as hardcore. Waste materials will be disposed of in compliance with the Waste Management Act.

Figure 2-16 - View of 20th century shuttered concrete animal shelter and water tank on site (facing west) proposed to be demolished.

2.3.10.3 Hot Tap Civil Works

A temporary concrete working platform will be constructed to facilitate welding operations. A 100 mm thick layer of lean mix concrete will be used to seal the floor of the excavation (AD/SP/004[9]). This platform will provide a stable, level surface for site personnel and ensure sufficient clearance beneath the pipeline, typically between 500–600mm, to allow welders to work safely and effectively in a supine position. Upon completion of drilling and welding works, the concrete slab will be broken out from site. The carrier pipe will be adequately supported with mechanical jack type supports, or other adjustable supports, suitable for the pipe to compensate for superimposed loads during drilling operations as per */PM/P24[10] and AD/SP/004[11].

Concrete pipe supports (GNI standard detail BGE/ST/2006) will be installed in advance of the hot tap works beneath the existing pipeline either side of the proposed hot tap tie in point. This is to prevent overstressing the existing pipe, to provide bracing and support to minimise vibration or impact on the existing pipeline during drilling and welding. A concrete plinth will also be constructed for the baseplate of the hot tap valve. This will eliminate turning moment stresses from the hot tap connection due to ground settlement afterwards.

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[9] GNI Specification for Welding Fittings to Pressurised Natural Gas Pipework
[10] */PM/P24 - Management Procedure for Under Pressure Drilling and Stoppling Operations 7 to 100 Barg Inclusive

[11] AD/SP/004 - GNI Specification for Welding Fittings to Pressurised Natural Gas Pipework

Enhanced security measures will be implemented when the existing pipeline is exposed and will be confirmed in consultation with the on-site Inspection Personnel & Engineering Contractors. These measures may include temporary backfilling of exposed pipe sections or the deployment of 24-hour on-site security personnel, depending on the assessed risk and site-specific requirements.

2.3.10.4 AGI and gas pipeline

2.3.10.4.1 Battered Excavations

Battered excavations are proposed for hot tap installation (Figure 2-17). This technique involves grading the excavation walls at an angle rather than maintaining vertical faces, thereby reducing the risk of wall collapse, particularly in loose or unstable soil conditions. Battered excavations are typically suitable where sufficient working space is available around the hot tap, where excavation depths are relatively willow, and where ground conditions are dry with a low water table. The method of excavation is also installed for ease of access/egress to the pit. The sloped walls reduce the need for temporary access structures to gain access, allowing for gradual entry and exit from the excavation pit.

2.3.10.4.2 Sheet Piling

In the event that a battered excavation is deemed unsuitable sheet piling will be utilised instead to support excavation for the hot tap installation (Figure 2-18). Sheet piling is generally preferred in deeper pits with limited space and poor soil stability. It is expected that the trench will be 10 m x 5 m. It will take 2 to 5 days to complete and will involve:

- Use of a vibration pile driver to ensure reduced noise pollution.
- Excavation to the trench formation level upon the completion of the sheet piling.
- Provision for safe access for operators and mitigation of groundwater issues if required.

Figure 2-17 - Hot Tap Tee Battered Excavation

Figure 2-18 - Hot Tap Excavation Supported by Sheet Piles

2.3.10.4.3 Open-cut Trenching

Pipe trenches and bellholes will be excavated prior to the arrival of the pipework on site using a tracked excavator (as with the pipeline). The following pipework will be installed:

- Inlet Pipework
- Outlet Pipework
- Fuel Gas Pipework
- Low Temperature Hot Water Pipework
- Site Electrical and Instrumentation Ducting

Lengths of pipe will be delivered to site and stored in predefined temporary working areas along the pipeline route. When ready, the individual pipe lengths will be strung out along the running track in preparation for welding. Standard pipes come in 12 m lengths. Prior to lowering the pipeline, the excavated trench will be evenly bedded throughout its length, with preapproved material (Cl. 503), to a minimum depth of 150 mm (300 mm in rock). This will be done in accordance with IS 328:2021, GNI/AD/SP/007[12]. Approximately 6-9.6 m^3 of bedding will be required. The pipeline will be laid in the trench (Figure 2-19).

The pipework listed above will connect the following site buildings/units:

- Temporary Pig Trap
- Filter Skid
- Meter Skid

[12] GNI General Pipelining Specification.

- Heat Exchanger Skid
- Main Pressure Reduction Kiosk
- Boiler House Kiosk
- Electrical and Instrumentation Kiosk Gas Analyser Kiosk

Open cut trench methods will be used. Before construction commences, confirmatory surveys will be done and the route will be surveyed and pegged out. Where required, pre-construction field drainage will be installed to ensure current drainage systems continue to work throughout construction.

Based on the proposed pipe trench dimensions, it is envisaged that the maximum width a contractor would increase the pipe trench is to 750 mm to suit standard excavation buckets. The pipe will require trench excavation to a maximum depth of approximately 1.8 m to the base and a 0.8 m width, ensuring depth of cover to the top of the pipe is not less than 1200 mm.

Excavated material will be stored on site for re-use. Following the installation and backfilling of all pipework, the site will be brought up to the agreed formation level. Concrete will be poured and levelled for the civil support bases of the following components:

- Temporary Pig Trap Connection
- Filter Skid
- Meter Skid
- Heat Exchanger Skid
- Main Pressure Reduction Kiosk
- Ancillary Pressure Reduction Kiosk
- Boiler House Kiosk
- Electrical and Instrumentation Kiosk
- Gas Analyser Kiosk

The approximate quantity of material expected to be excavated is shown in Table 2-8. Site investigation and topographical design will determine the exact quantity of material that can be reused.

Table 2-8 - Approximate Quantity of Material to be Excavated (AGI)

Works Area	Quantity (m^3)	Description
Pipeline	72-115	Based on excavation. A maximum 1.8 m deep x 0.8 m wide excavation is assumed
Hot Tap	220	Material removed to bring site to Hot Tap ground level
AGI	330	Based on all hard surface areas being excavated to 0.45 m below ground level
Expected total	**665**	

Figure 2-19 - Excavated Trench to lay gas pipeline

2.3.10.5 Reinstatement

The majority (80-90%) of the excavated soil will be reinstated as backfill. Excess excavated soil will be removed from site and disposed of. For grassed areas, reinstatement will involve backfilling with suitable excavated material up to ground level, leaving a minimum of 200 mm for topsoil or matching the existing surface level. This will allow for seeding or turf replacement. During reinstatement, the pipe will be carefully surrounded and covered with CL.503 material (Figure 2-20). Gas pipeline marker tape will be placed on compacted CL.503 and subsoil, 500 mm from the top of the pipe and 250 mm from the surface. See Figure 2-20 for an example cross section of a proposed reinstated trench.

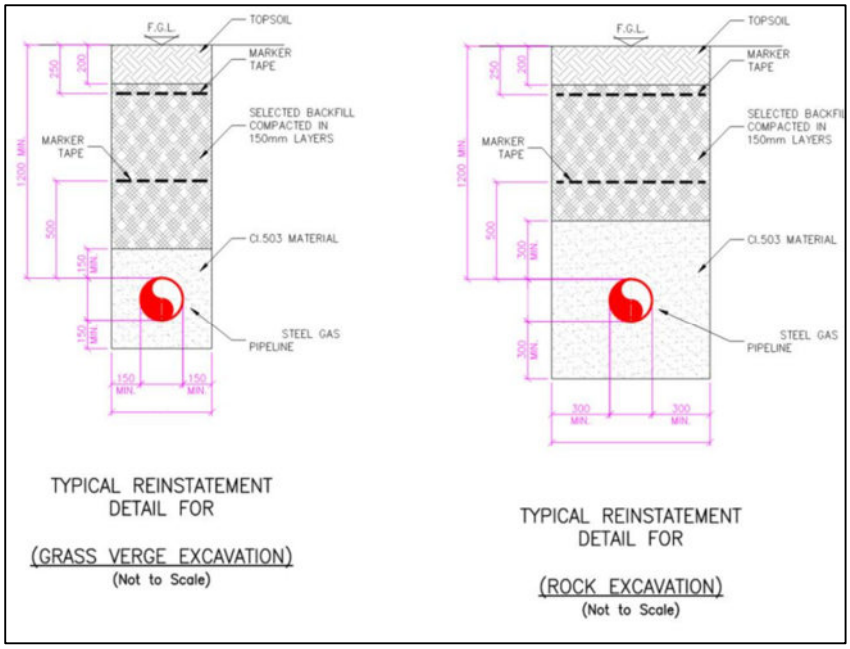

Figure 2-20 - Proposed Pipeline Reinstatement Details

2.3.10.6 Mechanical Works

Hot tapping is used to create a connection to an existing pressurised pipeline without the need to shut down or decommission the system. The process involves welding a fitting onto the live (hot) pipeline, followed by cutting through the pipe wall (tap) using a hot-tapping machine. The individual sections of pipe will be aligned and welded above ground. For a pipeline of length between 50-80 m, this welding process will be completed in one or two continuous sections. The welding team will consist of two to four qualified welders, supported by two certified welding inspectors present in the pit to complete the welding works at any given time.

The pipework will be surveyed in its final position, with all above ground pipework being painted in accordance with AD/SP/009[13] while all below ground pipework will be coated in accordance with AD/SP/008[14]. Following installation, coating and surveying the new pipework will be backfilled. Stone chip will be transported to the excavation and placed around all pipework and valves during the backfilling process.

2.3.11 Cashla Peaker Plant Construction

2.3.11.1 Earthworks

On-site works will commence with site wide earthworks consisting of:

- Topsoil stripping and storing on site.
- Sitewide cut and fill to formation levels for construction.

[13] GNI Specification for New and Maintenance Painting of Above Ground Pipework and Installations
[14] GNI Specification for Selection and Application of Field Applied External Coating

- Any surplus excavated material will be used on-site for landscaping, and the remaining material will be taken off-site by a licenced waste contractor to an appropriately licenced waste facility or to an end user with similar requirements of by-product excavated materials generated from a greenfield site.
- Where possible, appropriate material excavated during ground works will be re-used as part of earthworks and as back-fill for open trenches/pipe tracks where necessary. Site-won material suitable for re-use will be used to achieve the formation design levels. Should additional materials be required these will be imported to site from approved sources. Waste arising from the site clearance, primary infrastructure and earthworks is expected to comprise made ground/topsoil, gravels and clay/silt material, and would be either re-used onsite or removed offsite for appropriate reuse, recovery and/or disposal as required.
- Any contaminated excavated material found on site will be removed by licensed waste carriers and disposed of at appropriately licensed facilities.
- Disposal of surface water in excavations during construction will be by captured in sumps and disposed to groundwater via infiltration by pumping to proposed temporary lagoons. This will allow slow seepage of the surface water runoff to ground with the benefit of filtration as the water percolates to ground in the lagoon.

2.3.11.2 Site Strip

Topsoil will be stripped across the site to a depth of 150 mm. The topsoil will be stored in a location so as to minimise double handling and in heaps not exceeding 2.0 m high and to be reused at a later stage. After the site strip the site will be rough graded to formation levels. The material on site will be reused where possible. The following table gives level quantities for cut and fill to formation.

Table 2-9 - Quantities for cut and fill formation

	Cut (m^3)	Fill (m^3)	Net (m^3)
Topsoil Strip	10,698	0.00	10,698 (cut)
Volume (m^3)	22,357	20,521	1,836(cut)

Ca. 13,000m^3 of stored material on site will be disposed of at a licenced facility or to an approved end user, in accordance with all relevant waste management legislation (in the event that the waste soils material is unsuitable for reuse). Contractors will identify hauliers and disposal / recovery facilities.

Imported Materials Volumes for the various civil elements are listed in the following table. These cover the materials (all layers) for differing types of pavement.

Table 2-10 - Import Material Volumes

Construction Item	Associated Volume (m^3)
Roads imported materials	8,150
Concrete slabs imported materials	10,450
Building foundation imported materials	10,450
Gravel areas imported materials	4,450

2.3.11.3 Foundations

A robust karst protocol will be adapted during foundation construction comprising the following:

- Soil strip across each foundation footprint to expose the bedrock surface.
- Targeted closely spaced proof coring to confirm the presence of any possible Karst within 15 to 20m of the bedrock surface.

- If no significant voids or Karst features are encountered during the proof coring process then Foundation Solution 1 will be adapted.
- If a significant Karst feature is encountered during the proof coring process then Foundation Solution 2 will be adapted.

Foundation Solution 1

- In the event the targeted proof coring confirms no significant Karst features are present it is envisaged that traditional reinforced concrete raft and strip foundations (founded directly on the limestone bedrock) will be adequate for the proposed plant and single storey buildings. Refer to Figure 2-21. For the single storey buildings a traditional reinforced concrete strip foundation will be founded directly on the weathered bedrock. For the heavier items of plant / tanks we expect the top surface of weathered bedrock will be 'ripped' down to un-weathered bedrock with the reinforced concrete foundations founded on this un-weathered rock. These reinforced foundations will be designed to span over any minor surface karst fissures encountered at the bedrock formation level (exposed as part of the local soil strip at the foundation locations).

Foundation Solution 2

- In the event that the abovementioned targeted proof coring exercise identifies a Karst feature under the footprint of a heavy item of plant it is envisaged that a piled foundation solution will be required locally at the karst feature. Refer to Figure 2-21. This piled foundation solution will comprise cased Odex drilled piles. The piles will be cased to mitigate the risk of grout loss and negate the risk of aquifer contamination. In terms of piling plant, an Odex piling rig is typically used for piling through karst. A reinforced concrete pile cap or ground beams (located just below ground level) will be built on top of the piles to support the plant or building above. In terms of reinforced concrete foundation footprint (on plan), Solution 1 and Solution 2 will be virtually identical with the only varying item being the introduction of local piling at any karst voids encountered.

Site Access Road

- The site access road construction will typically comprise granular 6F2 capping material (founded on competent subgrade confirmed via on-site CBR testing) with a Clause 804 granular sub-base and hot-rolled asphalt wearing and surface courses as is typical for standard road construction. The access road crosses a suspected karst feature identified as part of the site investigation work and again a robust karst protocol shall be adapted here as follows.
- The formations in the vicinity of the suspected karst feature will be proof rolled and observed for signs of weakness with CBRs taken to confirm capacity. In any areas of low CBRs the top soil and overburden clay will be removed to expose the weathered rock surface. Any dips in the limestone rock surface will be infilled with granular 6F2 capping material laid and compacted in accordance with the TII specification for roadworks. The road construction above any karst features will incorporate a high strength geotextile. This geotextile shall have a 100-year design life.
- The above measures hence present a robust engineering solution to mitigate any risks associated with the presence of karst (AtkinsRealis, 2026).

Conclusion

- It is noted the boreholes and follow-on rotary coring did not encounter any Karst features. Similarly, the base of trial pits did not encounter any open depressions and all terminated on solid limestone bedrock. In Karst areas it is standard investigative practice to carry out geophysical surveying to assess for the presence of Karst. Based on the results of the geophysical survey, several anomalies have been identified across the site area. Notably, these anomalies exhibit very high resistivity levels and indicate potential air voids or clay filled voids at several resistivity points, ranging from A1 to A18. The presence of these high resistivity point suggests the possibility of karst formations or other subsurface pockets (either air voids or infilled with clay).
- The solutions as discussed above present the engineering solutions that will respond to the presence of karst, and at construction stage the robust karst protocols identified will be implemented to control and respond to any karst features encountered (AtkinsRealis, 2026).

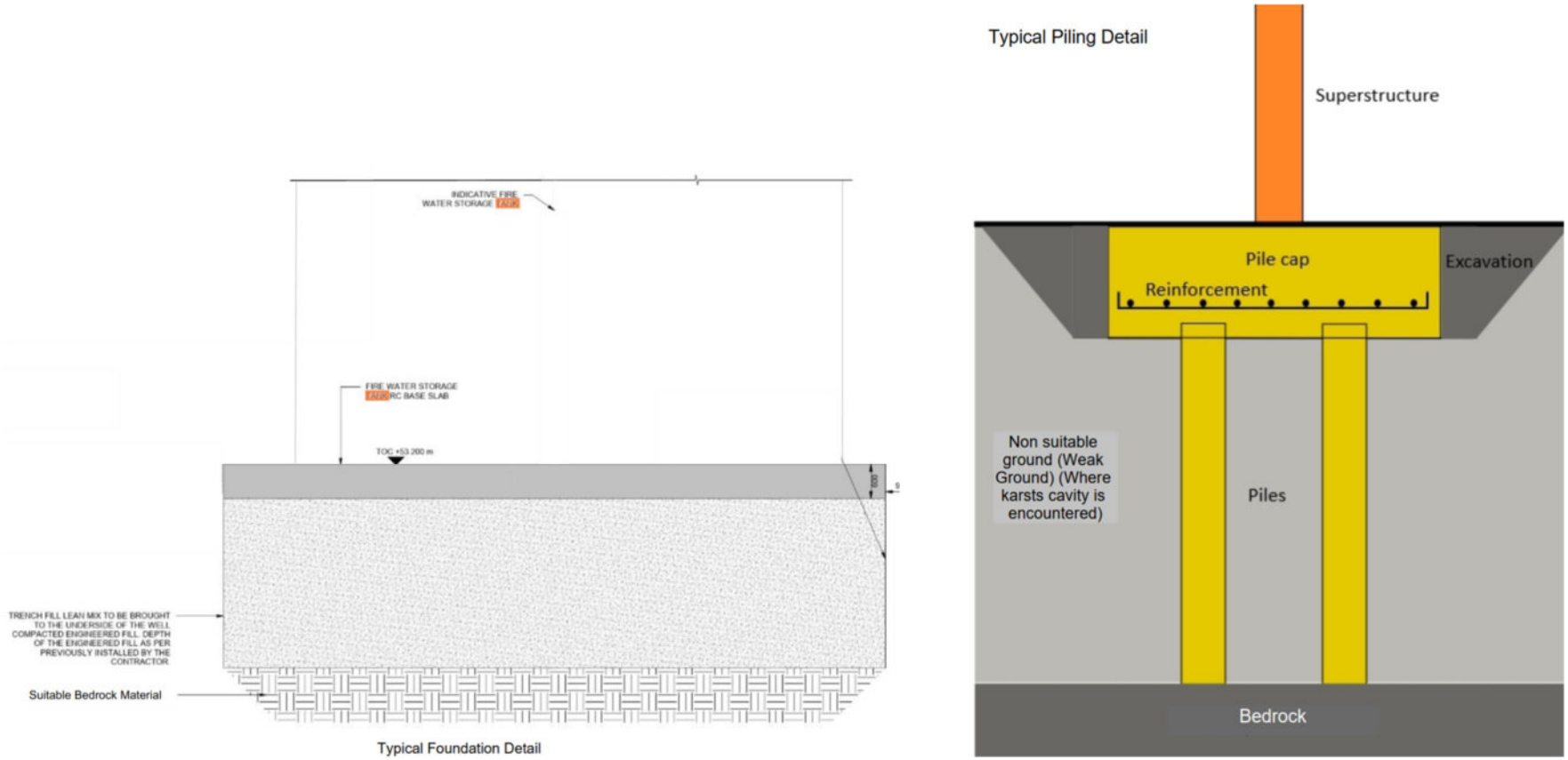

Figure 2-21 - Proposed piling detail and pad raft foundation

2.3.11.4 Drainage and Ducting

Underground utilities will be constructed as per required standards. Foul and watermains will be constructed, commissioned, and tested as per Uisce Éireann standards (IW-CDS-5030-03 and IW-CDS-5020-03). Storm sewers will be constructed, commissioned, and tested in accordance with TII Manual Contract Documents for Roadworks (MCDRW) specification. Additional ducting will be constructed in accordance with TII MCDRW specification as a minimum and commissioned and tested as per the same specifications.

2.3.11.5 Dewatering and Stormwater Management

A soakaway lagoon will be constructed with non-permeable berms, not exceeding 1m in depth. Topsoil will be stripped and replaced with a separation geotextile, secured with sand or gravel to act as a replaceable filtration layer. Stormwater runoff from excavations will be collected in sumps and pumped to the lagoon for infiltration to groundwater.

2.3.12 Grid Connection Infrastructure

2.3.12.1 4-Bay 220 kV Air-Insulated Substation & grid connection equipment

The 220 kV substation will be based on EirGrid design specifications. The substation compound will consist of an EirGrid substation control building. The control building works will consist of foundation works, block work, roofing, low voltage electrical fit out, cladding and building finishing works. High Voltage (HV) electrical equipment will be installed and associated infrastructure including palisade fences and concrete post and rail fences. The electrical installation requires:

- Delivery and installation of a 220 kV step-up transformer. These are exceptional abnormal loads and will be managed in accordance with regulations governing the movement of large loads (See Chapter 10 Traffic and Transportation).
- Delivery and installation of all other HV equipment.
- Wiring and cabling of HV/LV equipment, protection and control cabinets.
- Commissioning of all newly installed equipment.

Foundations will be built for all of the proposed electrical infrastructure (Section 2.3.11.3). The HV electrical equipment will include:

- 220 kV step-up transformer
- Unit Auxiliary Transformer
- Cable Sealing End (CSE);
- Surge Arrestor (SA);
- Earth Disconnect (DA, DB, DL, DT);
- Current /Voltage Transformer (CT/VT);
- House Transformer (HoT);
- Circuit Breaker (CB);
- Lightning Masts (LM);
- Back-Up low sulphur Diesel Generator;
- Harmonic filters if required by EirGrid[15];

[15] These are not accounted for in the substation and will be EirGrid requirements if needed.

- Capacitor Bank if required by EirGrid;
- Fire/Blast Wall;
- Telecommunications Mast (36 m high).

The busbar compound structural steelwork will be erected with lightning masts also installed. Substation electrical equipment will be installed once the ESB control building and compound is complete. Access roads will also be installed to allow trafficking in and out of the proposed substation compound, access road to loop in interface mast structures and internal access road for compound use.

The construction methodology involves:

1. Earthworks will be done to level the substation compound with a finish compound level of 54.8 m-57 m using stone fill material, capped by high quality loose stone.
2. The substation compound and drainage will be marked out by a qualified engineer.
3. A drainage system will be excavated and installed around the compound area.
4. Topsoil and subsoil will be removed from the footprint of the compound using an excavator. The excavated material will be temporarily stored in adjacent berms for later use during reinstatement works.
5. A layer of geotextile material will be laid over the footprint of the compound.
6. Using an excavator, a base layer of Clause 804 material will be laid followed by a 6F2 capping layer which will provide the finished surface.
7. Each layer will be compacted using a vibrating roller.
8. Earthing cable will be laid underground around the substation for connection to the various electrical components during the electrical fit out phase.
9. The construction of a substation compound comprising of a single story 220 kV substation control building, single story Electrical Control Building and associated outdoor electrical equipment, including a 21 kV/220 kV transformer, associated internal access road, including 2.4 m high station perimeter fencing will be completed.
10. An access road will be constructed to allow site vehicular activity in and out of construction area.
11. Adequate lighting will be installed around the compound on the lighting masts within the compound.
12. A 220 kV cable sealing end and associated accessories will be required to incorporate the Cashla UGC 220 kV cable into the substation.
13. A 21 kV/220 kV transformer will be installed in a bunded enclosures.
14. The proposed construction scope will require the personnel, machinery and materials as follows..

Table 2-11 - Equipment and Materials expected for the substation construction

Up to 10 Electrical/Civil Crews	Crane	Scaffolding	Lighting	Concrete
Excavators	Hoist	Substation Electrical Equipment	Paving.	Timber
360˚ tracked excavators (13 ton normally, 22 ton for rock breaker)	Power Tools	Stone	Fencing	Cladding
Tracked dumpers/ tractors and trailers	Generator	Geotextile	Steel	Doors

2.3.12.2 Underground Cable Route Construction

6 no. ducts will be installed in an excavated trench to accommodate 3 no. power cables, 1 no. fibre communications cable to allow communications between the Proposed Peaker Plant and Cashla 220 kV Substation, 1 no. spare fibre communications cable and 1 no. earth continuity duct.

2.3.12.2.1 Horizontal Directional Drilling under the motorway

The proposed HDD methodology (TLI Technical Note 1 [September 2025]) is summarised as:

- A 0.40 m^2 works area will be fenced on both sides of the crossing obstacle. The drilling rig and fluid handling units will be located on one side of the obstacle and will be stored on double bunded 0.5 mm PVC bunds which will contain any fluid spills and storm water run-off.
- HDD entry and exit pits (1m x 1m x 2m) will be excavated using an excavator. The excavated material will be temporarily stored within the works area and used for reinstatement or disposed of to a licensed facility. A 1m x 1m x 2m steel box will be placed in each pit. This box will contain any drilling fluid returns from the borehole. The drill bit will be set up by a surveyor, and the driller will push the drill string into the ground and will steer the bore path under the obstacle. A surveyor will monitor drilling works to ensure that the modelled stresses and collapse pressures are not exceeded. The drilled cuttings will be flushed back by drilling fluid to the steel box in the entry pit.
- Once the first pilot hole has been completed a hole-opener or back reamer will be fitted in the exit pit and will pull a drill pipe back through the bore to the entry side. Once all bore holes have been completed, a towing assembly will be set up on the drill and this will pull the ducting into the bore. The steel boxes will be removed, with the drilling fluid disposed of at a licensed facility. The ducts will be cleaned and proven and their installed location surveyed.

2.3.12.2.2 Bore Methodology

- Based on geological mapping and site investigation (Section 2.3.9), a bore profile will be designed to minimise impact on existing land and structures.
- A pilot hole will be drilled at ~15–20° from the entry pit, passing through overburden and bedrock beneath the motorway, emerging at the exit pit.
- Depths are selected to reduce pollution risk, with a substantial rock buffer below the carriageway.
- Drilling fluid powers a downhole motor to rotate the bit; cuttings are flushed to surface and separated for licensed disposal.
- A closed-loop fluid system with recycling and continuous monitoring (volume, pressure, pH, weight, viscosity) will be used to optimise performance and prevent overcutting.
- Excess fluid from the exit pit will be recirculated via the entry pit.
- Bore navigation will use a proprietary steering system with real-time directional data.
- After pilot completion, a TCI hole-opener will ream the bore to 500 mm diameter, possibly in stages.
- A 140 mm drill pipe will be inserted from the exit side to maintain mechanical presence throughout the bore.

Duct Installation

Ducts will be prepared on the exit side using continuous coils (max. 100 m), with additional 13.5 m straight lengths butt-fusion welded and de-beaded prior to installation. Once the bore diameter is confirmed, a towing assembly (tow heads, swivel, reamer) will pull the ducts into place. Drag forces will be closely monitored to ensure tensile, collapse, hoop, and buckling stresses remain within design limits. Ducts will be cleaned, proven, and surveyed post-installation.

Cable Installation

Following duct installation and proving (via mandrel, sponge, or brush), electrical cables are pulled through using a mechanical winch. Cables are supplied on drums in pre-ordered lengths and connected via rated pulling stockings and swivels. Each circuit involves pulling three conductors into separate ducts, with winch tension monitored to avoid exceeding design limits. Lubricant is applied to reduce friction and prevent damage.

Cable jointing is carried out in a controlled container at the joint location. Cement-bound sand is placed and compacted in layers to support and protect the joint, followed by cable protection strips and warning tape. Final reinstatement is completed to surface level.

Joint Bay and Associated Communication Chambers

Joint Bays will be installed approximately every 400–500 m along the UGC route, as shown in planning drawings. Each 220 kV Joint Bay is a pre-cast concrete structure (approx. 8 m × 2.5 m × 2.05 m) located below ground, typically in non-wheel bearing zones, though temporary passing bays may be required on narrow roads.

Each Joint Bay will include adjacent Communication Chambers and Earth Sheath Link Chambers, used for signal transmission and cable sheath earthing respectively. These are also pre-cast concrete units with surface-level access covers. Marker posts will delineate duct routes and joint bay positions in non-roadway areas.

Joint bay construction and reinstatement methodology is as follows:

- Joint bays are constructed by excavating a pit with a sump, followed by either in-situ or pre-cast concrete installation. In-situ works include laying blinding concrete over Clause 804 material, casting reinforced slabs and walls, and backfilling per local authority specifications. Pre-cast units are placed on sand bedding, with temporary covers used at off-road locations.
- For cable installation, joint bays are re-excavated and secured. Cables are pulled using a winch set to specified tension limits, with lubrication applied to reduce friction. Each section involves pulling three conductors into separate ducts. Jointing is carried out in a controlled container environment.
- Post-jointing, cement-bound sand is compacted in layers to support and protect the joint, followed by cable protection strips and warning tape. Final reinstatement is completed to surface level. Dewatering, if required, is managed via percolation or settlement tanks in line with environmental controls.

2.3.12.3 Utilities and Services

To facilitate UGC installation, it may be necessary to relocate existing underground services such as water mains, telecommunication networks or existing cables. See Chapter 10 (Traffic and Transportation) and Chapter 14 (Material Assets) for more information. Uisce Eireann have been consulted and will be advised on details of the project proposals in the form of a completed Building-over or Near an Irish Water Asset Application Form and associated technical information largely comprising drawings and schedules with details of proposed crossings etc. with as much available information as possible.

2.4 Operational Phase

Once constructed, the gas, fuel and water supply systems are hydraulically tested with potable water prior to allowing the respective fluids to enter the systems. Once pressurised gas containing equipment joints will be tested with gas detectors to confirm they are leak tight.

Electrical, control and instrumentation equipment will be progressively tested for function and safe operation prior to releasing for use in the facility testing and commissioning. Safety systems including the back-up electrical system operation will be tested to ensure they operate as require when received a demand signal.

Once the facility's systems are confirmed to be correctly constructed and quality checked, the gas turbine will undergo a series of tests to confirm the correct and safe operation of its fuel systems and protection and control systems. These tests will be followed by load tests where the generator will progressively increase in load to check correct operation and control when electrically synchronised with the EirGrid transmission network. The gas turbine and generator will then be tested through a series of contractual performance guarantee tests including EirGrid grid code compliance tests. The grid code compliance tests verify the generator is able to operate safely and correctly through the full range of electrical demands from the network including reaction to any required fault conditions.

Once all initial testing is competed the facility is considered safely and correctly constructed and is then available for commercial service.

2.4.1 Monitoring, Maintenance and Operation

2.4.1.1 Cashla Peaker Plant

2.4.1.1.1 Haulage Routes During Operation

During operation of the Cashla Peaker Plant most of the haulage off site will be to dispose of various waste liquid streams. The furthest of these is Gort WWTP which lies approximately 26.5 km away due south of the proposed site, as presented below (approx. 36 km via M18). The location of Gort is provided in Figure 2-22.

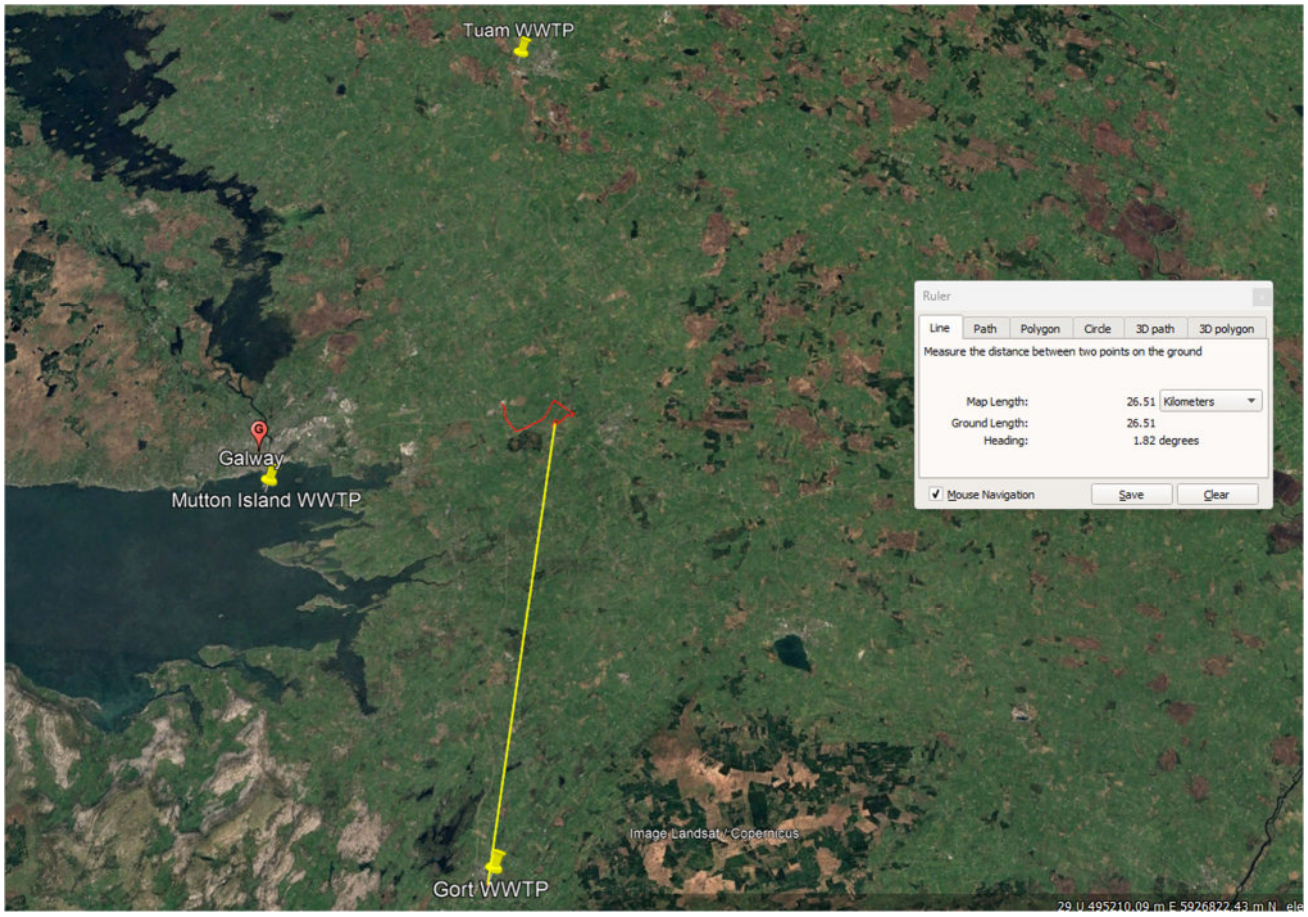

Figure 2-22 - Location of Gort WWTP.

2.4.1.1.2 Noise Reducing Silencer

The dominant sources of noise which could impact noise emissions external to the plant are generated by the gas turbine, specifically its compressor and turbine. These components result in noise being emitted from the air inlet filter house and from the exhaust stack. To reduce the emitted noise, silencers are installed within the inlet ducting attached to the gas turbine's compressor and in the exhaust ducting connecting the gas turbine to the exhaust stack.

These silencers are of the noise absorption design with the selected attenuation sufficient to reduce the emitted noise to an acceptable level at nearby sensitive receptors. The silencers contained within the air flow ducting consist of fibrous material sealed in packages and enclosed between perforated metal plates. The fibrous material within the sealed packages serves to absorb sound energy from the gas turbine compressor and turbine by converting some of the sound energy to heat. Noise modelling is presented in Chapter 9 - Noise and Vibration.

2.4.1.1.3 Gas turbine Continuous Emissions Monitoring System

The thermal energy of the fuel supply to the gas turbine at maximum capacity is greater than 100 MW thermal, therefore in accordance with the Industrial Emissions Directive 2010/75/EU (IED) the gas turbine emissions are required to be monitored continuously during operation.

A permanent continuous emissions monitoring system (CEMS) will be installed in the gas turbine's exhaust stack at a position which provides homogenous flow conditions in accordance with EN 15259. The CEMS will be designed to achieve the quality assurance requirements in accordance with EN 14181 following the procedures of EN 15267. These standards define the frequency of maintenance validation required to ensure the monitoring equipment retains the required level of measurement accuracy.The system will record all exhaust constituents in accordance with the IED. The recorded emissions will be monitored during operation to ensure compliance with the regulatory requirements and the operating permit conditions obtained from the EPA. The CEMS results including the raw data will be reported to the EPA in accordance with the EPA's Guidance Note AG3 and conditions set by the Agency in the Industrial Emissions (IE) Licence.

2.4.1.1.4 Gas Turbine and Generator Maintenance

The gas turbine and generator require bearing lubrication. This is provided via a lubricating oil system which contains an oil tank with circa 13 m^3 of a paraffin based mineral oil or a synthetic oil. The oil tank has secondary containment to mitigate against the potential of leakage. The oil is pumped through the bearings and back to the tank on a continual basis during operation. The oil will experience degradation through use and in relation to its storage time which will impair its performance. Continually operating gas turbines would generally replace the oil every 5 to 7 years. This frequency is expected to be considerably longer for the Cashla Peaker Plant given its relatively lower operating period. When the oil is replaced, the spent oil will be removed offsite by a licenced contractor for recycling in a suitable processing facility (Section 2.2.7).

Gas turbine control valves are actuated using a hydraulic oil system. Hydraulic mineral oil of circa 0.6 m^3 is contained in a tank with secondary containment. The oil is pumped to each valve actuator as required and drains back to the oil tank (Section 2.2.7).

The gas turbine is equipped with a compressor washing system which serves to remove contamination not removed by the inlet air filtration system and thereby maintaining the compressor performance. The system involves spraying a cleaning agent and then demineralised water for rinsing into the compressor with a total injected volume of circa 2m^3 per cleaning event. Cleaning is expected to take place every few months with an actual frequency based on the actual period of operation and measured turbine performance. If cleaning takes place online whilst the gas turbine is in operation the cleaning agent and demineralised water will evaporate in the combustion section and be released as a gas out of the gas turbine stack. If cleaning offline when the gas

turbine is not in operation, the cleaning fluids will be drained into a containment tank and removed off-site to a licenced treatment facility. The cleaning agent will be a water based biodegradable product.

The gas turbine and generator contain systems such as the generator stator air cooling circuit, the lubrication oil circuit etc which themselves require to be cooled. This is undertaken with a closed cooling water circuit which absorbs the thermal energy in the primary systems and releases this through air cooled radiators (fin-fan cooler). This system contains demineralised water with biocide and anti-corrosion inhibitors added as required to maintain performance.

2.4.1.1.5 Mandatory testing on the low sulphur Diesel backup fuel

Mandatory testing on the low sulphur diesel backup fuel is anticipated to occur for up to 18 hours per annum in accordance with EirGrid (the Transmission System Operator) Grid Code. This testing involves starting up the gas turbine on low sulphur diesel fuel for a short period sufficient to confirm this backup function remains reliable.

2.4.1.1.6 Automatic leak detectors – secondary low sulphur diesel storage

Each secondary low sulphur diesel storage tank will have automatic leakage detectors within the inter-tank space to detect leakage from the primary inner tank and regular external inspections to detect any deficiencies in the secondary outer containment tank. In the event of leakage being detected from the primary tank, the tank contents would require to be removed by road tanker to a suitable offsite low sulphur diesel storage facility and returned once appropriate repairs had been undertaken.

2.4.1.1.7 Seveso Requirements

The Proposed Project will be a “lower tier” COMAH establishment, as it will store hazardous substances in excess of the Lower Tier thresholds identified in Part 2 of Schedule 1 of the COMAH Regulations 2015. The underground gas pipeline and AGI does not exceed the chemical storage thresholds, set out in the COMAH Regulations (2015), for either Lower or Upper tier. Therefore, underground gas pipeline and AGI during either construction or operation is not subject to the provisions of the COMAH Regulations (2015).

2.4.1.2 Rathmorrissy AGI Monitoring and Maintenance

GNI will operate the underground transmission gas pipelines and carry out routine maintenance for the lifetime of the asset as per I.S. 328: 2021. Once constructed, the proposed underground gas pipeline and AGI will not require any staff to operate it. GNI maintenance staff, one van, will carry out checks every two weeks to a month along with routine inspection and maintenance, including pigging, of the asset every seven to ten years. Maintenance will be in accordance with GNIs Functional Specification Requirements document.

2.4.1.2.1 Pigging

The operation of the pipeline is based on a closed system, therefore during normal operating conditions there will be no release of natural gas to the atmosphere. There will be minimal emissions from the operation of gas hydraulic operated valves, safety relief valves and venting down of filters, etc. for maintenance.

Approximately every 7 to 10 years, the pipeline will be ‘pigged’ using an intelligent pig launched from the AGI in order to monitor the mechanical status of the pipeline itself. De-pressurising the pig traps involves the release of natural gas. This may be recompressed in lower pressure gas systems if available. The quantities will not be significant and the emission will be closely controlled by GNI.

2.4.1.2.2 Operational Access, Roads and Parking

There is two parking spaces allowed for GNI staff at the AGI entrance. This is sufficient to meet the needs of the AGI. Operational Electricity, Potable Water, Foul Water and Telecommunications

The underground gas pipeline does not require an operational electrical supply. The AGI requires a low voltage ESB electrical supply. The underground gas pipeline and AGI does not require an operational potable water supply. The underground gas pipeline and AGI will not generate any foul water during the operational phase. The underground gas pipeline will not lead to new hardstanding. The AGI will create new hardstanding areas and surface water runoff into the overall site drainage system.

2.4.1.2.3 Hours of Operation and Staff

There are no full time staff during the operation for the AGI.

2.5 Decommissioning Phase

2.5.1 GNI Infrastructure

The AGI is owned and operated by GNI who would be responsible for the future intentions of this facility if the Cashla Peaker Plant were decommissioned. The lifespan of the AGI is not defined but it is anticipated that it will be maintained, and periodic upgrading undertaken over a long lifetime to meet future demand and upgrade in technology.

If the proposed underground transmission gas pipeline is no longer required following decommissioning of the Cashla Peaker Plant, then full decommissioning of the gas pipeline in accordance with prevailing best practice will be undertaken by GNI. Transmission pipelines at the end of their operational life are degassed and isolated at the inlet and outlet. The installation will be filled with 500mbar of nitrogen within 1 month of the customer's decommissioning date. The transmission gas pipeline is filled with grout in line with standard GNI pipeline decommissioning procedures. The gas transmission property, plant, and equipment will be decommissioned in line with the transmission decommissioning process AM/BP/107.

The costs associated with the decommissioning, removal and disposal of the asset will be met by GNI.

In the event that the AGI is no longer required, decommissioning will *'be carried out in accordance with GNI's established procedures and prevailing best practice at the time of closure. The decommissioning process would involve the safe isolation of all gas infrastructure, removal of gas inventory, and the de-energisation of equipment. Pipework would be purged, degassed, and rendered inert in line with GNI's transmission decommissioning process AM/BP/107. Where appropriate, redundant underground infrastructure may be filled with grout to ensure long-term stability.*

Above-ground equipment, such as valves, filters, kiosks, and associated infrastructure, would be dismantled and removed from site by suitably qualified contractors. Materials would be segregated and sent for re-use, recycling, or licensed disposal in line with legislative requirements and commercial viability. Any foundations or hardstanding associated with the AGI would be broken up and removed to licensed facilities where practicable. Sub-surface foundations, if present, may be broken to a depth of 1m below ground level, with the remainder left in situ.

Once decommissioning works are completed, the site would be reinstated and returned to a condition compatible with the surrounding land use, including the application of suitable soils and reseeding where required. The costs associated with the decommissioning, removal, and disposal of the AGI would be met by GNI.'

2.5.2 Peaker Plant

It is proposed that the Peaker Plant will operate until 31 December 2050. During the life of the Cashla Peaker Plant, some equipment items will require replacement in their entirety. Such equipment will be decommissioned and removed to a suitable recycling facility where the materials will be recycled to the extent that a commercially viable demand exists.

At the end of life of the plant, unused fuel, fluids and chemicals will be removed from site and sold for re-use or repurposed within the operator's other facilities. If no viable re-use option exists, the fluids will be removed by a licenced waste contractor for processing in a suitable treatment plant. Process equipment will be removed and repurposed with the operator's other facilities if possible or will be sold to the used equipment market where such demand exists. If equipment is able to be repurposed or sold the equipment would be transported from site in the same manner as for the original delivery. If the re-use potential only exists in the form of component spares or no re-use potential is viable, the equipment will be dismantled into manageable sections to enable transport by standard heavy goods vehicles. If there is no viable re-use option the equipment components will be removed to licenced recycling facilities and recycled as much as is possible. At the end of this period, the plant will be decommissioned and all associated infrastructure removed from the site. Screen planting established during the operational phase will be retained and areas of hard standing will be returned to grassland

Other aspects of the decommissioning strategy include:

- Building and structural materials will be removed from site by licenced contractors for potential re-use in as much as the legislation allows and viable commercial options exist.
- Concrete foundations and roads will be broken by mechanical means and removed off-site by licenced contractors for potential re-use in as much as the legislation allows and viable commercial options exist.
- Sub-surface concrete piling if required in the design would be broken to a depth of 1m from the surface with the remainder remaining in the ground.
- Once all equipment and structural materials had been removed from site, previously excavated soil material would be re-applied to the ground in as much as this was compatible with the boundary vegetation.
- The onsite 220 kV substation after construction would be adopted by EirGrid. EirGrid would be responsible for any future intentions for this substation if the Cashla Plant were decommissioned.

It is also noted that under IE Licence requirements BGE will be required to prepare and maintain a Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP).

2.5.3 EirGrid Substation

It is anticipated that the substation will be decommissioned following consultation with EirGrid, and in full accordance with EirGrids specific requirements at that time.

3. Reasonable Alternatives

This Chapter sets out the reasonable alternatives considered for the Proposed Project.

3.1 Environmental Impact Assessment Directive Requirements

Article 5(1)(d) of Directive 2011/92/EU as amended by Directive 2014/52/EU ("the EIA Directive") requires that an Environmental Impact Assessment Report (EIAR) contains *'a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and the main reasons for the option chosen, taking into account the effects of the project on the environment'.*

In addition, Annex IV to the EIA Directive provides that the EIA shall include: 'A *description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the Proposed Project and its specific characteristics, and an indication of the main reasons selecting the chosen option, including a comparison of the environmental effects.'*

Accordingly, this chapter of the EIAR describes the reasonable alternatives considered and the main reasons for the selection of the Proposed Project taking into account the effects on the environment. It is noted that Annex IV to the EIA Directive specifically states 'reasonable' alternatives, and does not impose a general requirement to assess all potential alternatives.

This chapter describes the reasonable alternatives, based on the following key criteria (EPA, 2022):

- Site Location
- Operational Features (including technology)
- Grid Connection (including technology)
- Transportation of Exceptional Abnormal Loads
- Alternative Designs & Construction Methodologies

The objective is to show a representative range of the practicable alternatives considered, during the design and EIA process. As per EPA (2022) guidelines, alternatives have been described with '*an indication of the main reasons for selecting the chosen option'.* According to the EPA (2022) (Section 3.4 of the 'Guidelines on the information to be contained in Environmental Impact Assessment Reports') '*it is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required'*. The reasonable alternatives studied that are relevant to the Proposed Project and its specific characteristics are described in the subsequent sections of this Chapter.

3.2 The 'Do Nothing' Alternative

- In the absence of the Proposed Project, the existing site at Pollnagroagh / Rathmorrissy would remain in its current state, comprising agricultural land adjacent to the M6/M18 interchange. No new infrastructure would be constructed, and no additional generating capacity would be added to the national grid.
- The "Do Nothing" scenario is inconsistent with national policy objectives outlined in the Climate Action Plan and the National Development Plan, which support the development of flexible generation infrastructure to ensure energy security and facilitate decarbonization.

- The “Do Nothing” scenario would result in continued reliance on existing, less flexible generation assets to meet peak electricity demand. This could increase the risk of supply shortages during periods of low renewable output, particularly as Ireland transitions to a low-carbon energy system. The lack of fast-response generation capacity may also constrain the integration of renewable energy sources, such as wind and solar, into the grid. Furthermore, the broader energy system may face increased emissions from older peaking plants and reduced resilience in the face of climate-related variability in renewable generation.
- From an environmental perspective, the ”Evolution of the Baseline” scenario has been robustly assessed by each Subject Matter Expert (SME) for their respective environmental discipline within each technical Chapter of this EIAR, as detailed further in Chapter 4 to Chapter 15, Volume 2 of the EIAR.

3.3 Site Location & Alternatives

3.3.1 Sites Considered

The Peaker Plant requires a connection to an existing gas supply. This limits site selection to areas within the vicinity of an existing gas pipeline. Existing gas pipelines operated by Gas Networks Ireland are presented in Figure 3-1. Furthermore, to operate the Peaker Plant, a connection to an existing substation is required to connect into the national grid. Site selection was therefore also limited to sites within the vicinity of a substation connection.

The Mayo–Galway pipeline (BGE/85) was commissioned in 2006 and is an existing 149 km gas line which runs from Bellanaboy County Mayo to Cappagh County Galway. This pipeline route was deemed suitable by BGE for a connection to the Peaker Plant Site. The location for the Peaker Plant was primarily selected because there is an intersection of the existing gas transmission lines and electricity grid infrastructure. The transportation of exceptional abnormal loads via a suitable Port was also a consideration by BGE, as detailed further in Section 3.6.

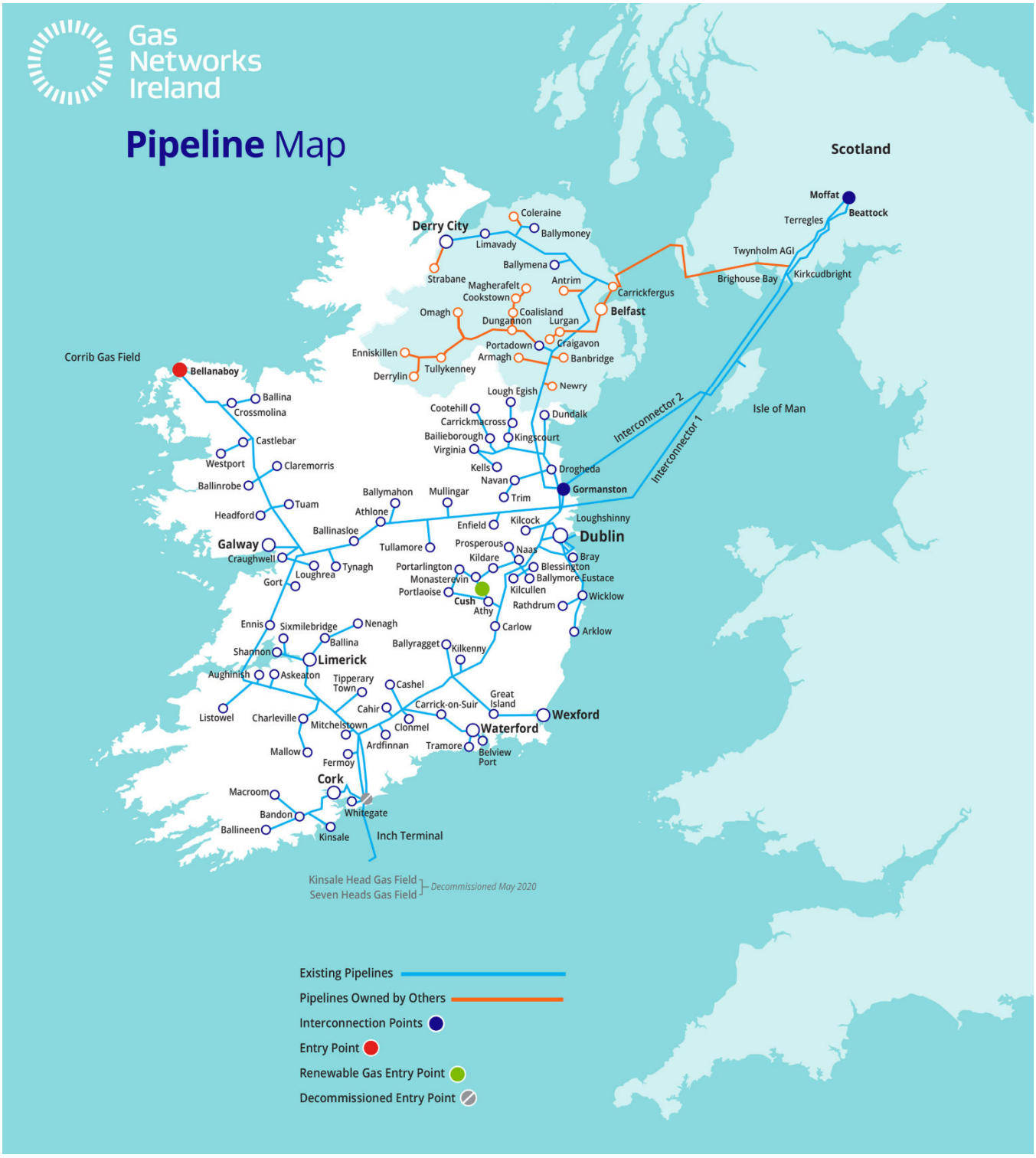

Figure 3-1 - Existing Gas Pipeline Network in Ireland

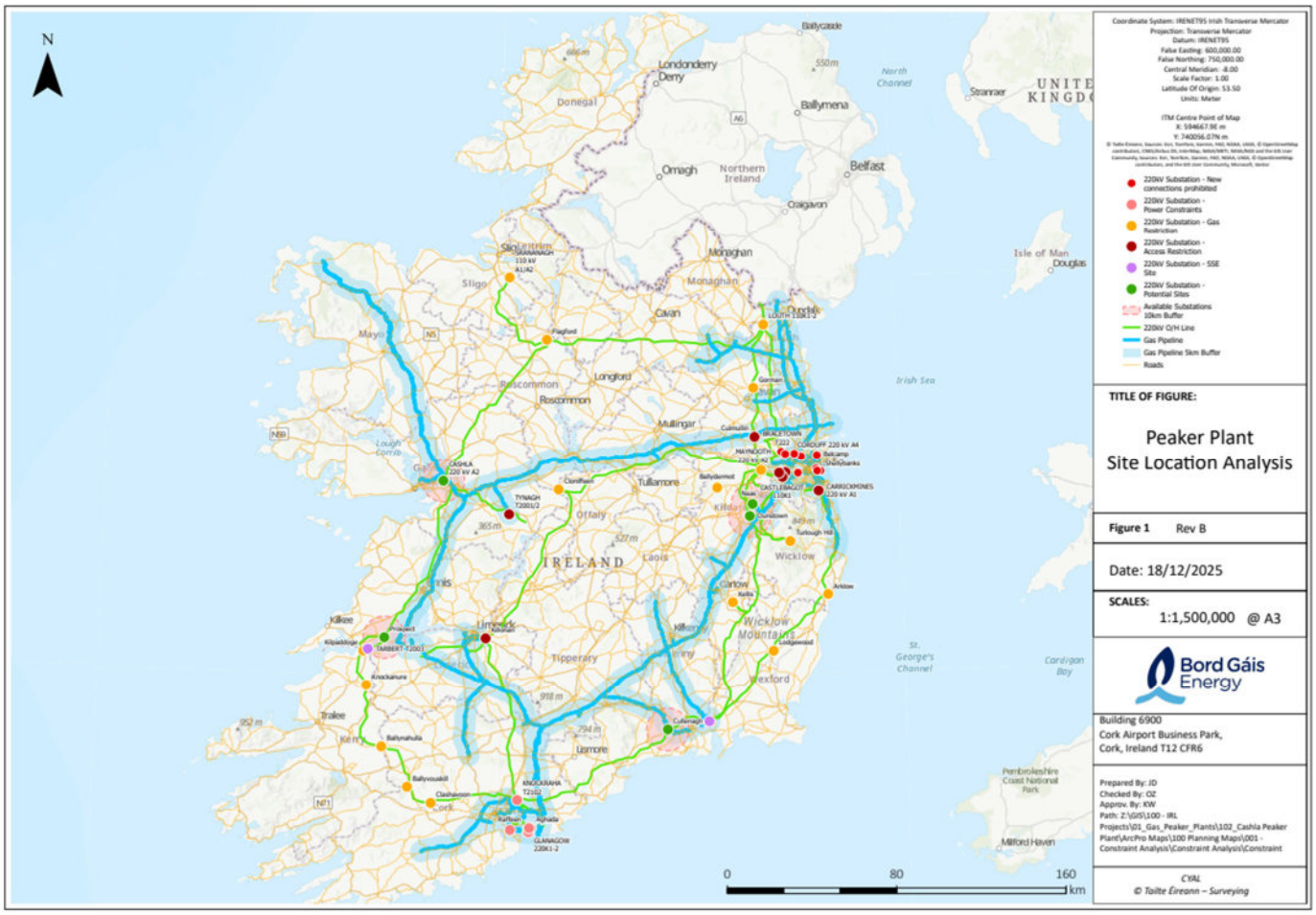

Figure 3-2 - Intersection of existing gas pipelines with EirGrid substations

To identify a suitable site for the Cashla Peaker Plant, 4 no. zones were identified east of Galway City within close proximity to the existing Mayo–Galway pipeline and the 220 kV Cashla Substation, as presented in Figure 3-3.

Figure 3-3 - Overview of 4 no. zones assessed in close proximity to the existing Mayo–Galway pipeline and existing 220 kV Cashla Substation

Zones were assessed by BGE, TLI and AtkinsReális and are presented in Figure 3-3, and summarised as follows (moving clockwise left to right):

1. North of Carrowmoneash on Station Road (N67).
2. A larger area covering Carnmore and Lissarulla north of the M6 motorway and extending west to Cashla on the R339.
3. East of Ballymoneen (Clare By) at Grange East north of the R339.
4. Along the M6 motorway north-east of Derrydonnell North as far east as the M6/M18 interchange.

Within these zones, clusters of potential site options were identified at the following locations:

- Deerpark Industrial Estate to the north of Oranmore
- Between Galway Airport and townland of Cashla
- Townland of Ballymoneen
- Townlands of Barretspark / Knocknacreeva
- Townlands of Carraunduff / Pollnagroagh

The above options were identified by BGE for further assessment with respect to engineering, environmental, and planning constraints.

3.3.1.1 Identified Potential Site Option Constraints

A desktop study was carried out using a suite of online resources to identify constraints. This included:

- National Parks and Wildlife Service (NPWS) webpage / data (last accessed 09/06/2025);
  - Information on sites designated for nature conservation, including spatial data (NPWS);
  - Habitats and species data
  - Wildfowl Sanctuaries
  - Red List of Terrestrial Mammals (Marnell et al, 2019)
- National Biodiversity Data Centre (NBDC) – specifically the M42N, M42P, M42T and M42U 2km grid squares which encompass the Proposed Project (last accessed 09/06/2025);
  - Protected species records
  - Invasive species records
- Environmental Protection Agency data (last accessed 09/06/2025));
  - Watercourses and lake spatial files
  - Water quality data
  - CORINE land cover data
- Geological Survey of Ireland data (last accessed 09/06/2025);
  - Underlying geology, soils and hydrogeology
- Bat Conservation Ireland (last accessed 09/06/2025);
  - Bat monitoring data
- Wetland Survey Ireland (last accessed 09/06/2025);
  - Information on identified wetland habitats within the study area.
- List of National Monuments in State Care: Ownership & Guardianship
- List of Preservation Orders and the Register of Historic Monuments
- Record of Monuments and Places (RMP)
- Files of the Sites and Monuments Record (SMR)
- Updated SMR available at www.archaeology.ie
- National Inventory of Architectural Heritage (NIAH) Building Survey
- Galway County Development Plan (2022-2028)
- Irish Antiquities Division, National Museum of Ireland Topographical Files
- Urban Archaeological Surveys
- Ordnance Survey first and subsequent editions, www.osi.ie
- National Folklore Collection
- Early maps and estate maps
- Aerial photographs (OSI webmapping)
- Excavations Bulletin (www.excavations.ie)
- GSI Datasets Public Viewer and Groundwater web-mapping (consulted 12/05/2025).
- Ordnance Survey web-mapping to assess the surface topography and landforms (consulted 12/05/2025).
- EPA Public Viewer and web-mapping (consulted 12/05/2025).
- Google Maps Aerial photography (consulted 12/05/2025).

The following constraints were identified during the desk based site options assessment by BGE, TLI and AtkinsReális:

- An archaeological feature was identified in a site option to the east of Galway Airport, with the following details noted: *'On a low ridge in flat pastureland. This ring-barrow (diam. 10.6m) was noted following aerial reconnaissance by Markus Casey (SMR file). On inspection in February 1992, it was fairly well preserved and was defined by a flat-topped circular mound'.*
- Site options near Deerpark Industrial Estate are located within vicinity of Galway Bay Complex SAC and were therefore considered to have a higher potential for adverse effects on legally protected conservation sites than other options.
- Areas of Limestone pavement were identified for site options between Galway Airport, the townland of Cashla and in the townland of Ballymoneen. Whilst the Limestone pavement habitat here is not currently identified as Annex I habitat, these areas may have conformity to Annex I habitat.
- Numerous EPA licenced facilities and a COMAH facility / Seveso Site were identified within Oranmore.
- A limited number of site options did not have existing services / utilities (based on available data for Gas, Potable Water and HV/MH Electricity Network).

3.3.1.2 Selected Site Option

Following a review of all identified potential sites within the zones in Figure 3-3, BGE determined that the Proposed Project (Figure 3-4) was the best performing site option, specifically due to the intersection of the existing gas transmission lines and electricity grid infrastructure, land availability and lack of significant environmental constraints. The Peaker Plant is located ca. 2km west of Athenry. The site is agricultural in nature and generally surrounded by agricultural lands, with the M18 motorway bounding the west of the Site, and agricultural lands to the north, east and south of the Site, with the M6 motorway slightly further south. Sporadic rural houses and agricultural properties are located within the vicinity of the proposed access point off the L3103. Cashla substation is located c. 3.4 km to the east of the site with the existing GNI pipeline bisecting this site.

Figure 3-4 - Selected Site Option for the Proposed Project

3.4 Operational Features & Alternatives

3.4.1 Life-span of the Peaker Plant

Two operational life-span alternatives have been considered for the Proposed Project, namely 40 years and 20 years. It is proposed that the Peaker Plant will operate until 31 December 2050, rather than the alternate 40-year lifespan.

This decision is based on the likely future changes of national climate obligations, particularly given the statutory net-zero targets for 2050. Granting of a 40-year permission would, therefore, later become inconsistent with updated climate legislation and legally binding objectives.

Any case for greater than the 31 December 2050 life-span would need to provide a transition plan to post 2050 zero-carbon operation as well as a clear outline of how the plant would run under future conditions. In addition, if a longer-term permission was to be sought on the basis of a specific method of zero-carbon operation post-2050, the plant would be committed to this. However, the proposed method may no longer be desirable post-2050 depending on technological and policy developments.

The proposed approach (i.e. the Peaker Plant will operate until 31 December 2050) is more flexible and allows some scope for future transition to net-zero fuels (e.g., hydrogen or biomethane). This approach is in line with standard practice in other sectors (e.g., wind farm permissions) where operational lifespans are time-limited. Therefore, it is proposed that the Peaker Plant will operate until 31 December 2050.

3.4.2 Plant Capacity

Depending on the technology that is used, the turbine will have a total output capacity of either 325 MW or 334 MW. The open cycle gas turbine parameters are the same in both cases. It is only the output capacity that will change depending on the technology used. The gas turbine generator will consist of a single gas turbine powering a generator that will provide an electrical supply to the EirGrid 220 kV transmission system. The plant capacity is set by the EirGrid requirement to support the electrical transmission grid in the local area when there is insufficient electrical generation to meet the demand.

A larger capacity plant would provide a greater support capability but would be beyond the stated EirGrid requirement to manage the transmission network. A lower capacity plant would result in an EirGrid need for additional plants to achieve the required electrical supply reserve.

Generating additional capacities of 380 MW / 385 MW were also considered, with the aim of securing additional capacity in a future auction. However, direction issued by the Commission for Regulation of Utilities (CRU) in the week of 30th April 2025 (CRU Direction to T-4 2029/30 | CRU.ie) requires full planning permission to be granted by the provisional qualification date of 20th November 2025 (this marks a shift from previous auctions where submitted planning by the Final Qualification date was sufficient). The Proposed Project would not meet this revised CRU timeline in order to qualify for the additional ca. 50 MW. Procuring a larger turbine without guaranteed maximum export capacity (MEC) or capacity payments for the additional 50 MW would expose the project to increased capital expenditure and significant risk. Depending on the technology that is used, the turbine will have a total output capacity of either 325 MW or 334 MW and will provide an electrical supply to the EirGrid 220 kV transmission system for the Proposed Project.

3.4.3 Stack Height

The main purpose of the gas turbine stack is to safely vent the turbine's combustion products in compliance with environmental regulations for air quality. The height of the stack is primarily determined by dispersion analysis whereby the exhaust emissions to air are calculated relative to nearby sensitive receptor locations. The appropriate stack height ensures that ground level pollutant emissions remain within the regulatory advised allowable safe limits. Secondary considerations are the requirement for uniform steady exhaust flow in the stack to ensure that the exhaust gas composition measurement taken at specific points within the gas flow for emission monitoring are representative of the entire gas flow i.e. there is no significant turbulence or non-uniformity in the flow. This condition requires sufficient height to allow the flow time to settle out after changing direction from the horizontal duct section into the vertical stack. Additionally the stack height considers the desire to minimise the extent of the visual impact.

The proposed stack height is 30 m and is designed to maintain ground level air quality composition well within the allowable safe limits. If a lower stack height was chosen, this would increase the impact to the ground level air quality composition eventually with the potential in the extreme to reach or exceed the allowable air quality composition limits.

Given the calculated low impact to ground level air quality composition limits from the proposed 30 m stack height, any increase in height would offer minimal benefit compared to the greater visual impact from a higher structure. At the outset of the project, it was provisionally anticipated that the stack height would be up to 42 m. However through a process of design optimisation (including consideration of alternative technologies) and in consultation with the relevant EIAR SMEs (i.e. Air Quality, Climate, Noise and Vibration and Landscape and Visual), the final design stack height is 30 m.

3.4.4 Alternative Processes or Technologies

3.4.4.1 Open Cycle versus Combined Cycle

To facilitate the continued expansion of Ireland's renewable generation capacity, and support security of supply, modes of supporting the electricity network during periods when there is a gap between renewable power generation and power demand will be needed. This project is designed specifically for this purpose, being able to respond quickly to shortfalls in power generation at times of high demand. The Cashla Peaker Plant is selected as open cycle as this configuration provides a much quicker response time to start up and begin generation. This fast response time is required to meet the rapid changes in the transmission grid electrical supply and demand imbalance. In terms of efficiency the combined cycle gas turbine is better and therefore once operating at maximum load will produce less emissions per MW. However, the time to reach maximum load for an open cycle gas turbine is about 30 minutes but can be over 2 hours for a combined cycle. Therefore, if EirGrid needed 1 hour of generation at a given time, the combined cycle would combust fuel at various loads for at least 1.5 hours more than the open cycle before the 1 hour period. On this basis, the combined cycle would be expected to consume more fuel for the total period and therefore produce more total emissions. If the time required by EirGrid for generation reduces the emissions benefit of the open cycle machine increases, equally if the generation period is increased the combined cycle will take the lead. Therefore, although a combined cycle plant is more efficient once at its maximum load, for short generation periods to support the grid, the combined cycle can require more fuel to be combusted and therefore more emissions due to its much longer startup time compared to an open cycle.

A combined cycle arrangement involves recovering waste heat from the turbine's exhaust, normally through conversion to steam in a closed Rankine cycle, and using this heat to create additional electricity thus improving the efficiency of the plant. This type of arrangement would require a steam generation plant to convert the heat energy in the turbine's exhaust to a usable medium in this case steam. The steam generation plant must be

relatively slowly warmed through to avoid distortion and ultimately cracking of the steam generator's thick metal components. For this reason, a combined cycle design is not suitable for a Peaker Plant but rather is designed for longer periods of planned operation. A combined cycle gas turbine would have a taller stack and would be visually have a greater impact on the landscape. In addition an air cooled condenser would be needed as well as various other pieces of equipment (heat recovery steam generator, pump, steam turbine and its generator etc.). This would require a larger footprint for the site and would constitute additional exceptional abnormal loads relative to the Open Cycle.

On this basis, an open cycle design is appropriate for the function of a Peaker Plant operating for occasional short periods. Furthermore, BGE have confirmed that a capacity contract is in place directed from EirGrid/CRU who have determined that the Proposed Project and grid connection will support their requirements. It requires less equipment to be built, fewer abnormal loads and lower visual impact.

3.4.4.2 Fuel

The fuel source is from the existing GNI natural gas transmission system which transits the Proposed Project location.

Any alternative fuel source would need to be compliant with the capabilities of the available gas turbines. Whilst it is possible to combust natural gas with a percentage of hydrogen fuel, this could only be economically viable if this combination was provided via the existing GNI transmission system.

Biomethane first began flowing into the GNI gas network in 2019 through the injection point in Cush, Co. Kildare. Biomethane is a carbon-neutral renewable gas made from farm and food waste through a process known as anaerobic digestion. GNI has unveiled its Pathway to a Net Zero Carbon Network, outlining how the national gas network can transport 100% renewable gas by 2045, thereby playing an essential role in transitioning Ireland to a carbon-neutral economy. GNI's decarbonisation pathway, consistent with current energy and climate action policy, focuses on ultimate network repurposing to transport only renewable gases. By the end of the period, the existing national gas network will split into two distinct renewable gas networks, biomethane and hydrogen. Delivery of CAP25 targets will be important milestones for GNI on its pathway to decarbonisation.

Ireland's Long-term Strategy on Greenhouse Gas Emissions Reduction[1] was published in July 2024. The Strategy outlines the approach to achieving climate neutrality by 2050 and beyond. Section 8 of the Strategy includes information on Pathways to Climate Neutrality by Sector, including the electricity sector which gas networks fall under. This section focusses primarily on electricity generation rather than gas. It references the current GHG emissions within the electricity sector and the need to decarbonise the electricity sector, primarily through the use of renewable forms of generation which will in turn allow for the decarbonisation of other sectors such as transport and industry. Section 8 of the Strategy states "Zero-emissions gas will also be required in a climate neutral pathway in order to support the intermittency of wind and solar generation" Reference is also made to the potential for green-hydrogen as a strategy to deliver zero emissions electricity and decarbonising the grid. As mentioned above, GNI has developed its Pathway to a Net Zero Carbon Network, which outlines how the national gas network can transport 100% renewable gas by 2045, thereby playing an essential role in transitioning the electricity sector to climate neutrality in line with the points set out in the Long-term Strategy on Greenhouse Gas Emissions Reduction.

The Peaker Plant is designed to accommodate this future change in accordance with GNI's plans for the transmission system.

The use of the low sulphur diesel (secondary fuel) as the main source of fuel is not economically favourable compared to gas fuel. Such an option would also require significant additional infrastructure to store and transfer the fuel to site.

3.4.4.3 Secondary Fuel

The gas turbine can combust a secondary low sulphur diesel fuel if requested by EirGrid to generate electricity at a time when there is insufficient gas supply from GNI. The Peaker Plant is required by EirGrid to have a secondary fuel stored on site in case support is required for the electrical transmission network when the gas fuel is unavailable. The electrical generation capacity required to be achieved using secondary fuel is stipulated by EirGrid to be at least 90% of the capacity achieved with the gas fuel.

Two secondary fuel types were considered for the Proposed Project, as detailed further below.

- Hydrotreated Vegetable Oil (HVO)
- Low sulphur diesel

3.4.4.3.1 Hydrotreated Vegetable Oil (HVO)

Hydrotreated Vegetable Oil (HVO) is a potential alternative secondary fuel capable of being stored on site in the quantity required by EirGrid. HVO is a relatively recent product entering the fuel market and is produced in a high temperature process using hydrogen and vegetable oil.

HVO offers the following advantages:

- It has Lower Carbon Intensity as HVO is a renewable diesel made from waste vegetable oils and animal fats. It has up to 90% lower lifecycle CO_2 emissions compared to fossil diesel (depending on feedstock and production method).
- Drop-in Compatibility: HVO is a drop-in fuel for many existing diesel engines and turbines, requiring minimal or no modifications. This makes it ideal for backup use where reliability and rapid deployment are critical.
- Improved Air Quality: HVO burns cleaner than fossil diesel, producing lower NO_x, PM, and SO_x emissions, which is beneficial for local air quality compliance.
- Storage Stability: HVO has excellent oxidation stability, meaning it can be stored for long periods without degradation—ideal for infrequent use in Peaker Plants.
- Regulatory Alignment: Using HVO supports compliance with EU Renewable Energy Directive (as amended by RED III) and Ireland's Climate Action Plan targets.
- Certain HVO grades are less volatile than low sulphur diesel, meaning their use would prevent the Proposed Project from being classified as a Control of Major Accident Hazards (COMAH) site – reducing regulatory burden and simplifying compliance.

Key HVO disadvantages are as follows:

- There is only one model of gas turbine available on the market currently that may potentially use HVO.
- HVO is significantly more expensive than fossil diesel or natural gas.
- Feedstock Sustainability: The sustainability of HVO depends on the source of feedstock. Palm oil-derived HVO, for example, raises concerns about deforestation and biodiversity loss. Certification (e.g., ISCC or RSPO) is essential to ensure environmental integrity.
- Limited Availability: HVO supply is not yet widespread in Ireland, and availability may be constrained during peak demand or supply chain disruptions may occur.
- GHG Accounting Complexity: While HVO reduces lifecycle emissions, direct emissions at point of combustion are still significant. This can complicate emissions reporting and compliance with net-zero targets unless lifecycle accounting is accepted.
- Policy Uncertainty: Future climate legislation may tighten definitions of "renewable" fuels, potentially affecting HVO's eligibility or incentives.

3.4.4.3.2 Comparative Review: HVO vs low sulphur Diesel

The gas turbine is required to be able to combust a secondary fuel if requested by EirGrid to generate electricity at a time when there is insufficient gas supply from GNI. The electrical generation capacity required to be achieved using secondary fuel is stipulated by EirGrid to be at least 90% of the capacity achieved with the gas fuel. Secondary fuels by their nature are utilised only for testing purposes and in emergency scenarios. It is not expected, outside of EirGrid required testing, that the plant will operate on secondary fuel at a regular frequency.

HVO was considered as a potential secondary fuel option due to its lower carbon intensity and greenhouse gas emissions profile, as well as its lower emissions profile.

However, at present, there is no demonstrably secure, scalable, and verifiable supply of certified HVO available to the applicant at this time to support the long-term operational requirements of critical peaking plant infrastructure. In addition, the rapidly increasing demand for HVO across multiple sectors raises concerns about future availability and supply reliability.

HVO is produced from a wide range of feedstocks and the integrity of its sustainability credentials depend heavily on strong certification systems and supply chain transparency. HVO supplies that meet CEN Standard EN15940 and of Directive (EU) 2023/2413 (RED III) would be required to ensure integrity. As demand grows for HVO made only from verified waste-derived and sustainable feedstocks, the market may face tightening supply, higher scrutiny, and increased risk of supply chain stress.

HVO supply in Ireland is still building out, whereas diesel has mature logistics and strategic reserves of approximately ninety days via NORA (National Oil Reserves Agency). HVO's scale is currently uncertain as the same limited waste-oil feedstocks are being drawn into new SAF (Sustainable Aviation Fuel)/RED III mandates.

When assessing potential manufacturers, there were limitations regarding which suppliers could guarantee turbine performance when operating on fuels other than diesel, in this instance HVO. To preserve the commercial viability and competitiveness of the procurement process, the project could not restrict itself to a subset of manufacturers based solely on this criterion.

There is limited practical experience with the use of HVO in large industrial turbines, and as a result, adopting this fuel at this scale could present a reliability risk as an early adopter. Note that while two projects have been granted planning permission to operate on HVO, the availability, contracting arrangements, and risk profile associated with such supply chains are project-specific. Neither of those projects are currently operational. Because neither plant has entered commissioning or commercial service, no performance data, reliability evidence, or system-wide impacts of HVO as a primary fuel are available. This makes the technology's actual behavior in Ireland's grid conditions — including ramping, emissions consistency, fuel quality stability, and lifecycle carbon benefits — unproven in practice.

The proposed plant is designed to remain fuel-flexible within the parameters of the assessed development, allowing for the substitution of lower-carbon fuels, including HVO or equivalent alternatives, where such substitution would not result in any increase in environmental effects and would remain subject to applicable regulatory controls, should a secure and reliable supply become available in the future.

Having regard to the assessment of reasonable alternatives undertaken as part of the EIAR, the applicant considers that the proposed fuel strategy represents a proportionate and policy-compliant response to the requirements of critical peaking plant infrastructure at this time. While the potential use of lower-carbon fuels such as HVO has been carefully considered the absence of a demonstrably secure, scalable and verifiable supply suitable for long-term emergency generation means that such fuels cannot presently be relied upon for this development without introducing unacceptable operational risk.

The use of low sulphur diesel is therefore proposed solely as a secondary and infrequently utilised back-up source, with all associated environmental effects conservatively assessed and appropriately mitigated. Importantly, the development is designed to remain fuel-flexible within the parameters of the assessed project, allowing for the future substitution of lower-carbon fuels where such substitution would not give rise to increased environmental effects and where secure supply can be demonstrated. In this context, the proposed development represents transitional energy infrastructure which supports electricity system resilience and increased penetration of renewable generation and is consistent with the principles of proper planning and sustainable development.

3.4.5 Additional Considerations for Low sulphur diesel

3.4.5.1 Demineralised Water Treatment

Water is used in the gas turbine's combustion system when combusting secondary fuel (low sulphur diesel) to control air emission to within legal limits. This water is required to be demineralized to protect the engine's components from the impact of mineral residue and life reducing corrosion in the high temperature parts.

The process of demineralizing the site's potable water supply can either be achieved using a reverse osmosis process or an ion exchange process. Both technologies have been considered. Reverse osmosis process and ion exchange can ultimately produce the same demineralized water quality, the efficiency of each for a particular application is related to the level of contaminants in the water.

Reverse osmosis involves passing the potable water under pressure through a semi-permeable membrane resulting in a demineralized stream and a stream of reject water with increased levels of minerals. If using a reverse osmosis process, a quantity of the supplied water will be rejected as unrecoverable due to the nature of the processing.

The ion exchange process involves passing the potable water through ion exchange resin beds which result in minerals being removed from the water and binding with the resins. This results in a demineralized outlet stream. The resin beds are regenerated on a periodic basis (washing with an acidic and an alkali water solution) as they lose their function once they become saturated with minerals from the potable water. The washing solution is removed from the process as a waste stream. Irrespective of process used, the conversion process is expected to be approximately 75% efficient, meaning that 25% of the water used will be rejected as heavily mineralised waste water. This waste water will be stored in a tank and removed off-site as required to an external wastewater treatment plant for disposal.

At this stage, reverse osmosis is expected to be the most efficient process. However, detailed analysis of the water supply quality will be undertaken during the detailed design of the Proposed Project at which time ion exchange may prove to be better suited or even a combination of both methods. The different processes do not require different external infrastructure.

3.5 Grid Connection & Alternatives

3.5.1 Proposed Main Project Site Substation

Both 2-bay and 4-bay Air Insulated Switchgear (AIS) Substations were primarily considered for a substation on the Proposed Peaker Plant site, with a Gas Insulated Switchgear (GIS) substation also given due consideration as a further option. During consultation between BGE and EirGrid, a preference for the onsite construction of an 8-bay substation was identified by EirGrid. Following further consultation with EirGrid, it was agreed that a

proposed 4-bay AIS substation orientated 90 degrees to allow for future extension to enhance both connectivity and grid reinforcement would be incorporated into the design.

3.5.2 Cashla Substation Connection

The rationale for connecting into the Cashla substation was influenced by the proximity of the existing GNI gas pipeline with respect to substation locations as previously discussed (Section 3.5.3.2). Four 220 kV substations were proposed to EirGrid for connection: Prospect, Naas, Dunstown and Cashla. Prospect and Naas were rejected by EirGrid due to grid design considerations. Consultation with GNI recommended avoiding the lower half of the country because of natural gas supply constraints and therefore Dunstown was ruled out on that basis as a feasible alternatives.

Considering these technical challenges, there was a narrow band between Galway and Dublin where gas and electricity connections could be obtained. Given a plant size of up to 334 MW was identified early in the design[16], the design features required were limited to a 220 kV connection and access to a transmission gas connection. A loop-in connection was avoided due to concern around EirGrid's ability to schedule outages to deliver the project to the required Capacity contract milestones.

3.5.3 Grid Connection & Alternative Options Assessed

3.5.3.1 Technology Options

The high voltage cable connecting the Proposed Project Site to the EirGrid Cashla substation will be an underground cable. Whilst this is more expensive than an overhead line (OHL) design it ultimately results in a lower impact to surrounding communities in the longer term. The route is the shortest that can be achieved by following the public roads. Whilst this does involve short term disturbance of the local traffic routes, once completed, the cable will be hidden and will have no impact on the use of the surrounding land.

An OHL could be implemented which would reduce the installation cost both from construction and from the cost of the cables themselves. This would still result in some impact during the installation activities but ultimately would result in a lasting visual impact in comparison to the selected underground arrangement. The OHL Option was not further explored due to the presence of a significant number of pre-existing OHL which in cumulation would have resulted in a congested landscape appearance.

3.5.3.2 Cable Route Corridor Options

7no. potential grid route corridors were identified between the proposed main project site and the Cashla 220 kV substation. In addition to the 6 no. grid route options as presented below (i.e. UGC 1 to UGC 5, OHL 6), a seventh route option (UGC 7) was also identified, which was a combination of the optimum parts of other identified routes. Of the 7no. identified grid route options, 6no. were underground cable options (UGC), while one option comprised an overhead line (OHL).

[16] Note as already stated, depending on the technology that is used, the turbine will have a total output capacity of either 325 MW or 334 MW and will provide an electrical supply to the EirGrid 220 kV transmission system for the Proposed Project.

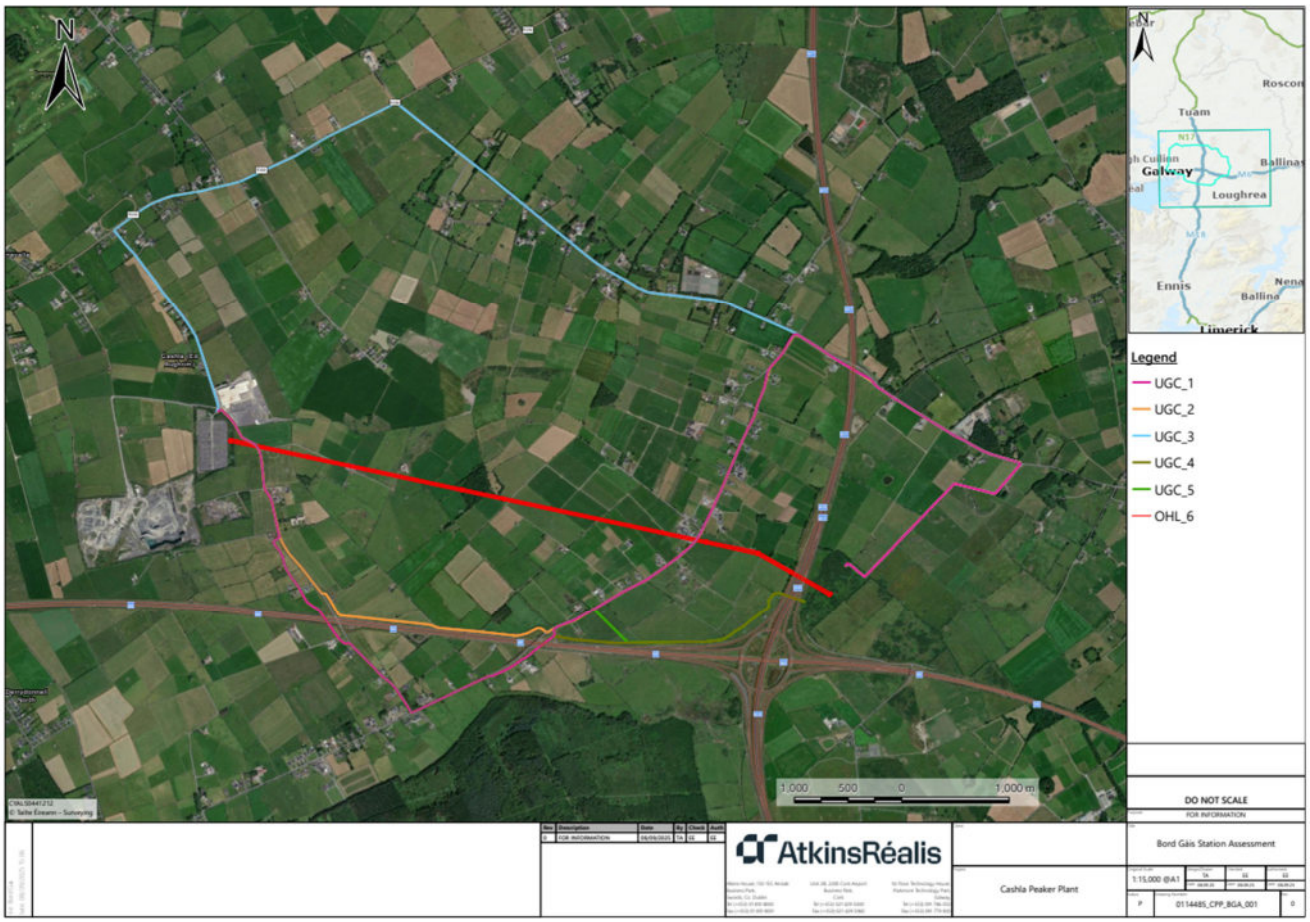

Figure 3-5 – Grid route options assessed for the grid connection between the Peaker Plant and Cashla Substation

A multicriteria analysis (MCA) was carried out by TLI and AtkinsReális for all 7no. potential grid route options (as aligned with the EirGrid 2021 Multi-Criteria Analysis Guidelines[17]), based on the following key criteria:

- Technical Factors
- Economic Factors
- Deliverability Factors
- Environment Factors
- Socio-Economic Factors

Results are presented in Table 3-1.

[17] EirGrid (2021) Framework for Grid Development Multi-Criteria Analysis (2021). 18 pg.

Table 3-1 - MCA Scoring for the Grid Route options and Technology (underground cables and overhead lines)

Route Option	Technical	Economic	Deliverability	Environment	Socio-Economic	Average Score	Benchmarked Scores
Pink Route_UGC (01)	Medium-High preference	Medium preference	Medium preference	Medium-High preference	Most preferable	Medium-High preference	Medium-High preference
Orange Route_UGC (02)	Medium-High preference	Medium-High preference	Medium-High preference	Medium-High preference	Most preferable	Most preferable	Medium-High preference
Blue Route_UGC (03)	Medium-High preference	Medium preference	Medium preference	Medium-High preference	Most preferable	Medium-High preference	Medium-High preference
Yellow Route_UGC (04)	Medium-High preference	Medium-High preference	Medium-High preference	Medium-High preference	Most preferable	Most preferable	Medium-High preference
Green Route_UGC (05)	Medium-High preference	Medium-High preference	Medium-High preference	Medium-High preference	Most preferable	Most preferable	Medium-High preference
Red Route_OHL (06)	Medium-High preference	Medium preference	Medium preference	Medium-High preference	Most preferable	Medium-High preference	Medium preference
Combined Green + Orange Route_UGC (07)	Most preferable	Medium-High preference	Medium-High preference	Medium-High preference	Most preferable	Most preferable	Medium-High preference

In terms of the **Technical performance,** there was very little difference between the route options with 6no. routes scoring Medium-High preference. However, Route 7 was the most preferable technically and scored the best expansion and extendibility including the ease with which the solution option can be expanded.

Regarding **Economic performance,** 4 no. route options (UGC 2, UGC 4, UGC 5 and UGC 7) were scored Medium-High preference with the remaining routes (UGC 1, UGC 3 and OHL 6) all scoring Medium Preference.

For **Deliverability performance,** there were 3 no. Medium Preference options (UGC 1, UGC 3 and OHL 6) with the remainder (UGC 2, UGC 4, UGC 5 and UGC 7) scoring Medium-High. The number of wayleaves required was a key differentiator between options.

For **Environmental performance,** all options were ranked as Medium-High preference overall with few constraints identified to differentiate between the options. Potential environmental constraints included potential for karst features to exist and the potential for groundwater vulnerability and impacts to groundwater bodies as well as impacts to lands, soils and geology. While environmental risk associated with these factors was lower for the OHL, the potential risk was comparable for all 6no. UGC routes.

For **Socio-Economic performance**, all options scored on average Most-Preferable.

In summary, the overall score for 6no. of the 7no. route options (UGC/ OHL) comprised Medium-High preference, while 1no. route option (OHL 6) scored Medium preference. All 7no. route options scored Medium-High preference for Environmental Performance. Therefore, all route options (i.e. the selected preferred grid route option, UGC 1, and 6no. alternative route options) were broadly comparable, based on the above assessment criteria.

The preferred UGC route (UGC_1; pink line in Figure 3-5) was chosen as the preferred route as it utilised the existing road network, thereby minimising impacts to greenfield sites and landowners.

3.6 Transportation of Exceptional Abnormal Loads

Route options for the transportation of exceptional abnormal loads (EAL) were assessed at two levels:

1. 4 no. route options were assessed to the proposed main project site
2. Within the best performing route option, 2 no. scenarios were considered and assessed.

3.6.1 Route options to the Proposed Main Project Site

Route options for the transportation of EAL from a suitable port to the proposed main project site were considered by BGE. These were:

- Dublin Port to the proposed main project site
- Limerick Port to the proposed main project site
- Killybegs Port to the proposed main project site
- Port of Galway to the proposed main project site

The Port of Galway to the proposed main project site route option (Figure 3-6) was identified as the preferred option for transporting abnormal loads to the proposed main project site. This route offers the shortest distance (27 km) and involves fewer structural crossings, with only 16no. bridge crossings, 3no. culvert crossings, and no toll booths. These characteristics make it the most efficient and least obstructed route available (Table 3-2).

Figure 3-6 - The best performing option for the transportation of exceptional abnormal loads from Port of Galway to the proposed main project site.

In contrast, the alternative route option of Dublin Port to the proposed main project site spans 192 km, requiring navigation under and over 151no. bridges, 4no. culvert crossings, and passing through 2no. toll booths (Figure 3-7).

The alternative route option of Limerick to the proposed main project site involves 72no. bridge crossings. Importantly, this route avoids the Shannon tunnel due to a height restriction of 4.65 m and instead assumes a suitable crossing over the R527 Shannon Bridge, which is assumed viable for abnormal loads for the initial route selection (Figure 3-7).

The alternative route option of Killybegs Harbour to the proposed main project site is the longest (240 km), with 60 no. bridge crossings, 10 no. culvert crossings, and no toll booths (Figure 3-7). Therefore, given the significantly shorter distance and reduced number of structural obstacles (Table 3-2) the Port of Galway to the proposed main project site route was deemed the most viable for abnormal load transport.

Table 3-2 – Summary of options considered for the transportation of exceptional abnormal loads from various ports to the proposed main project site

Route	Distance (km)	No. Bridge Crossings	No. Culvert Crossings	No. Toll Booth
Port of Galway-Cashla	27	16	3	0
Dublin-Cashla	192	151	4	2
Killybegs Harbour-Cashla	240	60	10	0
Limerick-Cashla	129	72	0	0

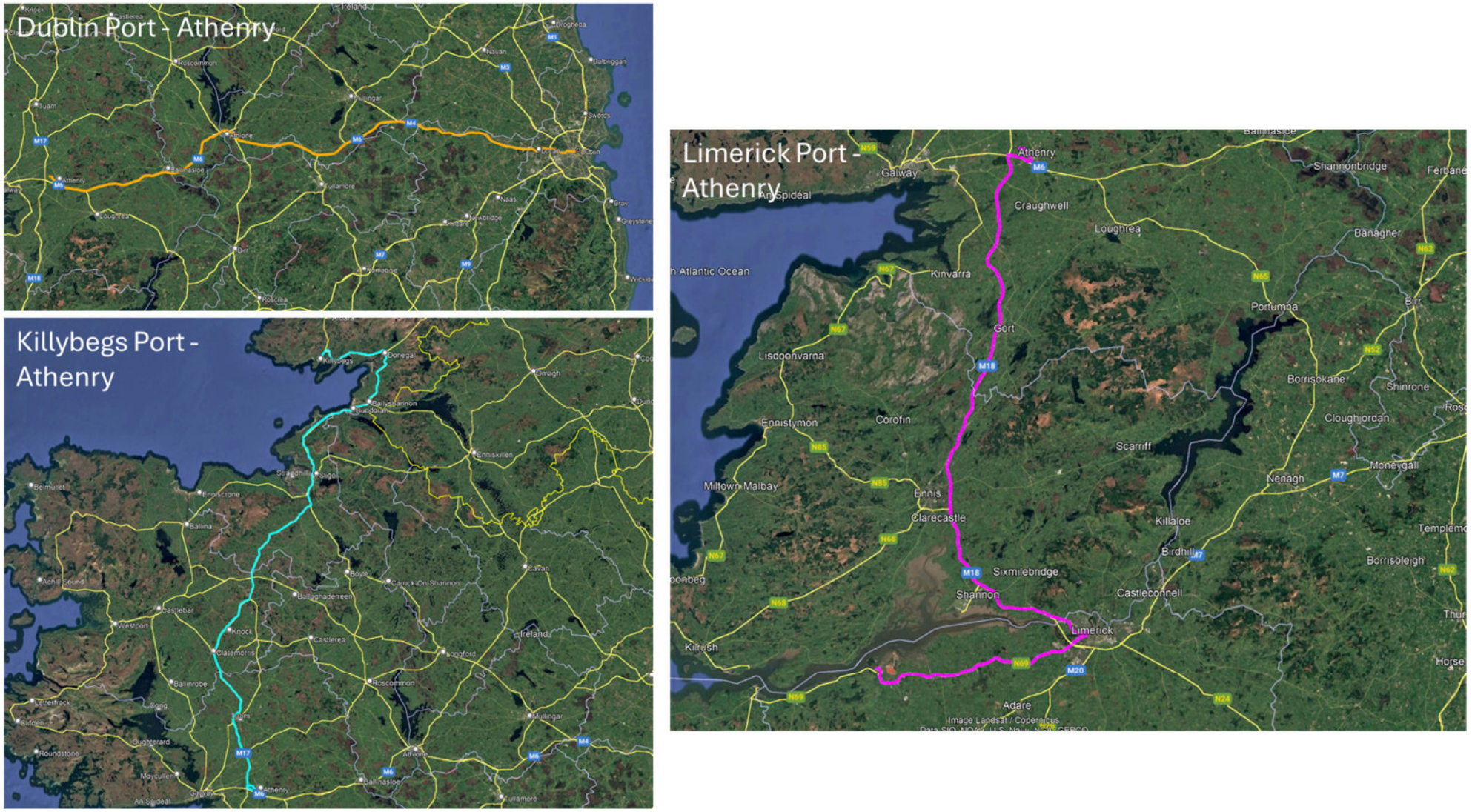

Figure 3-7 – Alternative Route options assessed for transportation of abnormal loads from Port to the proposed main project site

3.6.2 Route options from Port of Galway of Galway to Proposed Main Project Site

Following the identification of Port of Galway as the optimum route for the transportation of exceptional abnormal loads to the proposed main project site (Figure 3-6), an assessment was then undertaken to determine the optimum sub-route from Port of Galway to the proposed main project site.

In total, 20 no. structures along the proposed EAL route were identified for the route options (shared route [yellow], red route and blue route). Of these 20no. structures:

- 9 no. underbridges were identified for structural assessment since they will carry abnormal loads, whereas abnormal load will pass under the remaining 10 overbridges.
- Of the 10 no. underbridges for structural assessment
- 1 no. of the identified structures (a 900mm diameter pipe) was excluded from assessment as the dimensions did not warrant further analysis.

The EAL report is given in Appendix 2-6, Volume 3 of the EIAR.

3.6.2.1 Shared route (Yellow)

There is only 1no. route option for the first 13.1 km (i.e., the yellow segment; Figure 3-8). The first 3 km of this route consists of a single-lane road. Upon joining the N6, the road expands to two lanes and remains so until the exit from the N7, after which it reverts to a single-lane configuration. Along this shared route, there are 4no. structures. One of these structures is an overbridge and requires a clearance assessment, as the abnormal load will pass beneath it, while 2no. structures are under bridges which require capacity assessments (Table 3-3). The remaining structure is a 900mm diameter pipe which does not require any further assessment due to its span length.

Table 3-3 – Capacity and Clearence assessments for bridges along the shared section (yellow) of the exceptional abnormal load route options

Bridge ID	Underbridge/ Overbridge	Capacity Assessment required	Clearance assessment Required
UBG171	Overbridge	No	**Yes**
GB-N06-008.00	Underbridge	**Yes**	No
GC-M06-001.00	Underbridge	**Yes**	No

3.6.2.2 Route 1 – Red route

Following the exit from the N7 near Glennascaul (Figure 3-8), Route 1 (Red Route) turns north onto the R381 and continues for approximately 1.5 km. At the junction of the R381 and R339, the route makes a 90-degree right turn heading east and follows the R339 for 6.8 km. It then makes another 90-degree right turn towards the southeast and proceeds along the L3103 until it reaches the proposed main project site. There is one bridge along this route which required a capacity assessment.

3.6.2.3 Route 2 – Blue route

An alternative route option was also considered, Route 2 (Blue Route) (Figure 3-8). After the initial shared 13.1 km route (yellow), Route 2 then continues along the M6 for 12 km after the N7 exit near Glennascaul, exiting at Newford. From there, this route turns north, follows a service road, and connects to the R348 for 1.6 km. It then joins the L3103 and continues for 3 km to the proposed main project site. The R348 and L3103 sections are

single-lane roads. This route includes a total of 15no. bridges. Of these, 9no. overbridges required clearance assessments due to the abnormal load passing underneath, and 6no. underbridges require capacity assessments (Table 3-4).

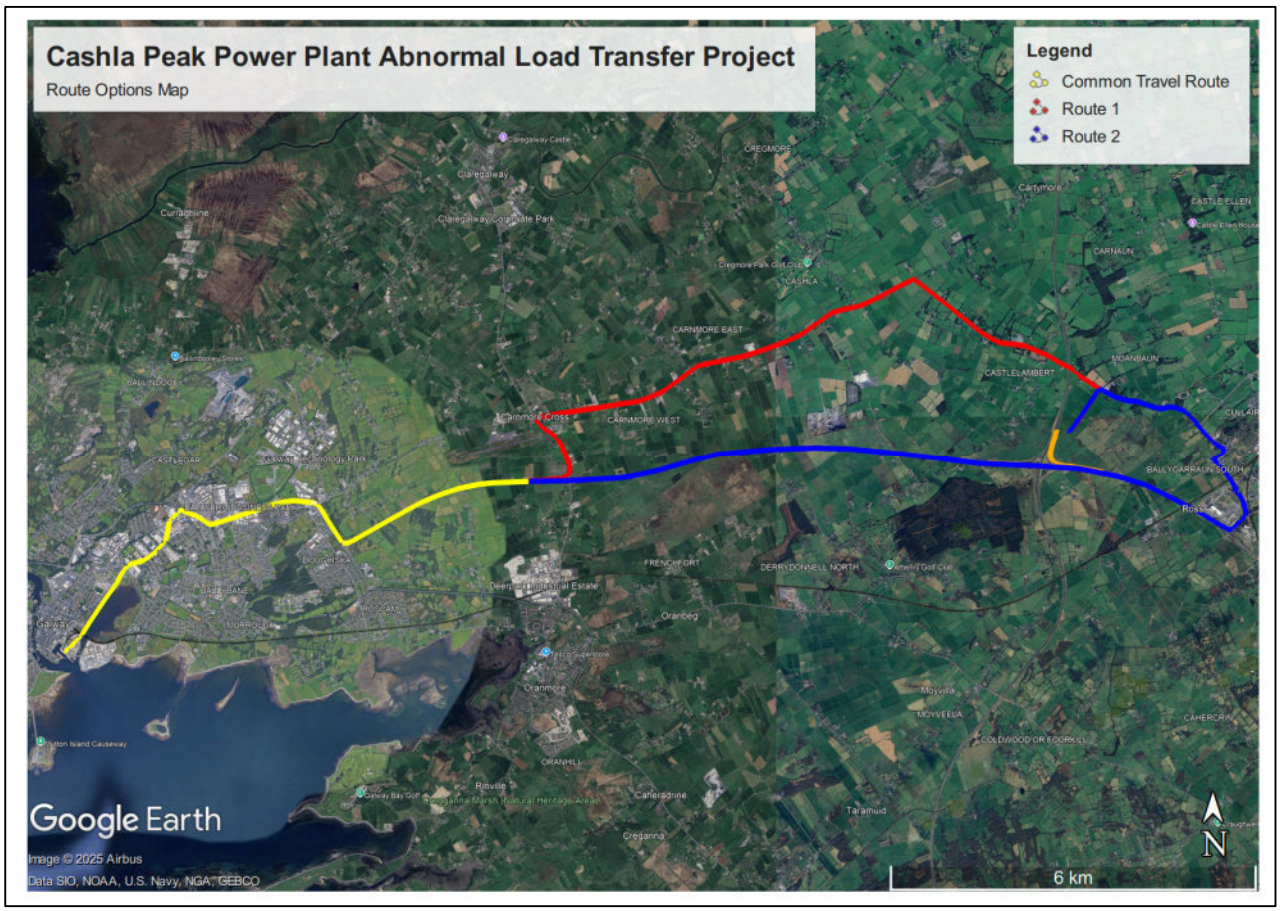

Figure 3-8 – Routes options examined for the transportation of exceptional abnormal loads to the proposed main project site showing the yellow route (shared), red route (route 1) and blue route (route 2)

Table 3-4 – Clearence and Capacity assessments for the 9no. underbridges to be crossed by Route Option 2- Blue Route

Bridge ID	Underbridge/ Overbridge	Capacity Assessment Required	Clearance Assessment Required
NC-M06-002.00	Overbridge	No	**Yes**
NC-M06-003.00	Overbridge	No	**Yes**
NC-M06-004.00	Overbridge	No	**Yes**
NC-M06-005.00	Overbridge	No	**Yes**
DC-M06-004.00	Overbridge	No	**Yes**
DC-M06-001.2	Overbridge	No	**Yes**
DC-M06-001.3	Overbridge	No	**Yes**
NC-M06-006.00	Overbridge	No	**Yes**
NC-M06-008.00	Overbridge	No	**Yes**
NC-M06-007.00	Underbridge	**Yes**	No
NC-M06-009.00 - OBG 157E	Underbridge	**Yes**	No
NC-M06-010.00	Underbridge	**Yes**	No
NC-M06-011.00	Underbridge	**Yes**	No
Road Bridge	Underbridge	**Yes**	No
OBG 157D	Underbridge	**Yes**	No

For the EAL delivery, a structural review of 9 no. structures was undertaken for several large components. These structures were identified based on 2 no. route options (Red & Blue) for the delivery of these components. The list of structures assessed are in Table 3.5.

Table 3-5 - Structures assessed for Extraordinary Abnormal Loads for the Red (Option 1) route and Blue (Option 2) route

Bridge List	Span (m)	Width (out to out) (m)	Structure Form and Material	Route - Over	Route - Under	Route Option
GB-N06-008.00 Ballybrit Cycle-lane Underpass	5.45	31.25	Single span, Precast Reinforced Concrete, Arch Bridge	N6	Foot/Cycle way	Blue Route
GC-M06-001.00 Garraun Road Underbridge	15.25	45.84	Single span, Precast reinforced concrete. Integral Bridge	N6	Garraun North Road	Blue Route
NC-M06-007.00 Bat Underpass 1	2.30	28.00	Box Culvert	NA	NA	Blue Route
NC-M06-009.00 - OBG 157E Ballygaurraun road over rail bridge	18.50	47.42	Single span, Precast reinforced concrete. Integral Bridge	M6		Blue Route
NC-M06-010.00 R348 Ballygaurraun Underbridge	19.25	37.81	Single span, Precast reinforced concrete. Integral Bridge	M6	Railroad	Blue Route
NC-M06-011.00 Teagasc Underbridge (1)	5.60	43.30	Precast Concrete Box	M6	R348	Blue Route
Road on Road Bridge	20	24.2	Single span, Precast reinforced concrete. Integral Bridge	Side Road	L7160	Blue Route
OBG 157D	20.25	24.10	Single span, Precast reinforced concrete. Integral Bridge	Side Road	Prospect	Blue Route
DC-M17-005.00 Castlelambert Overbridge	23.064 / 23.491	10	Double span, Precast reinforced concrete. Integral Bridge	L3103	Railroad	Red Route

3.6.2.4 Conclusion

The results of the analyses indicated that the load effects of the EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00 which lies on the red route (Table 3-5). Therefore, the red route is not adequate for the transfer of 350 tonne equipment for EAL.

The EAL vehicle which will be used to transfer equipment from Port of Galway to Cashla Peaker Plant is suitable for passage over the identified structures on the blue route. This conclusion is derived from the fact that the load effects of the EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00.

3.6.2.5 Falling Weight Deflectometer Test

Both Route 1 (red) and Route 2 (blue) (excluding dual carriageways and motorways) were also tested using Falling Weight Deflectometer Testing (FWD; see results in Appendix 2-4, Volume 3 of the EIAR) to assess the load bearing capacity of the local roads. Pavement investigation was carried out in order to determine the structural capacity of the existing road pavements along the proposed haulage routes, and determine their suitability to accommodate the traffic loading associated with the proposed delivery of equipment to the Cashla Peaker Plant site. Pavement Management Services (PMS) Ltd. were commissioned to conduct Falling Weight Deflectometer (FWD) testing, rotary coring, and a Ground Penetrating Radar (GPR) survey on the existing road pavements along the proposed haulage routes. The pavement investigations on the regional and local roads listed below were completed in September 2025. Pavement investigation was not carried out on the motorway / national road network as it was assumed that these have indeterminate long life pavements that have sufficient structural capacity to accommodate the traffic loading associated with the proposed exceptional load. The results of the analyses indicated that the load effects of the EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00 which lies on the red route. Therefore, the red route is not adequate for the transfer of 350 tonne equipment.

As previously described, only the blue route remained viable after a comparative bridge assessment screened out Route 1 (red) due to insufficient shear capacity in one of the bridges along that route. Therefore Route Option 2 (Blue) was selected as the preferred option.

3.6.2.5.1 Conclusion

In conclusion, the EAL vehicle which is used to transfer equipment from Port of Galway to Cashla Peaker Plant is suitable for passage over the identified structures on the Route 2 blue route. This conclusion is derived from the fact that the load effects of the EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00. Route 1 (red route) was not selected as the preferred route, due to insufficient shear capacity in one of the bridges along that route.

3.7 Alternative Designs

Following site selection, the design of the Proposed Project evolved from initial concept design through several design iterations including various layouts and technologies, taking into account environmental considerations, proximity of receptors and available utilities.

3.7.1 Site Layout

During the early stages of the project, an initial exemplar site layout was provided by BGE. This layout served as the conceptual basis for the design and was subject to iterative refinement as project requirements became more clearly defined (Figure 3-9; Figure 3-10).

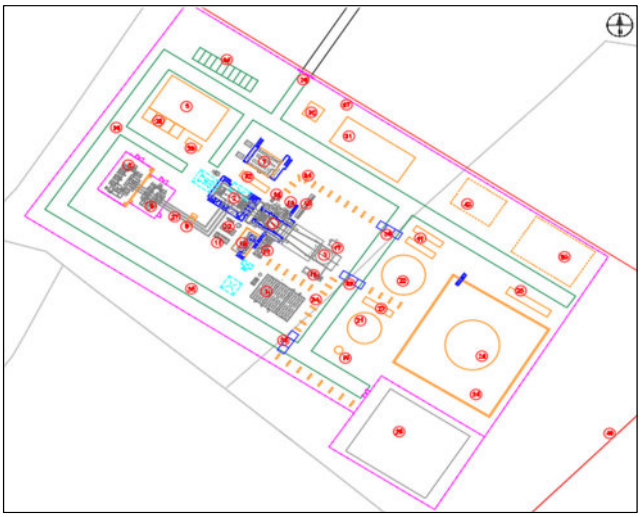

Figure 3-9 - Sample drawing - Peaker Plant Layout Layout

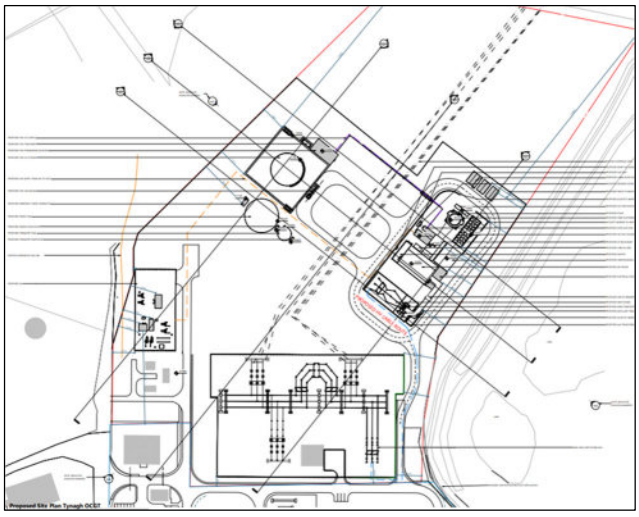

Figure 3-10 – Another Example Peaker Plant

The first design iteration for the Peaker Plant Layout is presented in Figure 3-11.

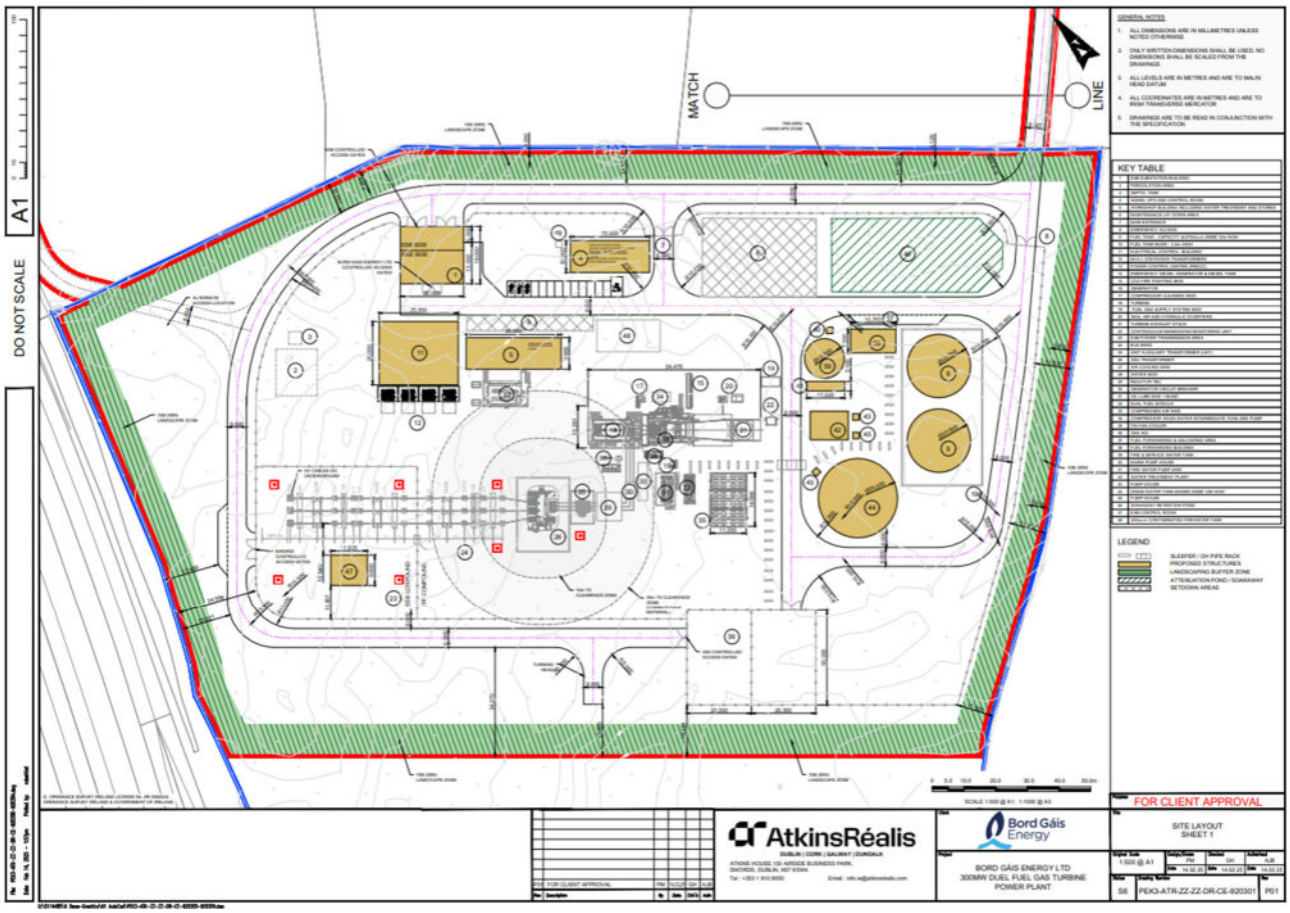

Figure 3-11 – First Design Iteration - Peaker Plant Layout.

A single bay substation was originally planned. However, following consultation with EirGrid, as detailed previously, the site layout was revised in order to pivot the 2 bay substation to allow for future expansion to an 8 bay enhanced ring station should this be required, as per EirGrid requirements.

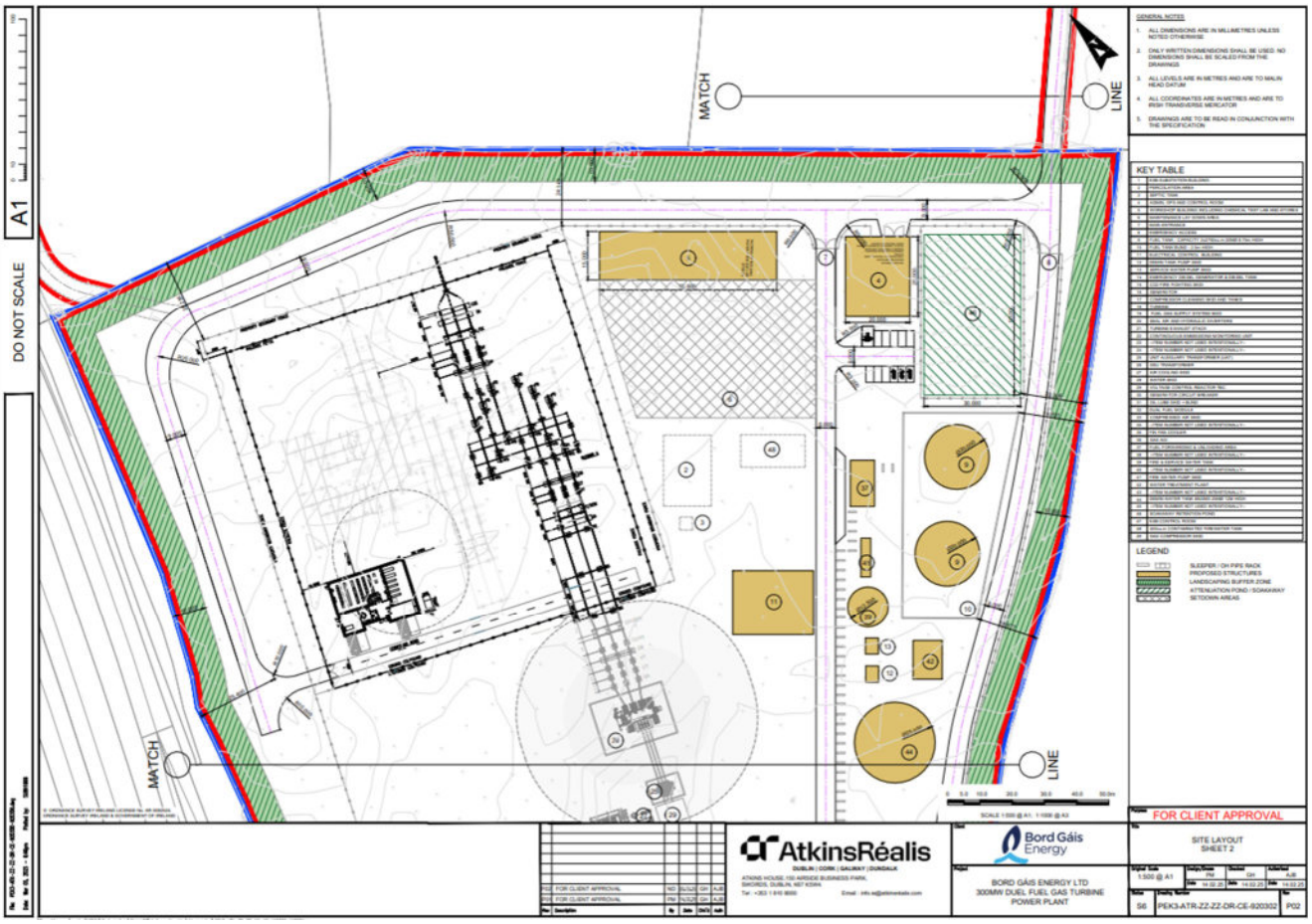

Figure 3-12 - Revised Layout to include 2-Bay substation rotated for final alignment

The final design layout has been refined further during the design process as follows:

- The position of buildings and equipment were generally selected to minimise the works required to connect to external utility connections, in relation to their connection with the site access route, or where they benefit from the natural slope of the land.
- The administration, control and security building is near to the road access into the site which minimises the management of arriving traffic. This is also the location of the clean rainwater soakaway pond which allows the drains to take advantage of this natural low point. If another location was selected for the pond the drains would be required to be deeper and greater excavation required for the pond itself.
- The fuel storage tanks are located close to the site access point to minimise the movement of road tanker supply. The water tanks are also in this location which serves to consolidate similar process systems in the one area. Locating these items in different areas would remove the synergy which can be achieved in routing piping to the gas turbine.
- The 220 kV substation is required by EirGrid to be a double bay design and to their specified layout arrangement. This limits the available space on site. The location chosen minimises the length of the connecting high voltage underground cables. An alternative location would require additional cable lengths and associated construction works.
- The gas reception AGI is located directly over the gas transmission line which minimises the size of the pipe connections to this line. It also allows the general gas conditioning equipment to be related in the same area which can then be designated as a single hazardous area with associated ATEX rated equipment to reduce hazards.
- The gas turbine and generator equipment is placed close to the 220 kV substation to minimise the required electrical connections. It also enables the turbine to be close to the low sulphur diesel fuel and water tanks

which again minimises the connection equipment. The gas turbine is the greatest source of noise in the site and so although of minimal benefit the location achieves some screening via the fuel and water tanks which would not be achieved if the turbine and generator were nearer the site boundary.
- Whilst other arrangements could be accommodated on the site, they would require greater use of materials and construction effort to install with no evident benefit to the external visual impact, to noise or to emissions dispersion.

3.7.1.1 Design Evolution

As the design progressed, several key modifications were made to accommodate operational, regulatory, and spatial requirements, as follows:

- Low sulphur Diesel Storage (Secondary Fuel): The capacity of the low sulphur diesel storage tanks was optimised to meet revised fuel demand projections. This necessitated corresponding adjustments to bund sizes to ensure compliance with containment regulations.
- Site Orientation: It was determined that a reorientation of the plant layout would improve operational efficiency and integration with site topography and access routes. This adjustment further influenced the positioning of key infrastructure elements.
- Tank bunding. Single skin versus double skin bunds were considered during the design stage, with double skin bunds selected as part of the final design iteration as the more conservative measure.

3.7.1.2 Additional Environmental Design Mitigation

Environmental considerations were considered throughout the design iteration process. Where relevant design mitigation measures were agreed with SMEs and are detailed further within the relevant technical chapters of Volume 2 of the Main EIAR.

Specifically the following noise reduction measures, were developed during the preliminary design stage. During operation, the main sources of noise will be from the gas turbine compressor and turbine sections. There will also be noise from the body of the gas turbine itself. Secondary level noise will come from auxiliary system pumps and to a lesser extent from the high voltage transformers. Allowing the main gas turbine noise sources to operate without any acoustic attenuation would result in a significant increase in noise at the nearby residential receptors.

To reduce this external noise to acceptable levels:
- Standard absorptive noise attenuation silencers were considered for the inlet and exhaust sections of the turbine.
- Additionally, a standard acoustic enclosure was applied to the main body of the turbine.

These noise reduction measures are designed to reduce the noise within the site to acceptable levels when considering operating staff noise exposure. However, there remained a concern that although the noise at receptors was relatively low, in the context of the rural area it was possible that a change in existing levels could be detected.

In order to reduce noise levels further, additional noise attenuation was incorporated into the standard gas turbine inlet and exhaust sections. This requires greater volume within the inlet and exhaust duct sections and more extensive noise absorption sections. The standard gas turbine acoustic enclosure was also enhanced with additional acoustic capability in as much as the gas turbine vendor's design could accommodate. These additional measures served to reduce the noise emissions at nearby receptors to low levels.

Noise from other auxiliary equipment was also reduced by applying acoustic enclosures. This will serve to reduce the noise to acceptable levels within the site. Additional acoustic attenuation treatment of the design would not result in any material benefit.

3.7.1.3 Final Layout

The cumulative effect of these changes led to a comprehensive redesign of the site layout. The final iteration reflects:

- Compliance with technical and regulatory requirements.
- Optimised spatial planning to accommodate expanded infrastructure.
- Improved operational flow and safety considerations.

This iterative design process ensured that the final layout is both fit-for-purpose and environmentally responsible, while also demonstrating flexibility in response to evolving project needs.

3.7.2 Building Designs

Originally conceived as two separate standalone buildings, an Administration Building and substation, the Proposed Project evolved to consolidate both functions into a single, integrated structure.

The Administration Building underwent several design iterations. The initial proposal featured a two-storey structure with a rooftop plant area. To reduce the building's visual impact and footprint, the first floor was set back from the ground floor. Ultimately, the final design was revised to a single-storey configuration, providing a more streamlined and contextually appropriate solution. Similarly, the Electrical Control Building was resized to meet the functional demands of the electrical equipment and operational use. The internal layout was optimised to allow efficient circulation and future flexibility.

3.7.3 Construction Methodology & Alternatives

3.7.3.1 Battered excavation versus sheet piling for hot tap installation

To ensure excavation stability for the hot tap installation, a battered excavation is proposed. This technique involves grading the excavation walls at an angle rather than maintaining vertical faces, thereby reducing the risk of wall collapse, particularly in loose or unstable soil conditions. Battered excavations are typically suitable where sufficient working space is available around the hot tap, where excavation depths are relatively shallow, and where ground conditions are dry with a low water table. The method of excavation is also installed for ease of access/egress to the pit. The sloped walls reduce the need for temporary access structures to gain access, allowing for gradual entry and exit from the excavation pit.

Sheet piling is an alternative excavation method that may be considered as an alternative option to support excavation for hot tap installation. This excavation methodology is generally preferred in deeper pits with limited space and poor soil stability. Both methods have been assessed in the EIAR.

3.7.3.2 Engineering measures (potential structural / geotechnical risk)

A robust engineering design has been developed for the proposed project, informed by the site specific geological and hydrogeological conditions, including the potential presence of onsite subsurface karst geology. A robust karst protocol will be adapted during foundation construction comprising the following:

- Soil strip across each foundation footprint to expose the bedrock surface.
- Targeted closely spaced proof coring to confirm the presence of any possible Karst within 15 to 20m of the

- bedrock surface.
- If no significant voids or Karst features are encountered during the proof coring process then Foundation Solution 1 will be adapted.
- If a significant Karst feature is encountered during the proof coring process then Foundation Solution 2 will be adapted.

3.7.3.2.1 Foundation Solution 1

In the event the targeted proof coring confirms no significant Karst features are present it is envisaged that traditional reinforced concrete raft and strip foundations (founded directly on the limestone bedrock) will be adequate for the proposed plant and single storey buildings. For the single storey buildings a traditional reinforced concrete strip foundation will be founded directly on the weathered bedrock. For the heavier items of plant / tanks we expect the top surface of weathered bedrock will be 'ripped' down to unweathered bedrock with the reinforced concrete foundations founded on this un-weathered rock. These reinforced foundations will be designed to span over any minor surface karst fissures encountered at the bedrock formation level (exposed as part of the local soil strip at the foundation locations).

3.7.3.2.2 Foundation Solution 2

In the event that the abovementioned targeted proof coring exercise identifies a Karst feature under the footprint of a heavy item of plant it is envisaged that a piled foundation solution will be required locally at the karst feature. This piled foundation solution will comprise cased Odex drilled piles. The piles will be cased to mitigate the risk of grout loss and negate the risk of aquifer contamination. In terms of piling plant, an Odex piling rig is typically used for piling through karst. A reinforced concrete pile cap or ground beams (located just below ground level) will be built on top of the piles to support the plant or building above. In terms of reinforced concrete foundation footprint (on plan), Solution 1 and Solution 2 will be virtually identical with the only varying item being the introduction of local piling at any karst voids encountered.

3.7.3.2.3 Site Access Road

The site access road construction will typically comprise granular 6F2 capping material (founded on competent subgrade confirmed via on-site California Bearing Ratio (CBR) testing) with a Clause 804 granular sub-base and hot-rolled asphalt wearing and surface courses as is typical for standard road construction. The access road crosses a suspected karst feature identified as part of the site investigation work and again a robust karst protocol shall be adapted here as follows.

- The formations in the vicinity of the suspected karst feature will be proof rolled and observed for signs of weakness with CBRs taken to confirm capacity. In any areas of low CBRs the top soil and overburden clay will be removed to expose the weathered rock surface. Any dips in the limestone rock surface will be infilled with granular 6F2 capping material laid and compacted in accordance with the TII specification for roadworks. The road construction above any karst features will incorporate a high strength geotextile. This geotextile shall have a 100-year design life.
- The above measures hence present a robust engineering solution to mitigate any risks associated with the presence of karst (AtkinsRealis, 2026).

3.7.3.2.4 Conclusion

- It is noted the boreholes and follow-on rotary coring did not encounter any Karst features. Similarly, the base of trial pits did not encounter any open depressions and all terminated on solid limestone bedrock. In Karst areas it is standard investigative practice to carry out geophysical surveying to assess for the presence of Karst. Based on the results of the geophysical survey, several anomalies have been identified across the site area. Notably, these anomalies exhibit very high resistivity levels and indicate potential air voids or clay

filled voids at several resistivity points, ranging from A1 to A18. The presence of these high resistivity point suggests the possibility of karst formations or other subsurface pockets (either air voids or infilled with clay).

- The solutions as discussed above present the engineering solutions that will respond to the presence of karst, and at construction stage the robust karst protocols identified will be implemented to control and respond to any karst features encountered (AtkinsRealis, 2026).

3.7.3.3 Waste Reduction Through Cut and Fill Balance

As part of the Site preparation and earthworks strategy, a key objective is to minimise construction waste and reduce the environmental impact associated with material transport and disposal. To achieve this, a cut and fill balance has been carefully designed and optimised.

3.7.3.3.1 Topsoil Removal

Prior to any earthworks, a uniform 150 mm layer of topsoil will be stripped across the Proposed Project footprint. This material will be stockpiled on-site for reuse in landscaping and reinstatement works, thereby avoiding off-site disposal and supporting circular material use.

3.7.3.3.2 Cut and Fill Optimisation

Following topsoil removal, the site formation levels required for roads, buildings, and infrastructure have been assessed in detail. The cut and fill volumes have been balanced to ensure that the material excavated from higher areas of the site is reused in lower areas, achieving the required formation levels without generating surplus spoil.

This approach results in:

- Minimised off-site disposal, reducing truck movements and associated emissions.
- Reduced need for imported fill, lowering resource consumption and costs.
- Improved sustainability of the construction phase through efficient material management.

The cut and fill balance has been integrated into the overall site design, ensuring that the earthworks strategy aligns with both engineering requirements and environmental best practices.

3.7.4 Access routes to the Proposed Project Site

The following three route options were considered for access to the Proposed Project Site:

- Option 1, the yellow route, is a direct access to the site from the L3103 and is approximately 0.96 km in length from the L3103 to the edge of the Proposed Project Site. This route was discounted due to land access issues and proximity to the motorway.
- Option 2, the green route, starts from a roundabout to the southwest of Athenry and follows local roads to the south of the site boundary. This route is approximately 5.1 km long. This route was discounted due to the bridge over the M6 as well as the overall length and circuitous nature of the route.
- The preferred option is the red route which is also direct access from the L3103 to the north of the Proposed Main Project Site. This route is approximately 1.16 km long. The alternative access route options of proposed site map is provided in Figure 3-13.

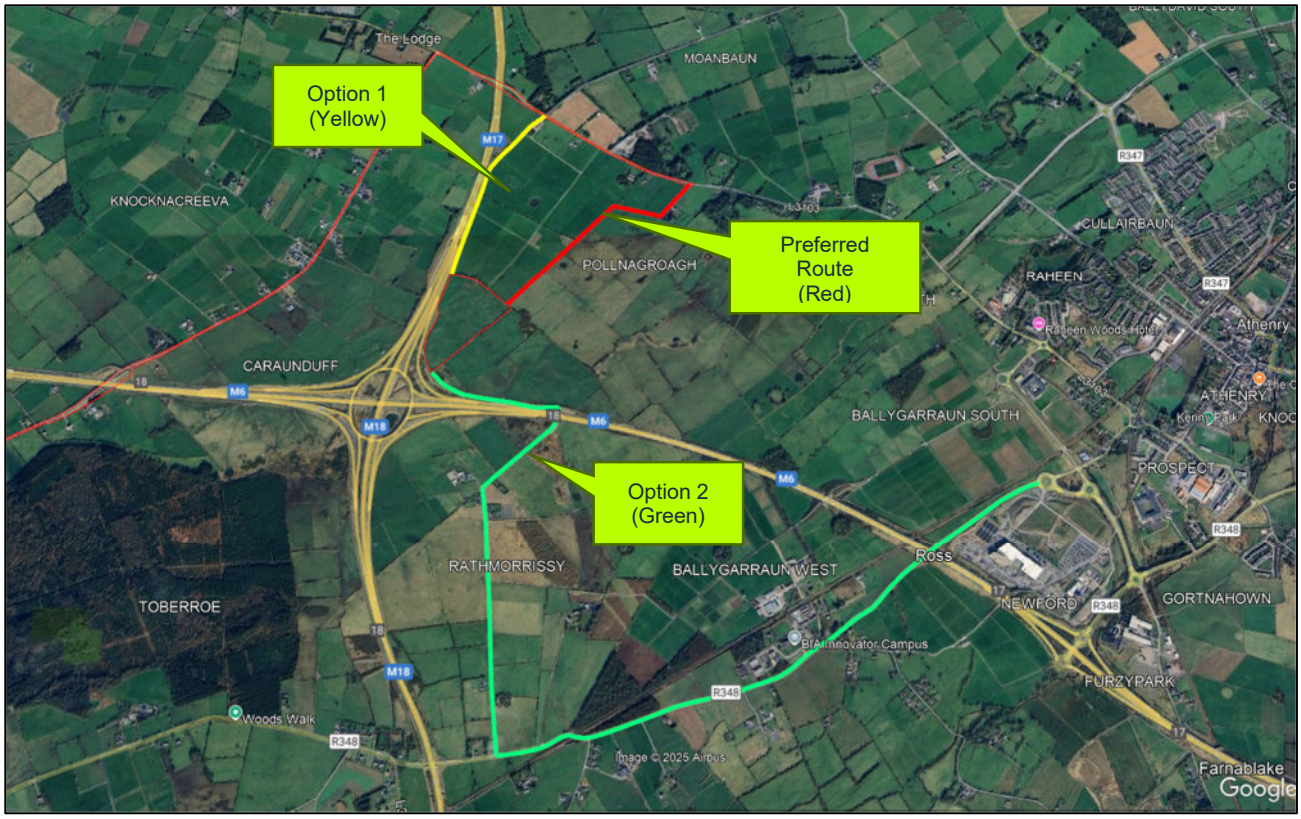

Figure 3-13 – 2no. Alternative access route options to the Proposed Project Site, as well the preferred route (red)

3.7.5 Surfaces

The Proposed Project Site incorporates a combination of hardstanding surfaces and permeable areas to balance operational safety, environmental protection, and sustainable drainage principles.

3.7.5.1 Hardstanding Surfaces

Hardstanding areas, including groundwater-protective asphalt, will be installed in locations where there is a risk of potential contamination from site activities. These include areas where:

- Low sulphur diesel may be stored or handled.
- Firewater runoff could become contaminated during emergency events.
- Operational activities pose a potential risk of chemical or pollutant release.

The use of impermeable surfaces in these zones ensures that any potentially contaminated liquids are contained and directed to appropriate collection and treatment systems. This approach is consistent with EPA licensing requirements, which prohibit the discharge of contaminated firewater or other pollutants to groundwater. It also aligns with best environmental practice by preventing infiltration of hazardous substances into the subsurface.

3.7.5.1.1 Permeable Surfaces and SuDS Integration

In areas located at a safe distance from potential contamination sources, the surface treatment transitions to gravel or grassed surfaces. These permeable zones allow for:

- Natural infiltration of rainfall, supporting groundwater recharge.

- Integration of SuDS (Sustainable Drainage Systems) features such as swales, infiltration trenches, or soakaways, where appropriate.

Due to the requirement to prevent discharge of contaminated water to ground, the use of SuDS is strategically limited to areas where the risk of contamination is negligible. This selective application ensures compliance with regulatory standards while still promoting sustainable water management where feasible.

This surface treatment strategy provides a balanced solution that:

- Protects groundwater quality in accordance with EPA licensing conditions.
- Reduces surface runoff and supports local hydrological balance.
- Minimises environmental risk from site operations while enabling SuDS where safe and effective.

3.7.6 Other Utilities

3.7.6.1 Wastewater Management

Due to the absence of a foul sewer network within several kilometres of the Proposed Project Site, the option of discharging to a municipal wastewater treatment facility is not feasible. While an on-site wastewater treatment plant (WWTP) with discharge to ground via a percolation area was considered, the low number of site personnel would result in insufficient loading to maintain effective biological treatment. This could compromise the performance and reliability of the system.

As a result, the most environmentally sustainable and operationally robust solution is to remove wastewater from the Proposed Project Site via periodic tankering. This approach minimises the risk of treatment failure, reduces maintenance requirements, and ensures that effluent is managed in accordance with best environmental practices.

3.7.6.2 Demineralised Water Supply

Demineralised water required for site operations will be produced on-site from the Proposed Main Project Sites potable water supply rather than transported in. While tankering demineralised water to the Proposed Project Site was considered, the required volume (approximately 7,555 m³) rendered this option logistically and environmentally inefficient. On-site production of demineralised water allows for better resource management. Up to 25% of the input water, depending on the most appropriate process for the water conditions, is not converted to demineralised water during the process. Whilst this un-converted water is considered as a waste stream requiring removal by tanker from the Proposed Project Site, the logistical and environmental impact is lower than would be the case compared to tankering the demineralised water itself to site. This approach significantly reduces transport-related emissions and supports a more sustainable water management strategy.

3.8 Conclusion

The Proposed Project represents the most appropriate and best-performing option when assessed against technical, environmental, and planning considerations. Key reasons include:

- The selected site near Athenry is a strategic location because it offers an intersection of existing gas transmission and electricity grid infrastructure, minimizing the need for new linear infrastructure and thereby reducing environmental disturbance. It also avoids constraints identified in alternative locations.

- Open Cycle Gas Turbine technology was chosen over Combined Cycle alternatives due to its ability to deliver rapid start-up and short-duration generation, which is essential for supporting renewable intermittency and maintaining grid stability. This aligns with EirGrid's capacity contract requirements, operational efficiency and grid support.

- It is proposed that the Peaker Plant will operate until 31 December 2050. This will ensure compatibility with Ireland's statutory net-zero targets while allowing flexibility for future transition to renewable gases such as biomethane and hydrogen.

- Natural gas remains the main fuel, with low sulphur diesel selected as the secondary fuel following a comprehensive evaluation of technical feasibility, gas turbine manufacturer compatibility, security of supply, and regulatory compliance. HVO was considered as an alternative but is currently constrained by turbine compatibility and supply chain limitations.

- Environmental and Visual Considerations: The design incorporates mitigation measures to minimise visual, noise, and air quality impacts, including optimised stack height (30 m), acoustic attenuation, and site layout refinements. Underground cabling was selected over overhead lines to reduce long-term landscape and community impacts.

- Deliverability and Safety: The chosen grid route and abnormal load transport route (via Port of Galway and Blue Route) were identified as the most viable options through multi-criteria analysis and structural assessments, ensuring safe and efficient delivery of critical components.

In summary, the Proposed Project balances technical performance, environmental protection, and policy compliance while meeting Ireland's urgent need for flexible generation capacity to support renewable energy integration and energy security.

4. Population & Human Health

4.1 Introduction

This Chapter assesses the likely significant effects of the Proposed Project (herein referred to as the project) on the local population and their health. This Chapter also describes the methods used to assess the identified impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce or offset any significant adverse impacts and the anticipated likely residual impacts after mitigation measures have been applied. This includes a review of relevant aspects of other technical assessments included in this EIAR, as set out further in Section 4.2.

4.1.1 Legislation and Policy Context

4.1.1.1 Legislative Background

Legislation relevant to this assessment is:

- Planning and Development Regulations 2001 (as amended)
- Planning and Development Act, 2000 (as amended)
- European Union (EU) Environmental Impact Assessment (EIA) Directive 2011/92/EU as amended by Directive 2014/52/EU (hereafter referred to as the "EIA Directive")

Article 3(1) of the EIA Directive outlines that 'The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors: a) population and human health'. Schedule 6 of the EIA Regulations includes a requirement that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of a Proposed Project on Population and Human Health.

This assessment has been undertaken with consideration of the requirements of key legislative and policy documents. A summary of the planning policy and technical guidance and standards relevant to Population and Human Health is provided in Table 4-1.

Table 4-1 - Planning policy and technical guidance and standards

Document Title	Description / Relevance
Policy	
National Planning Framework (NPF), April 2025[39]	The National Planning Framework (NPF) is the long-term strategy for strategic planning and sustainable development up to 2040. The NPF was originally published in February 2018 and the first revision was adopted in April 2025. The revised NPF seeks to plan for population growth which is expected to grow by one million between 2022 and 2040. The Proposed Project is located within the Northern and Western Regional Assembly Area. Between 2022 and 2040, the NPF seeks to target growth in the region with aims to grow the population by approximately 150,000 people, targeting growth of 36,000 people in Galway City and its suburbs. Chapter 6 of the NPF is focused on People, Homes and Communities and 6.2 sets two objectives in relation to 'Healthy Communities':

Document Title	Description / Relevance
Policy	
	▪ National Policy Objective 36 – seeks to support the objectives of public health policy including the Healthy Ireland Framework and the National Activity Plan through integrating such policies with planning policy. ▪ National Policy Objective 37 – seeks to prioritise walking and cycling accessibility to existing and Proposed Projects, and integrate physical activity for all ages by integrating safe and convenient alternatives to the car into the design of communities. Section 6.3 sets two objectives in relation to 'Diverse and Inclusive Ireland': ▪ National Policy Objective 38 – seeks to plan for a more diverse and socially inclusive society that targets equality of opportunity and a better quality of life for all citizens, through improved integration and greater accessibility in the delivery of sustainable communities and the provision of associated services. ▪ National Policy Objective 40 – aims to develop local planning, housing and health facilities and services, transport/ accessibility and leisure policies with a focus on meeting the needs and opportunities of an ageing population. Other relevant National Policy Objectives include: ▪ National Policy Objective 93 – seeks to improve air quality and to prevent people being exposed to unacceptable levels of pollution in urban and rural areas through integrated land use and spatial planning. ▪ National Policy Objective 94 – seeks to promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life.
Project Ireland 2040: The National Development Plan 2021-2030[18]	This plan sets out the Government's over-arching investment strategy and budget for the period 2021-2030. Chapter 15 focuses on access to quality childcare, education and health Services. The plan sets out several strategic investment priorities including health service capacity, the national cancer strategy, primary care centre programme, enhanced community care, social care for older people, disability services, mental health projects, national maternity strategy as well as paediatric health care services.
Healthy Ireland[19]	A Government programme to bring about good health, access to services, healthy environments, and the promotion of resilience and to ensure that people can enjoy their physical and mental, health and wellbeing. The programme includes 18 policies targeting different health priorities for the country, these include: ▪ Strategic Action Plan ▪ Healthy Ireland Framework ▪ Healthy Workplace Framework

[18] Department of Public Expenditure, NDP Delivery and Reform, 2021. https://assets.gov.ie/static/documents/national-development-plan-2021-2030.pdf

[19] Department of Health, 2025. https://www.gov.ie/en/healthy-ireland/policy-information/healthy-ireland-policies/

Document Title	Description / Relevance
Policy	
	▪ Healthy Campus Framework ▪ Physical Activity ▪ Obesity ▪ Smoking ▪ Alcohol ▪ Sexual health ▪ Skin Cancer ▪ Vitamin D ▪ Folic Acid ▪ Nutrition Guidelines for Food Parcels ▪ The Healthy Ireland Survey ▪ Healthy Ireland Outcomes Framework ▪ Mental Health Promotion Plan ▪ Sláintecare Healthy Communities ▪ Period Poverty
Healthy Ireland Framework	The Healthy Ireland Framework is based on a vision '*A Healthy Ireland, where everyone can enjoy physical and mental health and wellbeing to their full potential, where wellbeing is valued and supported at every level of society and is everyone's responsibility'.* The framework sets four goals: ▪ Increase the proportion of people who are healthy at all stages of life ▪ Reduce health inequalities ▪ Protect the public from threats to health and wellbeing ▪ Create an environment where every individual and sector of society can play their part in achieving a healthy Ireland.
Northern and Western Regional Assembly Regional Spatial and Economic Strategy 2020-2032	The strategy sets out how communities should plan for additional population and employment growth. It sets out a number of Growth Ambitions, Growth Ambition 4: Quality of Life – Inclusive Region. It highlights that strengthening local economies, meeting people's social needs and addressing problems of poverty and social exclusion are central to building sustainable communities. The strategy adopts an approach which embraces an inclusive approach to development and focuses on the aims to integrate economic growth through 'People, Place and Resilience'. Policies driving the inclusive growth focus on: ▪ Talent and education ▪ Healthy Places ▪ Age Friendly ▪ Lifelong Learning ▪ Housing and Childcare
Galway County Development Plan 2022–2028	The Galway County Development Plan (GCDP) 2022–2028 sets out a range of proposed policy objectives with supporting narrative for development up to 2028.

Document Title	Description / Relevance
Policy	
	Chapter 7: Infrastructure, Utilities and Environmental Protection highlights that the delivery of infrastructure and utilities in a sustainable manner is critical to the future development of the county. It recognises the impacts of air, noise, water, soil pollution on human health.
Athenry Local Area Plan 2024 – 2030	Athenry Local Area Plan (LAP) 2024 – 2030 was adopted by the Athenry/Oranmore Municipal District Members at their meeting on the 9th January 2024 and came into effect on the 20th February 2024. The Athenry Local Area Plan 2024 – 2030 is a statutory document prepared by the Planning Authority in accordance with the requirements of the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended).The Athenry LAP sets out the overall Development Strategy and Planning Policy Objectives for the town in the coming years, which seeks to provide medium-term planning and development benefits for Athenry. It will also support economic growth, education services and community-related development in line with proper planning and sustainable development principle. The LAP's policy objectives, guidance and standards have also been informed by best practices, national planning guidance and the GCDP 2022 - 2028, where appropriate.
Guidance	
Health Impact Assessment Guidance: A Manual[20]	Guidance for Ireland and Northern Ireland incorporating recent developments and best practice in Health Impact Assessment (HIA). The guidance provides guidance on definitions and determinants of health, and health inequalities. It also provides guidance on undertaking assessments and the full process of screening, through to evaluation.
Determining Significance for Human Health in EIA (IEMA) 2022[24]	Published in November 2022, this guidance covers the consideration of health as a topic in environmental impact assessment. It presents a framework that supports a proportionate approach that can apply to all scales of EIA. As noted in this guidance, it is applicable to development projects within Ireland.
Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018)[21]	These Guidelines are issued to planning authorities and An Bord Pleanála (the Board) under section 28 of the Planning and Development Act 2000, as amended (the Act), and both are required to have regard to the Guidelines in the performance of their functions under the Act. Paragraph 4.16 outlines that consideration of human health effects resulting from the construction and operation of a project should focus on health issues arising in the context of other environmental factors listed in Article 3 of the Directive/ Section 171A of the Act, namely: ▪ Population ▪ Biodiversity, with particular attention to protected species and habitats ▪ Land, soil, water, air and climate

[20] Institute of Public Health, 2021.
https://www.publichealth.ie/sites/default/files/resources/HIA%20Guidance%20A%20Manual_0.pdf
[21] Department of Housing, Planning and Local Government, 2018.
https://assets.gov.ie/static/documents/guidelines-for-planning-authorities-and-an-bord-pleanala-on-carrying-out-environmental.pdf

Document Title	Description / Relevance
Policy	
	▪ Material assets, cultural heritage and the landscape ▪ Interaction between the above factors
Guidelines on the information to be contained in Environmental Impact Assessment Reports, Environmental Protection Agency (EPA), 2022[22]	These guidelines set out what information needs to be contained within an EIAR as well as the methods used in preparing it. This guidance details the process of preparing an EIAR.
Health Impact Ireland: Institute of Public Health (2021)	Health Impact Assessment (HIA) is a process used to determine the impact of proposed policies, laws, programmes or plans on the health of communities to ensure they are more inclusive, more equitable, and more sustainable for everyone. The HIA process can be used at national, regional or local level and supports government strategies in Ireland and Northern Ireland to improve population health and reduce health inequalities. The Institute launched the fourth edition of HIA Guidance for Ireland and Northern Ireland, incorporating the most recent developments and best practice in the field. The updated HIA Guidance is endorsed by the International Association for Impact Assessment and by the European Public Health Association. HIA can be used by policy- and decision-makers in government, statutory agencies, community groups and voluntary organisations to ensure new proposals reduce any health risks and promote health opportunities for specific groups as well as the wider community.

Further to the reference in Table 4-1 to the EPA Guidelines the following points are noted:

- Guidelines on the information to be contained in Environmental Impact Assessment Reports, Environmental Protection Agency (EPA), 2022 highlights the amendments to Article 3(1) of amended European Union (EU) Environmental Impact Assessment (EIA) Directive 2011/92/EU as amended by Directive 2014/52/EU (the "EIA Directive") which states that:

  "*The environmental impact assessment shall identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of a project on the following factors: a) population and human health; […]*"

- The Guidelines on the information to be contained in Environmental Impact Assessment Reports, hereafter referred to as the EPA Guidelines 2022 state that: '*in an EIAR, the assessment of impacts on population and human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in this EIAR e.g. under the environmental factors of air, water, soil etc'*
- Moreover, Annex IV, paragraph 5(d) of the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) requires an EIAR to contain:

  "A description of the likely significant effects of the project on the environment resulting from, inter alia, "the risks to human health"

[22] Environmental Protection Agency, 2022. https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf

- When outlining the scope of environmental factors covered by the EIA Directive within Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission, 2017), "population and human health" is defined as follows:

  "Human health is a very broad factor that would be highly Project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population."

4.2 Study Assessment and Methodology

Despite the requirement to consider 'population and human health' amongst the other environmental topics for assessment, Planning and Development Regulations 2001, as amended (Part 10, Environmental Impact Assessment) do not establish the way in which this is to be addressed and there is no prescribed EIA definition for 'population and human health'.

Using professional judgement and relevant guidance, the assessment is based upon Institute of Environmental Management and Assessment (IEMA[23]) guidance, in particular, IEMAs guide to 'Effective Scoping of Human Health (2022) and IEMAs guide to 'Determining Significance for Human Health in Environmental Impact Assessment' (2022)[24]. These publications are applicable to Ireland and have been developed by an IEMA Working Group that includes representation from the Institute of Public Health (Ireland), subsequent to (and making reference to) a wide range of other pertinent guidance documents including from the World Health Organisation (WHO), European Commission, International Association for Impact Assessment, and Institute of Public Health (Ireland). It is then considered that the IEMA guidance forms a robust and comprehensive means to scope and assess population heath impacts as a result of the project.

IEMA sets out the requirements for assessing the direct and indirect effects, in an appropriate manner, of a Proposed Project on human health. This also notes, along with the WHO, that health can be defined as 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity'.

Health is influenced by a range of factors, termed the 'wider determinants of health'. Determinants of health span the bio-physical, social, behavioural, economic and institutional factors. The IEMA guidance document provides a framework for concluding on the significance of population health effects that can be applied across the wider determinants of health.

The IEMA guidance document recognises that significance at the level of individuals is not proportionate, and as such establishes a method for assessing significance at a population level, or disproportionate effects to relevant sub-populations, i.e. groups of more sensitive individuals.

It is to be recognised that many of the effects on population and human health are considered within the specific relevant chapters to this EIAR and these chapters will be in accordance with relevant policy objectives. Potential interactions between health and other environmental factors is recognised in EPA Guidance, with noise,

[23] Note that the Institute for Environmental Management and Assessment is now known as The Institute of Sustainability and Environmental Professionals (ISEP).
[24] IEMA-EIA-Guide-to-Determining-Significance-for-Human-Health (3).pdf

vibration, landscape, roads, traffic and transportation of particular note[25]. Consideration based on professional judgement has also been made and specific technical assessments are included within the following chapters:

- Air Quality (Chapter 7);
- Climate (Chapter 8)
- Noise and Vibration (Chapter 9);
- Traffic and Transportation (Chapter 10);
- Land, Soils and Geology (Chapter 11);
- Water (Chapter 12); and;
- Major Accidents and Disaster Chapter (Chapter 15).

This chapter therefore considers all relevant information included within the above sections that relate to population and human health and as such relevant chapters should be consulted for further information. This chapter also identifies those health receptors in the area i.e. local residents and those working, visiting or using facilities in the Study Area. The definition of the Study Area is set out in Section 4.2.1.

In general terms, the assessment considers the potential significant effects of the Proposed Project on two types of population. The first is the general or wider population / groups (e.g. workers and contractors constructing, operating and decommissioning the Proposed Project, workers at nearby local businesses, residents living in houses, operators and users of community land and facilities, owners and users of commercial premises, users of footpaths and cycle routes, users of open space, recreation and leisure facilities, vehicle travellers, public transport users). The second type of population considered is 'vulnerable groups' identified within the general population who may be more susceptible to changes to the baseline conditions as a result of the Proposed Project. Note that it is important to recognise that the assessment does not seek to determine significance of effect on individuals – this would not be proportionate and would be inappropriate. Rather it takes a population health approach where the health outcomes of a group are considered.

The assessment has set out to identify the key physical and human receptors in the main Study Area which have potential to be affected by the Proposed Project, including the presence of any human vulnerable or sensitive groups. As such, the assessment considers the potential effects of the Proposed Project on two types of receptors: physical receptors (e.g. residential properties, schools, community facilities, local businesses, commercial interests, recreation routes or spaces, roads, footpaths etc.) and then the human receptors that are present or use these physical receptors.

4.2.1 Study Area

In relation to population and human health, it is to be noted that effects vary between geographical areas. The geographic scope should have regard to the populations within relevant geographic zones of influence or Study Areas. This may include site-specific population, local, regional, national, and international populations. IEMA guidance notes that the populations of relevant geographic areas should be defined to aid understanding of the individual and combined health effects due to the project.

For this assessment on population and human health the 'Study Area' has been defined as the area up to 500m from the Proposed Project boundary. This is considered representative of the local area, however, where it is considered there may be impacts beyond this area, these will be described. As such, while there is a focus on the 'Study Area' relevant data from Electoral Divisions and other wider data sets has also been considered in order to provide an overview of the wider surrounding area. The Study Area is shown in Figure 4-1, including an indicative development boundary within the EIAR Study Area. For details on the final Proposed Project

[25] EPA Guidelines on the information to be contained in EIAR – Section 3.7.6

boundary please refer to the Proposed Project site layout plan drawings which accompany the planning application documentation. Information on the alternatives considered and how the Proposed Project boundary has been derived are included in Chapter 3, Volume 2 of the EIAR.

It is also noted that the delivery of abnormal loads and extraordinary abnormal loads will be required to the site. The proposed route options for the Delivery of Extraordinary Abnormal Loads are shown in Figure 4-2 and further detail within the Traffic and Transportation chapter of this EIAR (Chapter 10). Whilst it is not considered proportionate to consider these routes in the Study Area (due to the very temporary nature of potential impacts), potential impacts of this activity are considered under Section 4.4 of this chapter.

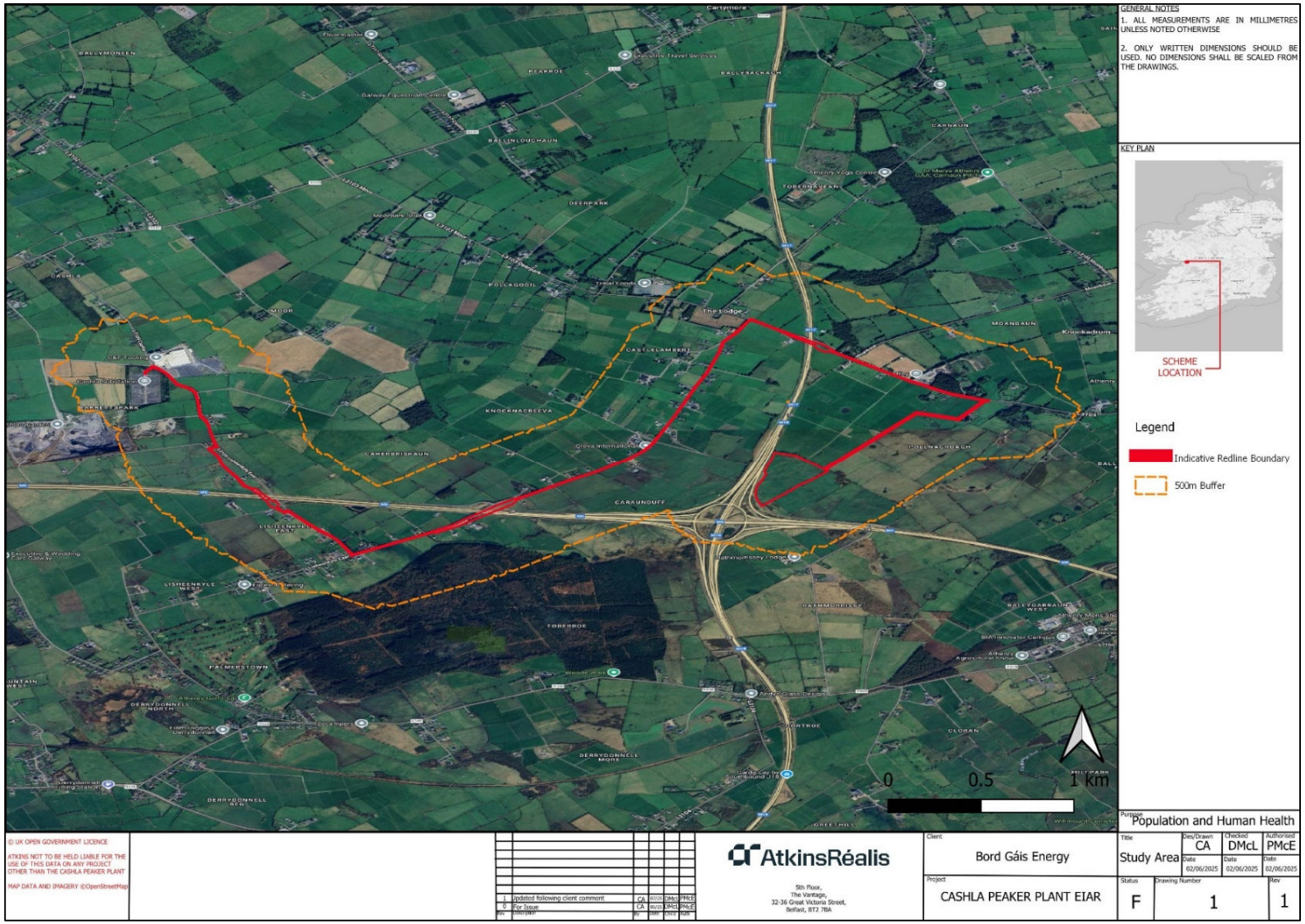

Figure 4-1 - Study Area for Population and Human Health assessment

Figure 4-2 - Proposed Route for the Delivery of Extraordinary Abnormal Loads

4.2.2 Desk Study

In addition to the consideration of the Legislation and Policy Context set out in Section 4.1.1, this assessment has been carried out predominantly through a desk-based study of data available online, including:

- Central Statistics Office 2022 census data[26]
- Pobal Geographical Information System[27]
- Healthy Ireland Survey 2024[28] - this survey was commissioned by the Department of Health and examines the health and health behaviours of people living in Ireland. It has taken place annually since 2015, with a sample of approximately 7,400 individuals, representative of the Irish population aged 15 and over. The report presents findings on several health topics which are compared with findings from previous nine waves 2015-2023.
- Health Population Profiles, Health Service Executive[29]
- Adopted Galway County Development Plan 2022–2028[30]
- Athenry Local Area Plan 2024–2030[31]

4.2.3 Wider Health Determinants

Wider determinants of health, associated with the WHO definition of health, are set out the IEMA Guidance[32] and are included in Table 4-2.

Table 4-2 - Wider Determinants of Health

Categories	Wider determinants of health
Health related behaviours	Physical activity
	Risk taking behaviour
	Diet and nutrition
Social Environment	Housing
	Open space, leisure and play
	Transport modes, access and connections
	Social participation, interaction and support
Economic environment	Education and training
	Employment and income
Bio-physical environment	Air quality
	Water quality or availability

[26] Census of Population 2022 - CSO - Central Statistics Office Last accessed: 27/11/2025
[27] https://data.pobal.ie/portal/apps/sites/#/pobal-maps Last accessed: 27/11/2025
[28] https://assets.gov.ie/static/documents/healthy-ireland-survey-summary-report-2024.pdf
[29] Tuam, Athenry, and Loughrea population profiling - HSE.ie Last accessed: 27/11/2025
[30] Adopted Galway County Development Plan 2022-2028 | Galway County Council Online Consultation Portal
[31] Adopted Athenry Local Area Plan 2024-2030 | Galway County Council Online Consultation Portal
[32] iema-eia-guide-to-effective-scoping-of-human-health-nov-2022.pdf

Categories	Wider determinants of health
	Land quality
	Noise and vibration
Institutional and built environment	Health and social care services
	Built environment
	Wider societal infrastructure and resources

Note in absence of a Scoping Report, scoping decisions in respect of the above listed wider determinants of health have been reported in Table 4-18.

4.2.3.1 Surveys

While surveys specific to population and human health are not required, this assessment benefits from those surveys undertaken as part of the wider EIA, including those described in Chapter 9 Noise and Vibration, which have contributed to the population and human health baseline.

It is to be noted that, as the Proposed Project does not segregate agricultural landholding, no agricultural assessment has been included in this EIAR in respect of population and human health.

4.2.4 Determining value and sensitivity of human health issues

The criteria for determining the sensitivity for health receptors has been taken from the IEMA Guide to Determining Significance for Human Health in Environmental Impact Assessment, as set out in Table 4-3. Due to the nature of the receptor, it is likely that the sensitivity of many health receptors will span more than one sensitivity. Where this is the case, professional judgement has been applied to determine the most appropriate sensitivity.

Table 4-3 – Criteria for determining the sensitivity of physical and human receptors to changes to wider health determinants

Category / Level	Indicative criteria (as set out in IEMA guidance[33])
High	High levels of deprivation (including pockets of deprivation); reliance on resources shared (between the population and the project); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and / or people with a very low capacity to adapt.
Medium	Moderate levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt.
Low	Low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are

[33] iema-eia-guide-to-determining-significance-for-human-health-nov-2022.pdf

Category / Level	Indicative criteria (as set out in IEMA guidance[33])
	slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt.
Very Low / Negligible	Very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

The sensitivity of an individual or population sub-group encompasses its ability to withstand exposures and the range of associated effects, and the physiological (e.g. co-morbidities or disabilities) and socio-economic factors that increase its susceptibility to the exposure. However, it is important to stress that assessment of EIA significance at the level of individuals is not proportionate (IEMA human health significance guidance, para. 5.2) and therefore the assessment of the Proposed Project explores the effects at a population and sub-population level.

4.2.5 Impact Assessment

Determining impact magnitude

The magnitude of any change to the baseline conditions has been assessed in accordance with the criteria set out in Table 4-4. Effects are assessed for the construction, operational and decommissioning phases.

Determining impact magnitude of human health issues

In respect of Human health, magnitude is derived through assessment against indicative criteria taken from IEMA.

Table 4-4 - Criteria for assessing health magnitude of impact

Category/Level	High level description of the magnitude of impact for the physical receptors	High level description of the magnitude of impact for the human receptors
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.	High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/ injury outcomes; majority of population affected; permanent change; substantial service quality implications
Medium	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or major change in quality-of-life; large minority of population affected; gradual reversal; small service quality implications
Low	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to one (maybe more) key	Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality-of-life; small minority of population

Category/Level	High level description of the magnitude of impact for the physical receptors	High level description of the magnitude of impact for the human receptors
	characteristics, features or elements.	affected; rapid reversal; slight service quality implications
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements.	Negligible exposure or scale; very short-term duration; one-off frequency; severity predominantly relates to a minor change in quality-of-life; very few people affected; immediate reversal once activity complete; no service quality implication.
No Change	No loss or detrimental alteration to one or more characteristics, features or elements; no observable effects in either direction.	No impact to the wider health determinant or to sensitive groups.

Determining significance of impact on human health Issues

The impact to human health from the Proposed Project is a function of the impact magnitude and receptor sensitivity as shown in Table 4-5. Impacts can be beneficial or adverse. Major or moderate impacts are deemed to be significant, and minor and negligible impacts are deemed to be not significant.

When determining significance, professional judgement is exercised as it is likely in any given analysis that some effects will span categories.

Table 4-5 - EIA significance matrix for determining health effects (source IEMA)

		Sensitivity			
		High	**Medium**	**Low**	**Very Low**
Magnitude	**High**	Major	Major / moderate	Moderate / minor	Minor / negligible
	Medium	Major / moderate	Moderate	Minor	Minor / negligible
	Low	Moderate / minor	Minor	Minor	Negligible
	Negligible	Minor / negligible	Minor / negligible	Negligible	Negligible

Table 4-6 - Significance conclusion and reasoning related to public health (source IEMA)

Significance	Indicative criteria (judgment based on most relevant criteria, it is likely in any given analysis that some criteria will span categories)
Major (significant)	▪ Changes, due to the project, have a substantial effect on the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by referencing relevant policy and effect size (magnitude and sensitivity levels), and

Significance	Indicative criteria (judgment based on most relevant criteria, it is likely in any given analysis that some criteria will span categories)
	as informed by consultation themes among stakeholders, particularly public health stakeholders, which show consensus on the importance of the effect. ▪ Change, due to the project, could result in a regulatory threshold or statutory standard being crossed (if applicable). ▪ There is likely to be a substantial change in the health baseline of the population, including as evidenced by the effect size and scientific literature showing there is a causal relationship between changes that would result from the project and changes to health outcomes. ▪ In addition, health priorities for the relevant Study Area are of specific relevance to the determinant of health or population group affected by the project.
Moderate (significant)	▪ Changes, due to the project, have an influential effect on the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by referencing relevant policy and effect size, and as informed by consultation themes among stakeholders, which may show mixed views. ▪ Change, due to the project, could result in a regulatory threshold or statutory standard being approached (if applicable). ▪ There is likely to be a small change in the health baseline of the population, including as evidenced by the effect size and scientific literature showing there is a clear relationship between changes that would result from the project and changes to health outcomes. ▪ In addition, health priorities for the relevant Study Area are of general relevance to the determinant of health or population group affected by the project.
Minor (not significant)	▪ Changes, due to the project, have a marginal effect on the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by effect size of limited policy influence and/or that no relevant consultation themes emerge among stakeholders. ▪ Change, due to the project, would be well within a regulatory threshold or statutory standard (if applicable); but could result in a guideline being crossed (if applicable). ▪ There is likely to be a slight change in the health baseline of the population, including as evidenced by the effect size and/or scientific literature showing there is only a suggestive relationship between changes that would result from the project and changes to health outcomes. ▪ In addition, health priorities for the relevant Study Area are of low relevance to the determinant of health or population group affected by the project.
Negligible (not significant)	▪ Changes, due to the project, are not related to the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by effect

Significance	Indicative criteria (judgment based on most relevant criteria, it is likely in any given analysis that some criteria will span categories)
	size or lack of relevant policy, and as informed by the project having no responses on this issue among stakeholders. ▪ Change, due to the project, would not affect a regulatory threshold, statutory standard or guideline (if applicable). ▪ There is likely to be a very limited change in the health baseline of the population, including as evidenced by the effect size and/or scientific literature showing there is an unsupported relationship between changes that would result from the project and changes to health outcomes. ▪ In addition, health priorities for the relevant Study Area are not relevant to the determinant of health or population group affected by the project.

For each judgement of significance made, a narrative has been provided to explain which factors have been considered. The following considerations have been made, where relevant, to provide consistency in the formation of the judgement of significance by the assessor, which is an approach that is advocated in the IEMA guidance:

- Whether there would be a high level of exposure or widespread impact.
- Whether the population exposed to an impact is particularly sensitive due to preexisting vulnerabilities or inequalities.
- The duration of effects and whether they would be reversible.
- The level of acceptability, including whether statutory thresholds for pollutants would be exceeded and/or whether the issue is a public health priority.
- The severity of the related health outcomes (i.e. whether it is related to a change in mortality or morbidity).
- The strength of evidence for an association between a change in a determinant and health outcomes.
- Whether a large proportion of the population would likely be affected.
- Whether the impact is likely to increase or tackle health inequalities at a population level.

4.3 Receiving Environment

4.3.1 Establishing the Population Profile

This section provides a description of the known baseline characteristics for population and human health. The baseline conditions are subdivided into subheadings reflecting the population and human health sub-topics considered to be relevant to the project. In keeping with HSE consultation responses for this Development, it is to be highlighted that the population profile does not attempt to identify individual persons.

A range of publicly available data sources (Section 4.2.2) have been used to determine the population and health baseline. These include statistics on population and employment from the Central Statistics Office (CSO)[34] and data from local authorities. It is important to understand the health profile of the local and wider areas. To inform the baseline 2022 Census data has been utilised.

The local authority of relevance to the Proposed Project is Galway County Council. The Electoral Divisions intersecting the Study Area are Greethill and Aughrim. Greethill encompasses the southeastern section of the Study Area, while Aughrim encompasses the northwestern sections of the Study Area, these are shown highlighted yellow (Figure 4-3).

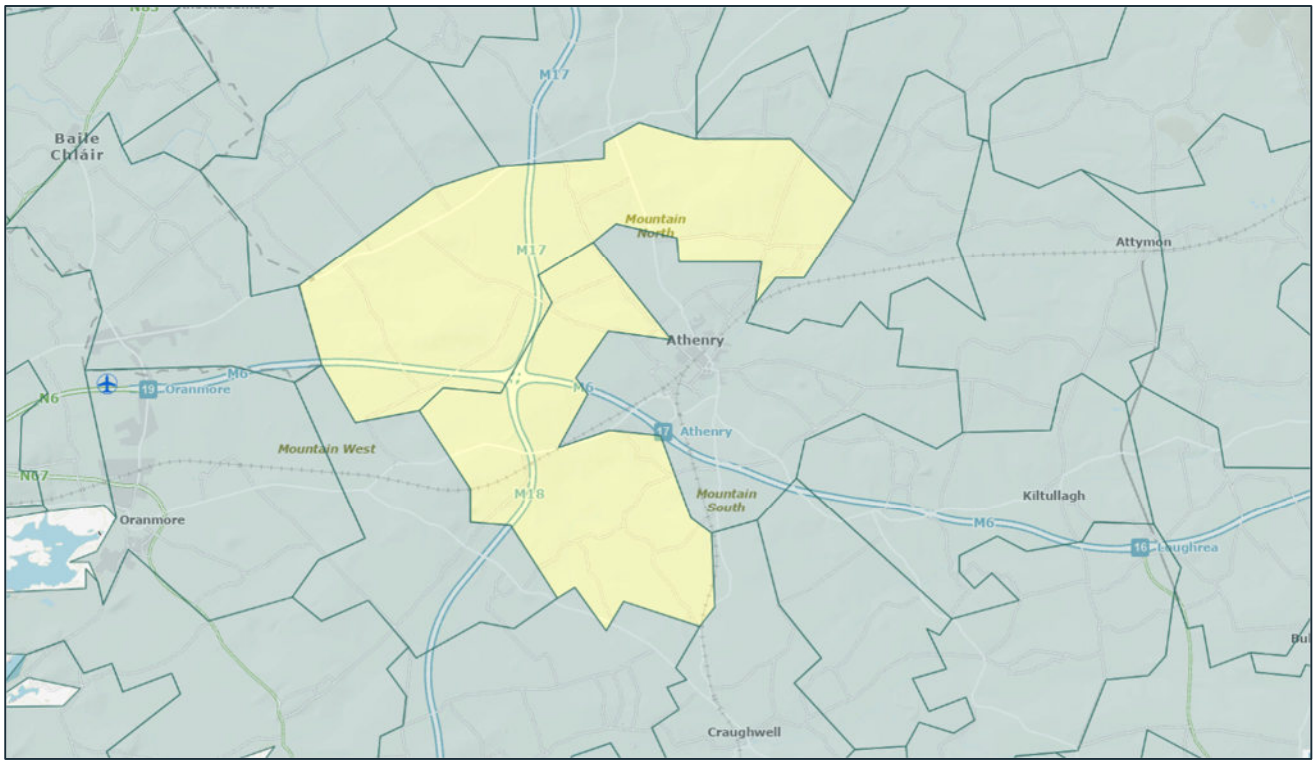

Figure 4-3 - Extract of Electoral Divisions CSO Interactive Map

4.3.2 Population Baseline

The Proposed Project is located within a rural area dominated by agricultural land uses intersected by the M18, M17 and M6. The underground cable route proposed follows the local road network, while the Cashla Peaker Plant is proposed on agricultural land northeast of the M6/M18 junction. The closest town is Athenry which has a population of 4,603, with the closest residential receptors associated with the town. The Peaker Plant is located ca. 2km west of Athenry.

Table 4-7 outlines the 2022 Census data for the State, County Galway, and two electoral districts which intersect the Study Area. The population for County Galway grew at a similar rate to the State between 2016 and 2022. This is somewhat reflected by similar rates of growth for Greethill division, while Aughrim saw slower rate of growth with a 1.8% increase.

[34] Census - CSO - Central Statistics Office

Table 4-7 – Census Population Data

Area	Total Population 2016	Total Population 2022	Population Change from 2016 to 2022
State	4,761,865	5,149,139	8.1%
County Galway	179,390	193,323	7.1%
Greethill Electoral District	999	1,086	8.1%
Aughrim Electoral District	1,296	1,317	1.8%

4.3.2.1 Age

The age profile of the Study Area is similar to that of the County and State (Table 4-8). There is a slightly higher proportion of the population aged 0-14 (23.6%) compared to County Galway (21%) and the State (19.6%). Additionally, there is a lower proportion of elderly people living in the Study Area with 14.9% aged over 65, compared to 16.6% in County Galway and 15.07% in the State.

Table 4-8 - Population by Age

Area	Population Aged 0-14	Population Aged 15-64	Population Aged 65+
State	19.6%	65.3%	15.07%
County Galway	21%	62.4%	16.6%
Study Area (Greethill, Aughrim Electoral Districts)	23.6%	61.5%	14.9%

4.3.2.2 Ethnicity

The Health Service Executive (HSE) has developed the Community Health Network (CHN) in order to help address challenges in the healthcare system. The CHN of relevance to the Study Area is Tuam, Athenry & Loughrea. Health Atlas Ireland reported that in terms of ethnic or cultural background Tuam, Athenry & Loughrea CHN has a higher proportion of White Irish than in the State as a whole[35]. Further data on the ethnic or cultural background is in Table 4-9.

Table 4-9 - Ethnic or cultural background

Ethnic or cultural background	Tuam, Athenry & Loughrea Community Health Network	State
White Irish	80.3%	76.6%
White Irish Traveller	2.1%	0.6%
White Other	8.6%	9.9%

[35] chn-tuam-athenry-loughrea-profile-census-2022.pdf

Ethnic or cultural background	Tuam, Athenry & Loughrea Community Health Network	State
Black or Black Irish	1.0%	1.5%
Asian or Asian Irish	1.9%	3.3%
Other	1.6%	2.0%
Not stated	4.7%	6.2%

4.3.2.3 Residential and Private Property

The Study Area is located within County Galway, west of the town of Athenry and east of Galway City. The area is rural, the majority of land is agricultural, so the majority of properties are detached and accessed via a limited network of rural roads including the L3103, Lisheenkyle East Road and the L7109. The majority of residents within the Study Area live in scattered settlements including Castlelambert, Knockancreeva and Lisheenkyle with linear settlement patterns centred around the local road network.

There are no residential properties located within the Proposed Project site boundary; however, the following residential receptors have been identified within the Study Area:

- L3103 – approximately 10no. detached properties east of the M17 bridge. A further 15no. properties are located on the L3103 within the Study Area west of the M17 bridge.
- Castlelambert – approximately 26no. properties located on an Lisheenkyle East Road.
- Knockancreeva/ Caraunduff (north of the M6) – approximately 11no. properties at Lisheenkyle East Road which continues south from Castlelambert. A further 3no. detached properties are located within the Study Area, accessed northwest of the local road.
- Lisheenkyle East (L7109) (south of the M6) – approximately 16no. properties at the Proposed Project boundary. There are a further 27no. detached properties south west of the Proposed Project within the Study Area.
- Lisheenkyle East/ Barretts Park L7109 (northwest of the M6) – approximately 6no. properties adjacent to the Proposed Project boundary, and a further 5no. properties north of Cashla Substation within the Study Area.
- Moanbaun – One detached property on Moanbaun north of the Site, accessed north off the L3103 east of the M17 bridge.

4.3.2.4 Development land and businesses

There are no businesses or development land located within the Site. The following businesses have been identified within the Study Area:

- Coffey – a civil engineering company, with offices and light industrial buildings. The business is located north of the Site, accessed off the L3103 adjacent to the Proposed Project boundary.
- Creva International – an agricultural business providing consulting services, partnerships and agricultural products/ equipment. The business is located in Knockancreeva, east off the Lisheenkyle East Road, adjacent to the Proposed Project boundary.
- C&F Tooling Ltd – a metal sheet fabrication engineering company and offices. The business is located in Cashla, accessed north-east off the L7109, adjacent to the Proposed Project boundary.
- Coshla Quarries – a 70-acre limestone quarry. The business is located at southwest of the Cashla Substation, accessed via a private road off the L7109 adjacent to the Proposed Project boundary at the junction with Cashla Substation and C&F Tooling.

- Tribal Foods / Heneghan's Nursery is a food manufacturer with plant nursery. The business is located in Castlelambert, accessed via the L3103, north-west of the Proposed Project boundary and adjacent to the Study Area.

Agriculture

The Census of Agriculture Mapping[36] shows that the Study Area intersects two Electoral Divisions. The agricultural structure of the Study Area is shown in Table 4-10. The data indicates that agriculture is a key land use, and driver of the local economy in the Study Area with a mixture of livestock and arable farming.

Table 4-10 - Agricultural Structure of the Study Area

Electoral Division	Number of holdings	Average size of holding (hectares)	Livestock units	Area Farmed (hectares)	Median Age of holder
Greethill	66	32	3,275	2,113	58
Aughrim	88	29.4	3,891	2,586	61.5
Total	*154*	*30.7*	*7,166*	*4,699*	*59.75*

4.3.2.5 Community land and assets

There is no land allocated for community use within the Site. The following community facilities for education, leisure and play located within the Study Area are:

- Tobberoe Woods – northern section of woodland is located within the Study Area, approximately 0.1 km south of the Proposed Project (approximately 0.8 km south west of the Proposed Project Site). The woodland is an informal open space, accessible to the public, although not promoted as open space. Accessed by road off the R348, south of the Study Area and Site.

Additionally, the following facilities are located in the wider area and may be affected during construction or operation of the Peaker Plant and associated works:

- Lisheenkyle National School is a mixed, Catholic Primary School located southwest of the Proposed Project off Lisheenkyle West. Located approximately 0.6 km from the Proposed Project (approximately 2.8 km south west of the Proposed Main Project Site).
- Athenry Association Football Club and Athenry Athletics Club. Located approximately 0.8 km east of the Proposed Project (approximately 1.8 km north east of the Proposed Project Site).
- Athenry Golf Club. Located over 0.7 km south west of the Proposed Project (approximately 2.8 km south west of the Proposed Main Project Site).

The Study Area is within a 'Community Alert' area (Castlelambert). 'Community Alert' is a community safety programme for rural areas with an emphasis on older and vulnerable people. It operates as a partnership between the community, An Garda Síochána and Muintir na Tíre. It works on the principle of shared responsibility for crime prevention and reduction.

[36] CSO AgriMap, 2020. https://visual.cso.ie/?body=entity/ima/coa&boundary=C03904V04656&guid=2AE19629235413A3E055000000000001

4.3.2.6 Transport modes, access and connections - Walking, Cycling, Horse riders

Whilst the Proposed Project is within a largely rural area, three motorways, the M18/M17 and M6, intersect the Study Area. The cable route will follow the three minor roads which include the L3103, Lisheenkyle East Road, and the L7109. No bus stops or train stations have been identified within the Study Area.

A search of Sport Ireland's 'Get Ireland Active' mapping tool[37] confirms that there are no Blueways, Greenways, Horse Riding Trails, Long Distance Waymarked Way, Mountain Access Trails, Mountain Biking Trails, Off Road Cycling Trails, Paddling Trails, Pilgrim Paths, Road Cycling Trails or Walking Trails within the Proposed Project or Study Area.

The proposed development is positioned between the northern and eastern arms of the M6/M18 interchange. Access to the Proposed Project will be provided via a newly proposed 1.15 km long access road connecting to the L3103, approximately 1 km east of the M17 motorway. With the exception of the previously mentioned motorways, the highway network within the wider Study Area is predominately made up of rural single carriageway roads, with no segregated pedestrian or cyclist facilities. Throughout the Study Area the roads are typically bordered by low walls, and narrow grass verges. This means that the local population of Walkers, Cyclists or Horse Riders (WCH) travelling through the area for leisure or to access work, education and health facilities are likely to travel along the highway.

4.3.2.7 Future Population Baseline

The Economic and Social Research Institute (ESRI) population projections[38] indicate that nationally, in the baseline population scenario, the population is expected to increase by 922,000 between 2022 and 2040, resulting in a total population of over 6.106 million people by the end of the period. The numbers of people aged 65 and over will increase by around 6% to 1.3 million people by 2040, making up approximately 21% of the population. Additionally, the population aged over 85 is expected to increase by over 140%[39]. ESRI projections also indicate that the number of people aged 15 or under will decline by around 6% by 2040 to comprise approximately 17% of the increased population. It is expected that the number of people aged 15 or under will continue to increase until the mid-2020's and decline slowly thereafter. This means that the average age of Ireland will increase, but the overall number of young people will not decrease significantly. The dependency ratio (those aged under 16 and those over 65 in relation to the working age population) is projected to increase to 65% of the total population by 2040 which is up from 53% in 2016.

At a regional level, the West Region is projected to see a 12.2% population increase between 2022 and 2042[40]. This is slightly higher than the projected change for Ireland (11.3%), and lower than the Mid-East which is projected to see population growth by 19.7% which is the highest for all regions. For the West Region the total dependency ratio is expected to drop from 57.2 in 2022 to 55.1% in 2032, before rising to 60.7% by 2042. This follows the similar trend of all other regions in Ireland, and the region will have similar dependency ratios to other regions in the Country such as the Midland (59.6%) and South-East (61.7%) regions dependencies by 2042.

The Proposed Project is designed to be operated by a maximum of 10 personnel at any given time, with the option for remote control and a small security contingent. Typically, staff on site will be 2-3 maintenance staff or

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[37] https://www.sportireland.ie/outdoors/find-your-trails

[38] Economic and Social Research Institute, 2024. https://www.esri.ie/publications/population-projections-the-flow-of-new-households-and-structural-housing-demand

[39] National Planning Framework, 2025. https://cdn.npf.ie/wp-content/uploads/National-Planning-Framework-First-Revision-April-2025.pdf

[40] CSO, 2025. https://www.cso.ie/en/releasesandpublications/ep/p-rpp/regionalpopulationprojections2023-2042/regionalpopulationprojectionsresults/

security. Note that during periods of substantial maintenance, personnel numbers may be temporarily higher, depending upon the intensity and nature of the maintenance tasks. Due to the specialist nature of such works, it is anticipated that such maintenance staff will be sourced from outside the locale of the Proposed Project.

4.3.3 Health Baseline

4.3.3.1 General Health

In relation to General Health, the Electoral Divisions intersecting the Study Area generally perform better than in the State as a whole. The Electoral Districts and Galway County have higher numbers of people describing their general health as good or very good than nationally. Additionally, the Electoral Districts and Galway County have lower numbers describing their general health as bad or very bad, with the exception of Aughrim which has the same proportion as the State. The Electoral Districts and Galway County also have lower proportions of people with disability and people who smoke. These figures are given in Table 4-11.

Table 4-11 – State, County and Electoral District General Health ratings

	General Health – Very Good	General Health – Good	General Health – Fair	General Health – Bad	General Health – Very Bad	Persons with a disability	Persons who smoke tobacco products
State	53.2%	29.7%	8.6%	1.4%	0.3%	21.5%	13.1%
County Galway	54.8%	30.1%	8.7%	1.2%	0.3%	20.0%	11.2%
Greethill Electoral District	62.4%	26.0%	7.3%	0.9%	0.5%	17.6%	7.7%
Aughrim Electoral District	58.8%	29.0%	7.6%	1.4%	0.3%	17.6%	10.9%

Nationally, two in every five people (41%) have a long-term health condition confirmed by a medical professional, broadly unchanged since 2023 (40%). The most prevalent long-term health conditions confirmed by a medical diagnosis include high blood pressure (8%), arthritis (6%), and asthma and diabetes (both 5%). At the County level, based on Census data in 2022, 21% of the county's population reported experiencing at least one long lasting condition or difficulty to any extent[41]. Of those people, 8% reported experiencing at least one long-lasting condition or difficulty to a great extent or a lot. A further 13% of the county's population reported experiencing at least one long-lasting condition or difficulty to some extent or a little. This is similar to the national levels where 22% of the population report one long-lasting condition or difficulty to any extent, of these 8% experience at least one long lasting condition to a great extent and 14% to some extent.

Healthy Ireland is a national framework for improved health and wellbeing from 2013 to 2025 aimed at improving the health and wellbeing of the Irish society. Healthy Ireland has been introduced due to concerns that the current health status of people living in Ireland – including lifestyle trends and health inequalities – is leading towards a future that is dangerously unhealthy, and very likely unaffordable. The many risks to the health and

41 https://www.cso.ie/en/csolatestnews/pressreleases/2023pressreleases/pressstatementcensus2022resultsprofile4-disabilityhealthandcarersgalway/

wellbeing of people living in Ireland include issues such as overweight and obesity, mental health, smoking, alcohol and drugs. Healthy Ireland seeks to provide people and communities with accurate information on how to improve their health and wellbeing and seeks to empower and motivate them by making the healthy choice the easier choice.

Healthy Galway[42] was established in September 2018. Healthy County Galway is delivered through County Galway Local Community Development Committee (LCDC) through a Sub–Group made up of an inter-agency partnership from a cross section of key stakeholders for example HSE, Galway Sports Partnership, Children and Young Peoples Services Committee, Age Friendly Programme, etc. This Sub-Group has monitored the administration of 3 rounds of funding from the Department of Health's Healthy Ireland Fund to date and implemented projects including Healthy Food Made Easy, Mental Health Initiatives and Community Mental Health Small Grant Scheme.

4.3.3.2 Deprivation

In terms of deprivation, the Tuam, Athenry & Loughrea CHN is less disadvantaged than the country as a whole with 4.6% of the population classed as very or extremely disadvantaged compared to the national figure of 7.8%. Table 4-12 sets out further figures on the level of deprivation.

Table 4-12 - Deprivation Level - HP Index

Deprivation Level	Tuam, Athenry & Loughrea Community Health Network	State
Extremely Affluent	1.0%	1.3%
Very Affluent	6.2%	6.1%
Marginally Above Average	31.9%	27.7%
Marginally Below Average	25.2%	25.2%
Disadvantaged	10.9%	14.2%
Very Disadvantaged	3.3%	5.6%
Extremely Disadvantaged	1.3%	2.2%

4.3.3.3 Physical Activity

No active travel routes have been identified within the Proposed Project or the Study Area.

4.3.3.4 Risk taking behaviour

As previously noted the Proposed Project is within a largely rural area which is sparsely populated with the closest town being Athenry, approximately 2 km east. It is however recognised that three motorways, the M18/M17 and M6 are within the Study Area. Despite this, it is not anticipated that risk taking behaviour is a major concern within the Study Area.

4.3.3.5 Diet and nutrition

The Proposed Project is located in an agricultural field, likely to be used for light grazing and silage cutting. Baseline data in relation to agriculture in the area is included in Section 4.3.2.

[42] Galway County Council

4.3.3.6 Housing

From April 2016 to April 2022, housing stock in Galway grew by 5% from 112,054 to 117,773. The number of vacant dwellings decreased by 8% from 12,487 to 11,541 and the number of holiday homes rose by 21% from 4,119 to 5,000. Nationally, the housing stock grew by more than 5% from 2,003,645 to 2,112,121. The number of vacant dwellings fell by almost 20,000 (-11%) to 163,433 and the number of holiday homes rose by 8% from 62,148 to 66,956.[43]

At a local level, the housing stock and vacancy rate for the relevant electoral divisions are summarised in Table 4-13.

Table 4-13 - Housing Stock and Vacancy Rate

	Aughrim	Greethill
Total housing stock	469	345
Occupied by - Usual resident(s) of the household	436	325
Occupied by - Visitors only	2	0
Unoccupied - Residents temporarily absent	4	1
Unoccupied - Vacant house & Flat	26	13
Unoccupied - Holiday Home	1	6
Vacancy rate	6	4

Section 4.3.3 contains a review of baseline conditions in respect of residential and private property.

4.3.3.7 Relocation

Refer to Section 4.3.3 for a review of baseline conditions in respect of residential and private property.

4.3.3.8 Open Space, leisure and play

Refer to Section 4.3.3 for a review of baseline conditions in respect of community land and assets, which will include any areas of open space, leisure and play.

4.3.3.9 Community Safety

Refer to Section 4.3.3 for information relating to the 'Community Alert' area in the vicinity of the Study Area.

4.3.3.10 Community identity, culture, resilience and influence

As previously noted, the Proposed Project is within a largely rural area which is sparsely populated with the closest town being Athenry. The Peaker Plant is located ca. 2km west of Athenry.

4.3.3.11 Social participation, interaction and support

Refer to Section 4.3.3 for a review of baseline conditions in respect of community land and assets, which will include any community assets and meeting places, for voluntary, social, cultural or spiritual participation.

[43] Press Statement Census 2022 Results Profile 2 - Housing in Ireland Galway - CSO - Central Statistics Office

4.3.3.12 Education and Training

Over a 31-year period from 1991 to 2022, the educational attainment of people aged 15 years and over improved steadily. There was a decrease in the number of people who were educated to primary level only and an increase in the number of those with higher levels of education. The greatest gains were in the number of people with a third level qualification, rising from 14% of the population aged 15 and over in 1991 to 48% in 2022.[44]

At a more local level, the 2022 Census data in relation to education for Galway County Council and Aughrim and Greethill electoral districts is summarised in Table 4-14. These figures are in relation to the population aged 15 and over.

Table 4-14 - Education Figures 2022

	Galway County Council	Greethill Electoral District	Aughrim Electoral District
Population who ceased education at age 15	3,788	17	28
Highest Level of Education Completed			
No formal education	3,136	19	23
Primary education	10,581	46	76
Lower secondary	15,966	79	99
Upper secondary	23,519	81	175
Technical or vocational qualification	9,463	51	68
Advanced certificate/Completed apprenticeship	7,817	45	64
Higher certificate	7,200	49	43
Ordinary bachelor degree or national diploma	10,905	59	60
Honours bachelor degree, professional qualification or both	16,705	117	120
Postgraduate diploma or degree	14,340	105	94
Doctorate (Ph.D.) or higher	1,657	13	4

Lisheenkyle National School is the closest school, located approximately 0.6 km from the Proposed Project. No other schools were identified within 500m of the Proposed Project, although it is noted that are schools in the wider area including those in the town of Athenry, Carnmore National School and Cregmore National School.

[44] Level of Education - CSO - Central Statistics Office

In terms of training, Galway and Roscommon Education and Training Board Further Education Centre is approximately 2.5 km east of the Proposed Project in Athenry.

4.3.3.13 Employment and Income

Galway County Development Plan (2022–2028) sets out that Athenry is an urban settlement with a low job ration of 0.767. Policy objectives for the town to grow its employment base as part of the Oranmore-Athenry Strategic Economic Corridor is provided through its designation as a location with strategic development potential of a regional scale. Athenry has opportunity to provide appropriately zoned land with adequate infrastructural services to accommodate employment and enterprise. It is considered that economic corridors particularly employment corridors such as the Oranmore–Athenry Strategic Economic Corridor must be developed/promoted and serviced to high international standards to attract further Foreign Direct Investment and indigenous industries/ businesses, building on its strategic location and existing infrastructure.

The 2022 Census data was examined to determine trends in relation to employment including the number of persons at work and unemployment rate. This is summarised in Table 4-15. The unemployment rate is calculated by adding the number of persons unemployed to first time job seekers and then dividing the total by the overall labour force (i.e., total amount of unemployed persons and employed persons).

Table 4-15 - Employment Figures 2022

	State	County Galway	Greethill District	Electoral Aughrim Electoral District
At work	2,320,297	85,901	466	633
Student	459,275	16,691	115	128
Looking for First Regular Job	34,526	984	4	2
Unemployed	176,276	5,708	12	32
Retired	657,790	25,849	141	125
Unable to work due to permanent sickness or disability	189,308	6,487	27	36
Looking after home/family	272,318	10,096	49	56
Overall Unemployed*	210,802	6,692	16	34
Labour Force (Population aged 15 years and Over)	4,136,852	152,753	819	1,017
Unemployment Rate (%)	5.1%	4.4%	2.0%	3.3%

Please see Section 4.3.3 for further baseline relating to development land and businesses.

4.3.3.14 Climate Change Mitigation and Adaption

Effects on climate arising from the Proposed Project are considered in Chapter 8 (Climate) of the EIAR.

4.3.3.15 Air Quality

Effects on air quality arising from the Proposed Project are considered in Chapter 7 (Air Quality) of the EIAR.

4.3.3.16 Water Quality or Availability

Effects on water arising from the Proposed Project are considered in Chapter 12 (Water) of the EIAR.

4.3.3.17 Land Quality

Effects on land quality arising from the Proposed Project are considered in Chapter 11 (Land, Soils & Geology) of the EIAR.

4.3.3.18 Noise and Vibration

Effects on noise and vibration arising from the Proposed Project are considered in Chapter 9 (Noise and Vibration) of the EIAR.

4.3.3.19 Health and Social Care Services

No health or social care services have been identified within the Study Area. The nearest Primary Care centre is located in Athenry approximately 2km east of the Site.

4.3.3.20 Built Environment

The Proposed Project is in a relatively rural area with a limited range of built assets identified in close proximity. However, any properties, businesses, roads, community assets or other aspects of the built environment have been identified under Section 4.3.3.

4.3.3.21 Wider Societal Infrastructure and Resources

In addition to the residential, health, community and commercial receptors identified in the previous sections, infrastructure and resources in the wider area of note include:

- Merlin Park University Hospital – 10 km west
- Athenry Fire Station – 2.2 km east
- Oranmore Garda Station – 6.5 km south west
- Atlantic Technological University – 12 km south west

Receptors identified within the Study Area are in Table 4-16 and Figure 4-4.

Table 4-16 - Receptors within Study Area

Receptor	Within Project Boundary (count)	Within 250m of Project Boundary (count)	250m – 500m of Project Boundary (count)	Closest identified (if none within 500m of Project Boundary)
Residential Properties (including farm dwellings)	0	82	29	N/A
Community Facility	0	0	0	Athenry Association Football Club and Athenry Athletics Club approximately 0.8 km east
Place of Worship	0	0	0	Church of the Assumption approximately 2.5 km east.
School	0	0	0	Lisheenkyle National School approximately 0.6 km west.
Nursery/Creche	0	0	0	None identified within the Study Area but should any be identified they would fall under effects identified for residential properties/community facilities.
Health Care Facility	0	0	0	Athenry Primary Care centre approximately 2.2 km east
Walking/cycling route	0	0	0	There are likely to be undesignated walking trails in Toberroe Woods, adjacent to the Study Area in the south. Nearest National Trail identified (EuroVelo 1 Ireland - Atlantic Coast Route) is over 6 km south west
Bus/Railway Station	0	0	0	Galway Bus Station, over 13 km west Athenry Train Station, approximately 2.5 km east
Local Business / Commercial (excluding agricultural buildings / farms)	0	▪ C. & F. Tooling Limited ▪ Coffey Construction ▪ Creva International ▪ Coshla Quarries	▪ Coshla Quarries	Tribal Foods / Heneghan Nurseries, adjacent to the Study Area in the north

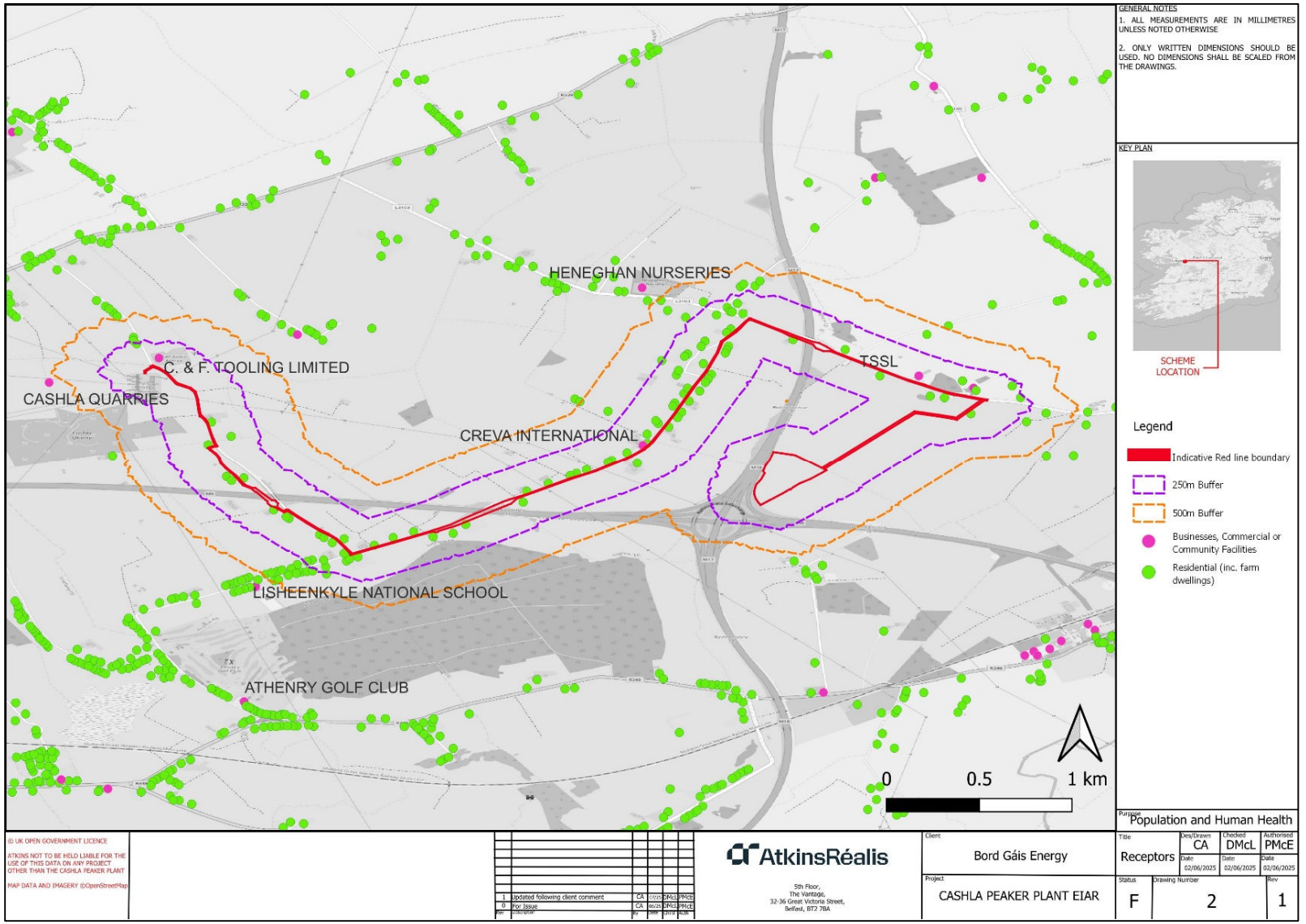

Figure 4-4 - Population and Human Health Receptors

4.3.4 Wider or Vulnerable Groups

It is well established in Ireland and internationally that the factors that influence health and well-being within the affected population vary by age, gender, ethnicity, disability, income, and social support. The most sensitive or vulnerable members in society often stand to lose the most from both the construction and operational stages, as well as demolition activities, of a project and this can lead to health inequality and health and social equity issues that must be addressed. This also reflects IEMA guidance for assessing health impacts in EIA, which recommends that specific attention should be paid to impacts on vulnerable groups within the community. These groups are noted in the guidance as likely to be more susceptible to the changes to health determinants than other social groups and are typically differentiated by their age, health status and income.

Identification of vulnerable groups was done by examining relevant plans and policies in respect of the Study Area to identify key health and wellbeing issues, but also through examining the baseline data gathered for the Study Area and consideration of the nature and initial proposed construction activities and design of the Proposed Project. As such, wider and/or vulnerable groups identified in the Study Area are given in Table 4-17.

Table 4-17 - Wider and Vulnerable Groups

Wider group or vulnerable group	Location of individuals / groups	Sensitivity to Proposed Project
Wider group – adults / working people (population as a whole).	People working in the Proposed Project and nearby local businesses / farms. Residents living in houses, users of local commercial premises. Users of local road network, travelling to / from employment, education and community facilities.	Residents of properties in the wider Study Area, employees and business owners of the commercial and industrial businesses interspersed throughout the area, users of the nearby recreational/community facilities, and public transport users are likely to be most exposed to health impacts. Tables 4-7 and Table 4-8 give an overview of the population in the Study Area and the proportion of which are of working age.
Vulnerable Group - Families with children and adolescents, (pregnant women, babies, children and adolescents)	Residential houses.	Families with children and adolescents are present throughout the Study Area as shown by the population in each Electoral Division (Table 4-8).and it is noted that there is a slightly higher proportion of the population in the Study Area aged 0-14 than the County or State as a whole. Children and adolescents constitute a sensitive population group due partly to their need to be able to move around freely to and from school, open space, greenspace and recreational activities, whilst they lack the experience and judgement displayed by adults when moving around in traffic and public spaces[45] and when using public transport and related infrastructure.

[45] World Health Organisation (2018, December) Adolescents: health risks and solutions. Available at: Adolescent and young adult health

Wider group or vulnerable group	Location of individuals / groups	Sensitivity to Proposed Project
Vulnerable Group – People who are physically or mentally disadvantaged (elderly people, people with physical disabilities, people with other health problems or impairments)	Residential houses.	Elderly people are present throughout the Study Area as shown by the population in each Electoral Division (Table 4-8) and Table 4-11 shows that there are also people with a disability within both Electoral Divisions within the Study Area. Elderly people constitute a sensitive group as they are more sensitive than young and middle-aged adults and while there is a lower proportion of elderly people living in the Study Area than in the County or State as a whole, taking a precautionary approach to assessment merits their inclusion in this assessment. Generally, the older people are, the slower their movement and reactions and the poorer their hearing[46]. They can be more at risk from injury and may fear falls, steps or lack of suitable footpaths, lack of safe crossing points and short crossing times at safe crossing points and other aspects of the surrounding built environment[47]. As such, they are more vulnerable to disruption caused by construction / demolition activities. This can deter them from outdoor activity, especially walking, whereas walking is critical for muscle strength and reduces the risk of falls amongst other benefits. Elderly people can also feel more sensitive when using public transport[48]. They also often need to seek health services. Their continuing independence at home is often dependent on having available a range of transport mode and route options. They can be more vulnerable to disruption to travel caused by construction. People who are disabled and/or with physical and/or mental illnesses or impairments constitute a sensitive group as they may not be able to access many forms of transport or need special arrangements and/or support to access these[49]. They are more likely to find it difficult to walk or travel independently and can also be disadvantaged by the cost of transport, or

[46] Transport for London (2013, April) Older Pedestrians and Road Safety, Research Debrief. (content.tfl.gov.uk/older-pedestrians-research-report.pdf)
[47] Asher. L, Aresu. M, Falaschetti. E, Minell. J (2012) Most older pedestrians are unable to cross the road in time: a cross-sectional study (untitled)
[48] Shrestha.B.P, Millonig.A, Hounsell.N.B, McDonald.M (2017) Review of Public Transport Needs of Older People in European Context (Review of Public Transport Needs of Older People in European Context - PMC)
[49] House of Commons Briefing Paper (2018, October) Access to transport for disabled people, Number CBP 601 (SN00601.pdf)

Wider group or vulnerable group	Location of individuals / groups	Sensitivity to Proposed Project
		disruption to transport options. Any changes in access, such as greater travel distances, diversions or replacement services during construction or demolition would have particular impacts on this group. Chronically ill persons, for example, people with impaired lung function, can be more adversely affected by air pollution[50]. The same is true of hypersensitive individuals such as asthmatics[51]. Noise can cause hypertension and cardio-vascular problems[52]. Those who already have these conditions can be more troubled by noise than others. People with existing physical and mental illnesses, including sleep disturbance, anxiety and depression, are likely to be more sensitive to changes to their local environment.
Sensitive Group - People who are materially disadvantaged	Residential houses.	People who are deprived are present throughout the Study Area as shown by Table 4-12 and the levels of deprivation. While the Study Area is slightly less deprived than the national average, it is recognised that pockets of deprivation can exist within areas (with rural areas often masking deprivation). There are also likely to be individuals who are materially disadvantaged on a personal basis and as such this group are considered in order to ensure a precautionary approach to the assessment. People on low incomes (living in deprived areas is a proxy measure for low income) and people without access to a car constitute a sensitive group as they are likely to walk further because they cannot afford public transport or to own a car, and their lack of transport options may limit life and work opportunities. Those on low incomes may be less able to adapt to changes in access, such as greater travel distance or alternative transport provision. People living in deprived areas tend to suffer the most from road traffic incidents (deaths and injuries), noise and air pollution, as they tend to be

[50] DEFRA UK AIR, Air Information Resource, Effects of air pollution (Effects of air pollution - Defra, UK)
[51] Asthma, UK (Air pollution | Asthma + Lung UK)
[52] Munzel T, Schmidt FP, Steven S, Herzog J, Daiber A, Sorensen M. Environmental Noise and the Cardiovascular System. J Am Coll Cardiol. 2018;71(6):688-97 (Extract from Journal of the American College of Cardiology 2018; (Environmental Noise and the Cardiovascular System)

Wider group or vulnerable group	Location of individuals / groups	Sensitivity to Proposed Project
		characterised by high traffic volume, as well as other environmental burdens such as industrial facilities. This group is generally more likely to already have reduced access to health and social care as well as reduced access to other services and amenities. This group may have increased stress levels due to the factors above. In addition, this group is more sensitive to food insecurity, which has an access dimension.

4.4 Potential Impact of the Proposed Project

During construction, operation and decommissioning, it is anticipated that impacts on population and human health could potentially be affected in respect of the following determinants. The summary of scoping decision is provided in Table 4-18.

Table 4-18 - Scoping Decision

Categories	Wider determinant of health	Scoped in / out?	Rationale
Health related behaviours	Physical activity	Out	There are no dedicated active travel routes in the area and therefore there will not be changes or disruption during construction. Active travel modes utilised on an ad hoc basis are dealt with under transport. No other implications for physical activity have been identified.
	Risk taking behaviour	Out	While construction compounds with low security can enable criminal behaviours, it is anticipated that this construction site and operational site will have good levels of security including security fencing and CCTV during construction. Security will be provided on site during operation.
	Diet and nutrition	Out	While the Proposed Project will result in the loss of some agricultural output (loss of agricultural field of approximately 9.76ha), it is considered this would not be of significance to wider diet and nutrition. No other implications for diet or nutrition have been identified.
Social environment	Housing	Out	The Proposed Project does not involve the development of residential properties or enable the development of future housing. The Proposed Project is also not within the Local Development Plan and is outside current settlement limits. The proposed routes for delivery of abnormal loads is not anticipated to result in the loss of any residential properties or their gardens. Issues

Categories	Wider determinant of health	Scoped in / out?	Rationale
			relating to access of housing are considered under Transport modes, access and connections.
	Relocation	Out	The Proposed Project is currently primarily greenfield (approximately 19.17ha) and there is no requirement to relocate any residents or business at any stage of construction, operation or demolition.
	Open space, leisure and play	Out	No direct loss of open space is anticipated other than the site itself which is greenfield (agricultural field of approximately 9.4ha). There will remain significant areas of agricultural fields / greenfield in the wider area post development. There are though, a small number of community land and assets such as Tobberoe Woods, Athenry Golf Club, Athenry Association Football Club and Athenry Athletics Club which could have access disrupted during construction, however these impacts are considered under Transport modes, access and connections.
	Transport modes, access and connections	In	While the main site is greenfield, the cable route will be via minor roads which include the L3103, Lisheenkyle East Road, and the L7109. It is noted that at least one route (a section of Lisheenkyle East Road) is subject to closure during the construction phase, with others subject to a 'Stop/Go' type traffic management system. These are likely to be utilised for walking, cycling and horse riding, in the absence of more formal non-motorised routes. Local residents will also utilise these minor roads for vehicle access to their properties, as will local businesses, a number of which have been identified. Access may also be disrupted to residential properties, businesses and community assets such as Lisheenkyle National School, and Athenry Golf Club in the wider area. Disruptions to the transport network and journey delays can be anxiety inducing, particularly for travellers who are unaware of the works, diversion or closure. Delivery of abnormal loads to the Proposed Project will also cause disruption along the proposed route, although this is predominately expected to be temporary as the loads pass through areas – total journey time is anticipated to be typically around 5 hours from Galway docks to the site.
	Community safety	In	Construction activities could give rise to activities which could present a danger, or perceived danger, to the local community. This could include 'stranger danger' which could be generated by a perceived threat from unknown persons in the local area – it is noted that the Proposed Project is in a 'Community Alert' area (Castlelambert).

Categories	Wider determinant of health	Scoped in / out?	Rationale
			Operation of the new facility could also pose a perceived risk to the local community, though it may also have benefits by helping to provide for a more resilient energy supply to the wider (national) community.
	Community identity, culture, resilience and influence	Out	No communities would be displaced to construct or accommodate the Proposed Project and impacts/ effects on local communities, including from the influx of a construction, operation or demolition workforce is not expected to be significant.
	Social participation, interaction and support	Out	No impacts on Social participation, interaction and support are anticipated as a result of construction or operation of the project. Any impacts in relation to access to community and recreational facilities which enable social opportunities are considered under Transport modes, access and connections. Whilst this topic has been scoped out for further assessment, it is noted that there would be likely beneficial effects from a Community Benefit Fund established by Bord Gáis Energy as part of the project. The fund will support local initiatives and foster strong, long-term relationships with the surrounding community.
Economic environment	Education and training	Out	The project will not directly impact on Education and training however it is recognised that disruption on the local road network means there is a potential for access issues for local residents to education and training facilities including schools such as Lisheenkyle National School. It is considered that is then most appropriately addressed under the Transport modes, access and connections wider determinant of health.
	Employment and income	In	The Proposed Project may provide opportunity for employment, particularly during construction. There is a potential loss of agricultural output and impact on access and or trading conditions to local businesses, though there could also be opportunities for the supply of goods and services. In respect of tourism, it is noted that given the location adjacent to the motorway, no implications for tourism have been identified. This includes impacts arising from rural employment from seasonal tourism and health impacts of air pollution arising from any increase in traffic.
Bio-physical environment	Climate change mitigation and adaptation	In	There is a potential impact on climate change mitigation and adaptation from the Proposed Project. This will be addressed in Chapter 8 of the EIAR.
	Air quality	In	There is a potential impact on air quality from the Proposed Project during construction, operation and

Categories	Wider determinant of health	Scoped in / out?	Rationale
			decommissioning. The construction works will likely generate particulates and dust, which will lower air quality within the area of works. The reduced air quality could affect those with respiratory conditions, in particular. This will be addressed in Chapter 7 of the EIAR.
	Water quality or availability	In	There is a potential impact on the water environment from the Proposed Project during construction, operation and decommissioning. Changes to water flow paths could make it possible for contaminates to reach and contaminate water sources, during construction or operation. Reduced quality of water sources may negatively affect the health of biodiversity and humans. This will be addressed in Chapter 12 of the EIAR.
	Land quality	In	The Proposed Project site is greenfield agricultural land and as such there is a potential impact on land quality. This will be addressed in Chapter 11 of the EIAR. There would also be a need for consideration of amenity impacts, such as those relating to odour, lighting and changes to views.
	Noise and vibration	In	There is a potential impact from noise and vibration due to the construction, operation and decommissioning of the Proposed Project, including the associated cable trenching and construction vehicles. This will be addressed in Chapter 9 of the EIAR.
	Radiation	In	The Proposed Project is an 325MW or 34MW gas-fired peaker power plant. This facility will include structures for administration buildings, workshops, and electrical switch rooms. Additionally, the Proposed Project will feature a four-bay EirGrid-compliant 220 kV sub-station, complete with access roads and an ESB switchgear building. Consideration will be made of Electromagnetic Fields (EMF) which could be generated by the plant and associated cabling. EMF are part of the spectrum of electromagnetic radiation which extends from static electric and magnetic fields, through radiofrequency and infrared radiation, to X-rays, though note that the fields resulting from electricity are non-ionising and are fundamentally different from x-ray and gamma ray radiation[53]. Note this will only be considered for Operational stage only, as no potentially significant EMF will be generated during construction or decommissioning.

[53] EirGrid – EMF and you (2014)

Categories	Wider determinant of health	Scoped in / out?	Rationale
Institutional and built environment	Health and social care services	Out	There will be no direct impact on local health and social care facilities. Disruption on the local road network means there is a potential for temporary access issues for local residents to such facilities in the wider area. This could include increased journey times that may present anxiety and potential for missed appointments. Increased journey times, route closure etc. could impact emergency service response times. Such issues are then considered under Transport modes, access and connections.
	Built environment	Out	The Proposed Project site is greenfield and no loss of any aspect of the built environment is anticipated. Issues relating to access to facilities and change of character of the local area are considered under respective Transport and Land quality wider determinants of health.
	Wider societal infrastructure and resources	In	It is considered that the Proposed Project is a critical piece of national infrastructure and as such will have beneficial effects on wider society and resources.

For wider determinants of health which have been screened in, a sensitivity has been identified for each of the wider and vulnerable groups identified in Table 4-17. The sensitivity of a community / population shall be reported as:

- Very low
- Low
- Medium
- High (see IEMA Guidance).

The sensitivity of a population sub-group encompasses their ability to withstand exposures and the range of associated impacts or effects, and the physiological (e.g. co-morbidities or disabilities) and socio-economic factors that increase their susceptibility to the exposure.

Table 4-19 notes the wider and vulnerable groups sensitivity to health determinants (see Table 4-17 for further rationale behind the determination of sensitivity in respect of this Proposed Project).

Table 4-19 - Health receptor sensitivity to health determinants

Community / Population within Study Area	Determinant and sensitivity	Rationale
Wider group – adults / working people	Transport modes, access and connections - ***Medium*** Community safety - ***Medium*** Employment and income - ***Medium***	The sensitivity for adults / working people and the population as a whole in relation to all determinants is considered to be Medium. Note that, as per IEMA guidance, while the Study Area is relatively less deprived, with a generally

Community / Population within Study Area	Determinant and sensitivity	Rationale
	Climate change mitigation and adaptation - ***Medium*** Air quality - ***Medium*** Water quality or availability - ***Medium*** Land quality - ***Medium*** Noise and vibration - ***Medium*** Wider societal infrastructure and resources – ***Medium*** Radiation - **Medium**	healthier population as a whole, this determination of medium sensitivity is based on there being likely moderate pockets of deprivation, few alternatives to shared resources in this rural area, concerns in the community / uncertain outlook and the likely presence of people with a poor health status and / or people with a limited capacity to adapt. A general sensitivity of medium is considered precautionary for this area. Where sensitivity for vulnerable groups deviates from this, the rationale is set out below.
Vulnerable Group – Families with children and adolescents, (pregnant women, babies, children and adolescents)	Transport modes, access and connections - ***Medium*** Community safety - ***High*** Employment and income - ***Low*** Climate change mitigation and adaptation - ***Medium*** Air quality - ***High*** Water quality or availability - ***Medium*** Land quality - ***Medium*** Noise and vibration - ***High*** Wider societal infrastructure and resources – ***Medium*** Radiation - **Medium**	Families with children and adolescents are considered to have a low sensitivity to employment and income as this will not be a consideration for the majority of people in this group due to their age. This group are considered to have a high sensitivity to community safety as they lack the experience and judgement displayed by adults when moving around in traffic and public spaces as set out in Table 4-17. Children and adolescents are considered to have a high sensitivity to air quality as they are particularly vulnerable to air pollution because their bodies, organs and immune systems are still developing[54] and high sensitivity to noise and vibration as there is growing evidence to suggest that children that are exposed to transport noise at school or at home are more likely to suffer certain types of cognitive, learning, behavioural problems and obesity[55].
Vulnerable Group – People who are physically or mentally disadvantaged (elderly people, people with physical	Transport modes, access and connections - ***High*** Community safety – ***High*** Employment and income - ***Medium*** Climate change mitigation and adaptation – ***Medium*** Air quality - ***High***	High sensitivity is considered in relation to transport modes, access and connections as their continuing independence at home is often dependent on having available a range of transport mode and route options and any changes in access, such as greater travel distances, diversions or replacement services during construction would have particular impacts on this group.

[54] Air pollution and children's health — European Environment Agency
[55] The effect of environmental noise on children's reading ability and behaviour in Europe | European Environment Agency's home page

Community / Population within Study Area	Determinant and sensitivity	Rationale
disabilities, people with other health problems or impairments)	Water quality or availability - ***Medium*** Land quality - ***Medium*** Noise and vibration - ***High*** Wider societal infrastructure and resources – ***Medium*** Radiation - **Medium**	People who are physically or mentally disadvantaged are also considered to have a high sensitivity in relation to community safety as they can be more at risk including from injury and may fear falls, steps or lack of suitable footpaths, lack of safe crossing points and short crossing times at safe crossing points and other aspects of the surrounding built environment. This group are considered to have a high sensitivity to air quality and noise and vibration as they be adversely affected by air pollution and may be more troubled by noise than others (seeTable 4-17).
Vulnerable Group – People who are materially disadvantaged	Transport modes, access and connections - ***High*** Community safety - ***Medium*** Employment and income - ***High*** Climate change mitigation and adaptation - ***Medium*** Air quality - ***Medium*** Water quality or availability - ***Medium*** Land quality - ***Medium*** Noise and vibration - ***Medium*** Wider societal infrastructure and resources – ***Medium*** Radiation - **Medium**	High sensitivity is also anticipated in relation to employment and income as these aspects are important for gaining employment and generating income.

4.4.1.1 Construction Phase

On any major infrastructure project there is a potential relationship between construction related exposures (such as traffic, noise, dust, exposure to contaminants, pollutants, increased risk of injury or death, increased demand for local services and housing accommodation etc.) and health outcomes. Furthermore, any change to the baseline position can potentially result in the widening of inequalities and impact on health priorities.

The population and human health assessment is by nature an in-combination assessment of the potential impacts on population and human health (both beneficial and adverse) arising from the environmental effects of the Proposed Project. The construction phase impact assessment for the Proposed Project is set out in Table 4-20 below.

The impact assessment has been informed by the relevant sections as referenced, and are summarised in Sections 4.4.1.1.1 to 4.4.1.1.6.

In addition to the mitigation measures in Table 4-20, the mitigation measures set out in other technical chapters of the EIAR which are linked to population and human health also apply, where relevant, to each section of the assessment. Relevant Sections are noted as follows:

- Chapter 7: Air Quality
- Chapter 8: Climate
- Chapter 9: Noise and Vibration
- Chapter 10: Traffic and Transportation
- Chapter 12: Water quality
- Chapter 11: Land, Geology and Soils

4.4.1.1.1 Climate Change Mitigation and Adaptation

Whilst a detailed Climate Change Risk Assessment (CCRA) of the construction phase has been scoped out, consideration has been given to the Proposed Project's vulnerability to the following climate change hazards with best practice mitigation measures proposed:

- Flood Risk due to increased precipitation, and intense periods of rainfall. This includes fluvial and pluvial flooding;
- Increased temperatures potentially causing drought, wildfires and prolonged periods of hot weather;
- Reduced temperatures resulting in ice or snow; and
- Major Storm Damage including wind damage.

With design mitigation in place, the significance of effect of the impacts to the Proposed Project as a result of climate change are direct, long-term, negative and imperceptible, which is overall not significant in EIA terms.

The GHG assessment has highlighted the areas where the highest GHG emissions occur during the construction phase. Construction materials (backfill material, site road materials and cement) result in the majority of GHG emissions for the project, at approximately 61% of the total construction phase GHG emissions. Fuel usage by construction plant and generators make the second highest contribution at 24%. The total construction phase emissions have also taken into account the reuse of the majority of excavated material onsite, which represents emissions savings of 363 tCO_2e. The significance of effect of GHG emissions during the construction phase which is direct, long-term, negative and slight, which is overall not significant. As such, no significant adverse impacts on human health are anticipated.

Full details are included in the Climate Chapter of this EIAR (Chapter 8).

4.4.1.1.2 Air Quality

To minimise dust emissions during construction, a series of mitigation measures have been prepared. Provided the dust minimisation measures are adhered to, the predicted residual air quality impacts during the construction phase are short-term, direct, negative, localised and not significant.

Best practice mitigation measures are proposed for the construction phase of the Proposed Project, which will focus on the proactive control of dust and other air pollutants, to minimise generation of emissions at source. The mitigation measures that will be put in place during construction will ensure that the impact complies with all EU ambient air quality legislative limit values (set out in SI 730/2022 Ambient Air Quality Regulations 2022), which are based on the protection of human health. Therefore, the predicted residual, dust-related, human health impact of the construction phase of the Proposed Project is short-term, direct, negative, localised and not significant.

Full details are included in the Air Quality of this EIAR (Chapter 7).

4.4.1.1.3 Water Quality or Availability

The Proposed Project shall not result in a significant adverse impact to the existing hydrological regime of the area. The project will not result in any flood risk to the proposed development itself or surrounding lands. The project is therefore considered to be appropriate from a flood risk perspective and not have any likely significant effects.

Following the implementation of the proposed mitigation measures during both the construction and operational phases, the residual effects on the water environment are expected to be slight, temporary, and not significant. As such, no significant negative population or human health effects are anticipated.

Full details are included in the Water Chapter of this EIAR (Chapter 12).

4.4.1.1.4 Land Quality

The impact on land take is likely to have a negative slight impact on the environment as there is no mitigation for long term land take of fertile soils. As a result, there will be no significant effects to land during the construction phase as a result of the Proposed Project.

The impact to land contamination, overall soils and geology is likely to have a negative imperceptible impact resulting in no significant effects during the construction phase. As such, no significant negative population or human health effects are anticipated.

Full details are included in the Land Soils and Geology Chapter of this EIAR (Chapter 11).

4.4.1.1.5 Noise and Vibration

During the construction phase of Proposed Project there will be some impact on nearby noise sensitive properties due to noise emissions from site traffic and other activities, however the overall predicted noise levels are well within the adopted criteria due to the distance between the site works and the nearest noise sensitive locations (NSLs). The application of noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum. The residual construction noise effects will be negative, slight to moderate and short term in nature. As such, no significant negative population or human health effects are anticipated. Full details are included in the Noise and Vibration Chapter of this EIAR (Chapter 9).

4.4.1.1.6 Major Accidents and Disasters

The following scenarios were identified that could impact the construction phase of the project:

- Extreme heat or cold weather resulting in result structural damage and/or pollution to soils, groundwater, or surface waters;
- Compressed Gas Cylinder release;
- Natural Gas Release;
- Storm events resulting in structural damage and/or pollution to groundwater and surface waters; and
- Flooding.

The impact and likelihood of these scenarios was assessed and all found to be low level risks. There are no likely impacts on the project or to off-site receptors during the construction phase in relation to major accidents and disasters. As such, no significant negative population or human health effects are anticipated. Full details are included in the Major Accidents and Disasters Chapter of this EIAR (Chapter 15). The summary of construction impact assessment is provided in Table 4-20.

Table 4-20 - Construction Impact Assessment

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
Transport modes, access and connections						
Residents (adjacent to proposed cable route)	Medium (*Wider group* and *Families with children and adolescents*)	A section along Lisheenkyle East Road is subject to closure during the construction phase for installation of the cable. There are estimated to be approximately 45 properties along this section of route with many others using it to travel to properties in the surrounding area. Local residents will utilise this and surrounding minor roads for vehicle access to their properties and therefore there may be health and wellbeing impacts as a result of disruption to access.	The Proposed Project should minimise where possible disruption to local residents. The CTMP sets out that local roads L3103 and L7109 will be subject to 'Stop/Go' type traffic management systems where road widths allow. If a 'Stop/Go' system is not possible and full road closure is required, local access for properties along the road will be maintained via Local Road L3103 or L7109, as appropriate. The contractor will be required to ensure that all existing	Medium	Moderate Adverse *Temporary, direct, reversible and limited to the construction phase*	Significant
	High (*People who are physically or mentally disadvantaged* and *People who are materially disadvantaged*)			Medium	Moderate Adverse *Temporary, direct, reversible and limited to the construction phase*	Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
			pedestrian, cycling and vehicle movements are maintained throughout the construction process. The cable installation will be limited to 30-50m segments and allow for local access on either side of each closure segments as it moves down each road. Closure segments will, wherever possible, avoid local driveways in order to reduce impacts on local residents. It is noted that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and			

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
			legislative requirements.			
Residents (within study and wider area)	Medium (*Wider group* and *Families with children and adolescents*)	Introduction of construction traffic, increased traffic levels in surrounding areas, altered traffic movements (including large volumes of materials being moved), user conflict, restrictions, diversions and/or closures. Injuries or loss of life from construction traffic, increased traffic levels and an unawareness of altered traffic movements, particularly for sensitive road users (e.g. motorcyclists, elderly drivers, children, pedestrians, new drivers and cyclists).	Diversionary routes will be signposted as per CTMP. Speed limits, particularly for construction vehicles may be enacted. It is noted that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and legislative requirements.	Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant
	High (*People who are physically or mentally disadvantaged* and *People who are materially disadvantaged*)			Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant
Business owners and employees (including farm businesses and	Medium (*Wider group* and *Families with children and adolescents*)	A section along Lisheenkyle East Road which is subject to closure during the construction phase for installation of the cable,	The Proposed Project should minimise where possible disruption to local businesses,	Medium	Moderate Adverse *Temporary, direct, reversible and limited to the construction phase*	Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
associated workforce)	High (*People who are physically or mentally disadvantaged* and *People who are materially disadvantaged*)	is used to access Creva International. Coffey, C&F Tooling Ltd., Coshla Quarries and Tribal Foods / Heneghan's Nursery are all businesses in the local area that may also have disturbance to access and trading conditions as a result of the route closure and traffic management during construction. Similar effects are anticipated for farm businesses located along this section of road or which use the road to access their land.	particularly those reliant on the transport network (e.g. logistics or distribution, farms etc). The CTMP sets out that local roads L3103 and L7109 will be subject to 'Stop/Go' type traffic management systems where road widths allow. If a 'Stop/Go' system is not possible and full road closure is required, local access for properties along the road will be maintained via Local Road L3103 or L7109, as appropriate. The contractor will be required to ensure that all existing pedestrian, cycling and vehicle	Medium	Moderate Adverse *Temporary, direct, reversible and limited to the construction phase*	Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
			movements are maintained throughout the construction process. The cable installation will be limited to 30-50m segments and allow for local access on either side of each closure segments as it moves down each road. Closure segments will, wherever possible, avoid local driveways in order to reduce impacts on local residents. It is noted that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and legislative requirements.			

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
Users of community assets (including schools)	Medium (*Wider group* and *Families with children and adolescents*)	A section along Lisheenkyle East Road, is subject to closure during the construction phase for installation of the cable. Lisheenkyle National School is located further south on the Lisheenkyle East Road. Also in the local area and may be accessed by the affected routes are Tobberoe Woods, Athenry Association Football Club and Athenry Athletics Club, Athenry Golf Club. Community assets, including schools and churches, in the wider area may also be affected by disruption to the local road network. There may be a negative health and wellbeing outcome from disruptions, amenity impacts and changes in access to these areas of public open space and community facilities.	The CTMP sets out that local roads L3103 and L7109 will be subject to 'Stop/Go' type traffic management systems where road widths allow. If a 'Stop/Go' system is not possible and full road closure is required, local access for properties along the road will be maintained via Local Road L3103 or L7109, as appropriate. The contractor will be required to ensure that all existing pedestrian, cycling and vehicle movements are maintained throughout the construction process. The cable installation will be	Medium	Moderate Adverse *Temporary, direct, reversible and limited to the construction phase*	Significant
	High (*People who are physically or mentally disadvantaged* and *People who are materially disadvantaged*)			Medium	Moderate Adverse *Temporary, direct, reversible and limited to the construction phase*	Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
			limited to 30-50m segments and allow for local access on either side of each closure segments as it moves down each road. Closure segments will need to avoid local driveways in order to reduce impacts on local residents. It is noted that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and legislative requirements.			
Walkers, cyclists and horse riders	Medium (*Wider group* and *Families with children and adolescents*)	In the absence of more formal non-motorised routes, local routes which may be closed or under traffic management, are likely	The CTMP sets out that local roads L3103 and L7109 will be subject to 'Stop/Go' type traffic	Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
	High (*People who are physically or mentally disadvantaged* and *People who are materially disadvantaged*)	to be utilised for walking, cycling and horse riding. There may be a negative health and wellbeing outcome from temporary severance, disruptions to access, pedestrian and cyclist delays and increases in journey length as well as temporary loss of amenity as a result of temporary loss/closure of routes.	management systems where road widths allow. If a 'Stop/Go' system is not possible and full road closure is required, local access for properties along the road will be maintained via Local Road L3103 or L7109, as appropriate. Additionally, it is recommended that proper pedestrian permeability be maintained as part of the 'Stop/Go' system. The contractor will be required to ensure that all existing pedestrian, cycling and vehicle movements are maintained throughout the construction process. It is noted	Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
			that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and legislative requirements.			
Residents, businesses and local communities in proximity to the proposed abnormal load routes	Medium (*Wider group* and *Families with children and adolescents*)	There is potential for the delivery of abnormal loads cause disruption to roads including delays, temporary closures and creation of temporary roads. health and wellbeing outcome from temporary severance, disruptions to access, pedestrian and cyclist delays and increases in journey length as well as temporary loss of amenity as a result of temporary loss/closure of routes. It is noted that any closures are expected to be temporary and likely to be limited to a number of	The Abnormal Load Assessment Report and CTMP sets out detail on how the abnormal loads will be delivered and how this will be done to minimise disruption, e.g. outside of school closing times. It is noted that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and	Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant
	High (*People who are physically or mentally disadvantaged* and *People who are materially disadvantaged*)			Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
		hours at most. It is also anticipated that movement of abnormal loads will take place at night.	legislative requirements.			
Community Safety						
Residents	Medium (*Wider group* and *People who are materially disadvantaged*)	Construction activities could give rise to activities which could present a danger, or perceived danger, to the local community. This could include 'stranger danger' which could be generated by a perceived threat from unknown persons in the local area.	Regular communication with community representatives before and during construction. The proposed Community Benefit will also maintain relations with the local community. It is noted that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and legislative requirements.	Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant
	High (*Families with children and adolescents* and *People who are physically or mentally disadvantaged)*			Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant
Residents	Medium	During the construction phase there will be the	All construction phase mitigation	Low	Minor Adverse	Not Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
	(*Wider group* and *People who are materially disadvantaged*)	introduction of construction traffic, increase in vehicle traffic, altered traffic movements (including large volumes of materials being moved), potential restrictions, and user conflict, which could result in injury and death.	measures will be undertaken under construction traffic management plans (CTMP). The construction traffic management plan (CTMP) will be submitted to the Local Planning Authority for approval and will detail proposed diversion routes for traffic and also construction traffic access to the Site. This will be agreed before the works commencing. Deliveries to the Proposed Project (including modules from Galway Port) will be scheduled to occur outside the peak daily traffic times. These will either be before 7.30am or after 9am. Peak travel hours for the		*Temporary, direct, reversible and limited to the construction phase*	

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
			construction workforce arriving at the Proposed Project is expected to be between 7 and 8am. It is noted that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and legislative requirements.			
	High (*Families with children and adolescents* and *People who are physically or mentally disadvantaged)*	As above, though general evidence of similar Developments indicates that any change in accident levels could potentially have greater implications for vulnerable groups, such as children, younger drivers, and older people.	As above.	Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant
Business owners and employees	Medium (*Wider group)*	Construction workers/ contractors exposed to potential human health risks (e.g. from plant,	The construction of the Proposed Project would be undertaken in	Low	Minor Adverse	Not Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
(Construction Workers)		buried services and utilities, emissions, soil and groundwater contamination, dust etc.), leading to risk of injury and death.	accordance with standard good working practices and adherence to legislation (e.g. health and safety at work requirements) and general risk management procedures for construction work. It is noted that safety on the strategic road network will be maintained and all work carried out in accordance with appropriate safety guidance and legislative requirements.		*Temporary, direct, reversible and limited to the construction phase*	
Employment and income						
Business owners and employees	Low (*Families with children and adolescents)*	The Proposed Project may provide opportunity for employment, particularly during construction.	None identified	Low	Minor Beneficial *Temporary, direct, reversible and limited to the construction phase*	Not Significant
	Medium			Low	Minor Adverse	Not Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
	(*Wider group* and *People who are physically or mentally disadvantaged)*				*Temporary, direct, reversible and limited to the construction phase*	
	High (*People who are materially disadvantaged*)			Low	Minor Beneficial *Temporary, direct, reversible and limited to the construction phase*	Not Significant
Local Communities	Low (*Families with children and adolescents)*	Health and wellbeing outcomes from economic benefits of construction simulating the local economy and local job market (including the multiplier effect) noting an anticipated workforce of approximately 150 people daily at its peak.	None identified	Low	Minor Beneficial *Temporary, direct, reversible and limited to the construction phase*	Not Significant
	Medium (*Wider group* and *People who are physically or mentally disadvantaged)*			Low	Minor Beneficial *Temporary, direct, reversible and limited to the construction phase*	Not Significant
	High (*People who are materially disadvantaged*)			Low	Minor Beneficial *Temporary, direct, reversible and limited to the construction phase*	Not Significant
Wider societal infrastructure and resources						
Residents and users of services in the wider area	Medium (*All groups*)	Disruption (traffic) related impacts to infrastructure and resources in the wider	The CTMP will implement appropriate traffic management and	Low	Minor Adverse *Temporary, direct, reversible and limited to the construction phase*	Not Significant

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
		area including Athenry Fire Station and Oranmore Garda Station.	will focus on maintaining free traffic flow along the local road networks.			

4.4.1.2 Operation Phase

The operational phase impact assessment is set out in Table 4-21.

The impact assessments have been informed by the relevant sections as referenced, and are summarised in Sections 4.4.1.2.1 to 4.4.1.2.6.

In addition to the mitigation measures set out in Table 4-21, the mitigation measures set out in the other technical chapters of the EIAR which are linked to population and human health also apply, where relevant, to each section of the assessment. Relevant Sections are noted as follows:

- Chapter 7: Air Quality
- Chapter 8: Climate
- Chapter 9: Noise and Vibration
- Chapter 10: Traffic and Transportation
- Chapter 12: Water quality
- Chapter 11: Land, Geology and Soils

The proposed plant will be operated within a highly regulated regime to the highest standards and subject to relevant legislative and other regulatory regimes during its operation. As such, any potential impacts associated with the day to day operations of the plant are not considered within the Population and Human Health Assessment as these will be managed under the appropriate regulatory framework of consents and licensing. In addition, the operation of the project will be subject to IE licence issued by the EPA.

4.4.1.2.1 Climate change mitigation and adaptation

During the operation phase, the Proposed Project has at most low vulnerabilities to the identified climate hazards. Therefore, no detailed risk assessment is required. With design mitigation in place, the significance of effect of the impacts to the Proposed Project as a result of climate change are direct, long-term, negative and imperceptible, which is overall not significant in EIA terms. As such, no significant negative population or human health effects are anticipated.

In terms of GHG, the majority of GHG emissions associated with the operational phase, and the overall lifespan, of the Proposed Project, originate from the combustion of natural gas by the turbine. Operational phase site energy demand and power generation accounts for approximately 98% of the total annualised emissions associated with the Proposed Project. The significance of effect of GHG emissions during the operational phase which is direct, long-term, negative and slight, which is overall not significant. As such, no significant negative population or human health effects are anticipated.

Full details are included in the Climate Chapter of this EIAR (Chapter 8).

4.4.1.2.2 Air Quality

Detailed air dispersion modelling of emissions from the Proposed Project determined that pollutant concentrations will be in compliance with the relevant limit values. Therefore, emissions from the Proposed Project will have a direct, long-term, negative and not significant impact on air quality. As noted in the Air Quality chapter, impact of operational phase emissions from the facility on population or human health are anticipated to be negative and long term but not significant.

Full details are included in the Air Quality of this EIAR (Chapter 7).

4.4.1.2.3 Water Quality or Availability

The Proposed Project will not result in a significant adverse impact to the existing hydrological regime of the area. The project will not result in any flood risk to the proposed development itself or surrounding lands. The Proposed Project is therefore considered to be appropriate from a flood risk perspective and not likely to have significant effects.

Following the implementation of the proposed mitigation measures during both the construction and operational phases, the residual effects on the water environment are expected to be slight, temporary, and not significant. As such, no significant negative population or human health effects are anticipated.

Full details are included in the Water Chapter of this EIAR (Chapter 12).

4.4.1.2.4 Land Quality

The impact on land take is likely to have a negative slight impact on the environment as there is no mitigation for long term land take of fertile soils. As a result, there will be no significant effects to land during the operational phase as a result of the Proposed Project.

The impact to land contamination, overall soils and geology is likely to have a negative imperceptible impact resulting in no significant effects during the operational phase. As such, no significant negative population or human health effects are anticipated.

Full details are included in the Land Soils and Geology Chapter of this EIAR (Chapter 11).

4.4.1.2.5 Noise and Vibration

In terms of building services noise / emergency site operation, proprietary noise control measures have been employed including plant selection and acoustic attenuators, in order to ensure that noise emissions from gas turbine and associated plants do not exceed the adopted criterion at the façade of any nearby noise sensitive locations. In addition, noise emissions will be broadband in nature and should not contain any tonal or impulsive elements. The resultant noise effect is negative, slight impact and long-term. As such, no significant negative population or human health effects are anticipated.

In terms of the additional operational traffic on local roads that will be generated as a result of the Proposed Project, the impacts are determined to be neutral, imperceptible and long term, with no significant negative population or human health effects anticipated.

Full details are included in the Noise and Vibration Chapter of this EIAR (Chapter 9).

4.4.1.2.6 Major Accidents and Disasters

The following scenarios were identified that could impact the operational phase of the project:

- Release of Natural Gas;
- Extreme heat or cold weather resulting in structural damage and/or pollution to soils, groundwater, or surface waters;
- Storm events resulting in structural damage and/or pollution to groundwater and surface waters;
- Flooding; and
- Release of Propane.

The impact and likelihood of these scenarios was assessed and all found to be low level risks. There are no likely impacts on the project or to off-site receptors during the operation phase in relation to major accidents

and disasters. As such, no significant negative population or human health effects are anticipated. Full details are included in the Major Accidents and Disasters Chapter of this EIAR (Chapter 15).

4.4.1.2.7 Electromagnetic Fields (EMF)

Electromagnetic Fields (EMFs), and the associated electro-magnetic forces, are a fundamental part of the physical world. Their sources are electric charges (source of the electric field) and the movement of those charges (source of the magnetic field). While EMF's occur naturally, they are also produced by wiring, equipment and other conductors associated with the electrical power system, including power plants and its associated cabling such as proposed. All populations are now exposed to varying degrees of EMF, and the levels will continue to increase as technology advances[56].

The potential for adverse health effects from the generation of significant levels of EMF has been studied extensively over many years, although it is to be noted that no health agency has concluded that exposure to EMF from power lines and other electrical sources is a cause of any long-term adverse effects on human, plant or animal health[57]. The World Health Organisation also conclude that despite extensive research, to date there is no evidence to conclude that exposure to low level electromagnetic fields is harmful to human health[58]. This consensus is recognised in Ireland by the Environmental Protection Agency[59].

Nevertheless, it is known from consultation on this project that there is a concern within the local community as to such potential effects on health and as such, taking a precautionary approach, consideration has been made as part of the project design process. Note that no consideration is made of EMF's during construction or decommissioning, as no potentially significant generation will take place during those periods.

EMFs comprise electric and magnetic fields. Electric fields are the result of voltages applied to electrical conductors and equipment. Fences, shrubs and buildings are known to easily block electric fields. Magnetic fields are produced by the flow of electric current; however, unlike electric fields, most materials do not readily block magnetic fields. The intensity of both electric fields and magnetic fields diminishes with increasing distance from the source.

There are no overhead power lines associated with the project and as such, consideration is only made of potential effects from underground cabling. Putting cables underground eliminates the electric field[60], with shielding provided by the cable sheath and the earth cover, though they can still produce magnetic fields.

To prevent effects on health from EMF's, the International Commission on Non-Ionizing Radiation Protection (ICNIRP)[61] developed health protection guidelines in 1998 for both public and occupational exposure and were adopted by a European Council Recommendation in 1999, with the aim to provide a common framework by which the guidelines could be introduced into each Member State according to local arrangements or regulatory practice.

As noted by the EPA, there is not enough evidence of harmful effects from low-level, long-term exposure to EMF to establish limits. Consequently, ICNIRP uses well-known short-term acute effects to describe threshold

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[56] World Health Organisation – Overview on Electromagnetic fields
[57] EirGrid – EMF and You (2014). See also EirGrid – Power lines and your health (2018)
[58] World Health Organisation. See https://www.who.int/news-room/questions-and-answers/item/radiation-electromagnetic-fields
[59] See EMF Guidelines | Environmental Protection Agency
[60] EirGrid (2014) Literature review of electromagnetic fields and human health and an evidence base of EMF measurements from the Irish Transmission system
[61] Independent standard setting body for EMF which is recognised by the World Health Organisation and European Union.

limits that could lead to adverse biological and health effects. The lowest threshold limit is further reduced to derive the reference levels for human exposure.

The guidelines that apply to extremely low frequency (ELF) fields, including those from power systems at 50 Hz are:

ICNIRP 1998 Guidelines (basis for EU Council Recommendation 1999/519/EC):

- Magnetic flux density: 100 μT
- Electric field: 5 kV/m

The 1998 guidelines have been updated to ICNIRP 2010:

- Magnetic flux density: 200 μT for the general public at 50 Hz
- Electric field: 9.2 kV/m

It is important to note that the 2010 update is not yet adopted in Irish law (or across Europe as a whole) and the 1998 guidelines tend to be adopted and are more conservative.

While, detailed design is still ongoing, it is possible at this stage to note some key elements and assumptions that demonstrate there will be negligible risk to human health from the Proposed Project. It is anticipated that the cable will be of 220 kV and buried at a depth of approximately 1 – 1.2 m. For such a cable at this depth, at surface level directly above the trench, magnetic fields typically range from a few μT up to 20–30 μT under maximum load for 220 kV circuits.

As such, these values are well below the ICNIRP public limit of 100 μT (and even further below the 200 μT 2010 guideline). It is also understood that the operation of the proposed plant will only be at periods when national electricity demand requires.. Magnetic fields only occur when an electric current is flowing[62]. As such, the potential for magnetic fields to be generated, will only occur during those days when the Proposed Project is operational. The summary of operation impact assessment is provided in Table 4-21.

[62] ICNIRP. See: ICNIRP | LF (1 Hz-100 kHz)

Table 4-21 - Operation Impact Assessment

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
Transport modes, access and connections						
Residents, Business owners and employees, Users of community assets and Walkers, cyclists and horse riders	Medium (*Wider group* and *Families with children and adolescents*)	Whilst access will be required to the Proposed Project during operation for maintenance and by staff (expected to be a maximum of 10 people at any one time) this is not expected to notably increase traffic in the area and therefore impacts on health and wellbeing for those in the area are not anticipated.	None identified	Negligible	Negligible *Permanent*	Not Significant
	High (*People who are physically or mentally disadvantaged* and *People who are materially disadvantaged*)			Negligible	Negligible *Permanent*	Not Significant
Community Safety						
Local residents	Medium (*Wider group* and *People who are materially disadvantaged*)	There is the potential for risk of injuries during operation of the plant should local residents enter the site. *Note that issues relating to operation of the* Proposed Project *such as emissions etc. are addressed under the relevant topic e.g. Air Quality.*	Appropriate security measures (including secure boundaries and formal and informal surveillance) will be implemented at the plant to prevent access from unauthorised personnel. The Proposed Project will also be	Low	Minor Adverse *Temporary, direct and short-term; more serious injuries could have longer-term effects.*	Not Significant
	High (*Families with children and adolescents* and *People who are physically or*			Low	Minor Adverse *Temporary, direct and short-term; more serious injuries could have longer-term effects.*	Not Significant

	mentally disadvantaged)	*The potential for major accidents are also assessed in a separate chapter.*	operated to the highest standards, within a highly regulated operational regime.			
Site workers	Medium (*Wider group* and *People who are materially disadvantaged*)	The potential effects for on-site risks to workers / contractors are adequately covered and assessed by other Chapters of the EIAR and other regulatory regimes (principally Health and Safety Authority (HSA) for Control of Major Accident Hazard (COMAH) site) and / or the fact that existing design measures, management systems, legal requirements, codes and standards such as Personal Protective Equipment provide adequate control. Therefore, low risk to human health is anticipated.	The design and installation of the Proposed Project incorporates appropriate safety and hazard management from the very beginning. The Proposed Project will be operated to the highest standards and subject to relevant legislative and other regulatory regimes during its operation. Some potential effects can be 'self-regulated' such as through good working practices, on-site health and safety measures and first aid provision.	Low	Minor Adverse *Temporary, direct and short-term; more serious injuries could have longer-term (or permanent) effects.*	Not Significant
	High (*Families with children and adolescents* and *People who are physically or mentally disadvantaged)*			Low	Minor Adverse *Temporary, direct and short-term; more serious injuries could have longer-term (or permanent) effects.*	Not Significant
Employment and income						
Local Communities	Low	There may be some opportunities for employment	None identified	Low	Minor Beneficial	Not Significant

	(*Families with children and adolescents)*	during operation of the plant, although as it will be controlled remotely, with relatively small numbers of site based staff (estimated as a maximum of about 10) any impacts are expected to be minimal.			*Permanent*	
	Medium (*Wider group* and *People who are physically or mentally disadvantaged)*			Low	Minor Beneficial *Permanent*	Not Significant
	High (*People who are materially disadvantaged*)			Low	Minor Beneficial *Permanent*	Not Significant
Wider societal infrastructure and resources						
Residents and users of services in the wider area	Medium (*All groups*)	There are not expected to be any impacts on residents and users of services in the wider area, during operation of the Proposed Project.	None identified	Negligible	Negligible *Permanent*	Not Significant
Radiation						
Residents and adjacent land users	Medium (*All groups*)	There are not anticipated to be any impacts on residents from EMF arising during the operational period.	Design to be within thresholds set out in appropriate guidance (including ICNIRP)	Negligible	Negligible *Permanent*	Not Significant

4.4.1.3 Decommissioning

The decommissioning phase impact assessment is set out in Table 4-22. It is noted that there will be a condition in the IE Licence (such as bond conditions related to CRAMP) which will define obligations in relation to decommissioning.

The impact assessment have been informed by the relevant sections as referenced, and are summarised in Sections 4.4.1.2.1 to 4.4.1.3.6.

In addition to the mitigation measures set out in Table 4-22, the mitigation measures set out in the other technical chapters of the EIAR which are linked to population and human health also apply. Relevant sections have been identified as part of the following summary.

4.4.1.3.1 Climate change mitigation and adaptation

The decommissioning phase of the Proposed Project is predicted to result in 5,562 tCO_2e (278 tCO_2e annualised), 92% of which is due to transport of waste material to a disposal facility. A detailed CCRA of the decommissioning phase has been scoped out. See Chapter 8 for further details. Relevant best practice mitigation measures have been identified in Chapter 8.

4.4.1.3.2 Air Quality

The Air Quality chapter notes that the greatest potential impact on air quality during the decommissioning phase is from dust emissions from the demolition and removal of buildings and materials and road traffic emissions. These are expected to be of a similar or lesser magnitude to those identified during the construction phase (but generally of a shorter duration) and have been assessed as per the construction phase methodology outlined in Chapter 7. Road traffic emissions are scoped out of the assessment. In the absence of mitigation, the likely effect of the dust impacts associated with the decommissioning phase will have a short-term, direct, negative and slight effect on air quality. The mitigation measures applicable to the construction phase (Chapter 7) are considered suitable for the decommissioning phase. The Cashla Peaker Plant will be regulated by the EPA under an Industrial Emissions licence, which will require the Licensee to prepare and maintain an Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP). The final site closure plan will be subject to approval from the EPA once all closure, restoration and aftercare requirements are nearing completion. The Proposed Project cannot be surrendered and formally closed until the EPA is satisfied that all closure, restoration and aftercare requirements have been met, in accordance with the Industrial Emissions licence.

4.4.1.3.3 Water quality or availability

With regard to the groundwater and surface water effects during decommissioning of the Cashla Peaker Plant and the associated underground transmission gas pipeline the following is noted in Chapter 12 Water. Full decommissioning of the plant and pipeline will be done in accordance with prevailing best practice and undertaken by GNI. It is not anticipated that best practice decommissioning will adversely impact the water environment and presents no specific residual impacts.

4.4.1.3.4 Land Quality

Chapter 11: Land, Geology and Soils, notes that, with respect to soils, there is likely to be a positive slight impact resulting in no significant effects during the decommissioning phase.

4.4.1.3.5 Noise and Vibration

Chapter 9: Noise and Vibration notes that activities during the decommissioning phase are likely to be similar to those for the construction phase. Residual decommissioning noise effects are negative, not significant and short-term.

4.4.1.3.6 Major Accidents and Disasters

Decommissioning of the AGI will be conducted following GNI's established procedures and the best practices in place at the time of closure. This process will include the safe isolation of all gas infrastructure, removal of the gas inventory, and de-energisation of equipment. Pipework will be purged, degassed, and rendered inert according to GNI's transmission decommissioning procedure AM/BP/107. Where applicable, any redundant underground infrastructure may be filled with grout to ensure long-term stability.

Process equipment will be repurposed with the operator's other facilities where possible or sold on the used-equipment market. If there is no viable re-use option available the equipment components will be removed to licenced recycling facilities and recycled as much as is possible.

Building and structural materials will be removed by licensed contractors for potential re-use and concrete foundations and roads will be broken up and removed for re-use as much as legislation allows. Subsurface concrete piling if required will be broken to 1m depth leaving remainder in the ground.

Once all equipment and structure material will be removed previously excavated soils will be reapplied where compatible with boundary vegetation. The onsite 220 kV substation will remain under the control of EirGrid and will form part of the national grid.

There are no likely impacts on the project or to off-site receptors during decommissioning in relation to major accidents and disasters. Full details are included in the Major Accidents and Disasters Chapter of this EIAR (Chapter 15). The summary of decommissioning impact assessment is provided in Table 4-22.

Table 4-22 - Decommissioning Impact Assessment

Baseline		Impact assessment				
Receptor	**Sensitivity**	**Impact**	**Mitigation**	**Magnitude**	**Residual effect**	**Significance**
Transport modes, access and connections						
Residents, Business owners and employees, Users of community assets and Walkers, cyclists and horse riders	Medium (*Wider group* and *Families with children and adolescents*)	Whilst there may be an increase in traffic during the decommissioning phase (including large volumes of materials being moved off-site), this is not expected to notably increase traffic in the area and therefore impacts on health and wellbeing for those in the area are not anticipated.	None identified	Negligible	Negligible *Permanent*	Not Significant
	High (*People who are physically or mentally disadvantaged* and *People who are materially disadvantaged*)			Negligible	Negligible *Permanent*	Not Significant
Community Safety						
Decommissioning workers, contractors	Medium (*Wider group* and *People who are materially disadvantaged*)	Decommissioning of the Proposed Project could increase the risk of injury or death for workers/ contractors. However, adherence to standard working practices and legislation will significantly reduce risks. The potential effects for on-site risks to workers / contractors are adequately covered and assessed by other Chapters	A demolition management plan will be implemented.	Low	Minor Adverse *Temporary, direct and short-term; more serious injuries could have longer-term effects.*	Not Significant
	High (*Families with children and adolescents* and *People who are*			Low	Minor Adverse *Temporary, direct and short-term; more serious injuries*	Not Significant

	physically or mentally disadvantaged)	of the EIAR and other regulatory regimes (principally Health and Safety Authority (HSA) for Control of Major Accident Hazard (COMAH) site) and / or the fact that existing design measures, management systems, legal requirements, codes and standards such as Personal Protective Equipment provide adequate control. Therefore, low risk to human health is anticipated.			*could have longer-term effects.*	
Employment and income						
Local Communities	Low (*Families with children and adolescents)*	The Proposed Project may provide opportunity for employment during decommissioning, although this is not expected to be significant.	None identified	Low	Minor Beneficial *Permanent*	Not Significant
	Medium (*Wider group* and *People who are physically or mentally disadvantaged)*			Low	Minor Beneficial *Permanent*	Not Significant
	High (*People who are materially disadvantaged*)			Low	Minor Beneficial *Permanent*	Not Significant
Wider societal infrastructure and resources						

Residents and users of services in the wider area	Medium (*All groups*)	There are not expected to be any impacts on residents and users of services in the wider area, during decommissioning of the Proposed Project.	None identified	Negligible	Negligible *Permanent*	Not Significant

4.5 Mitigation Measures

It is recognised that a Construction Environmental Management Plan (CEMP) and Construction Traffic Management Plan (CTMP) will be enacted during the construction phase, as is standard for projects of this scale. The CEMP will include mitigation measures to minimise impacts on land use and agricultural holdings during construction.

Where required, mitigation measures have also been listed under respective technical chapters Climate change mitigation and adaptation (Chapter 8), Air Quality (Chapter 7), Water Quality or Availability (Chapter 12), Land Quality (Chapter 11), Noise and Vibration (Chapter 9), and Major Accidents and Disasters (Chapter 15).

4.6 Cumulative Effects

The Proposed Project is not within the area covered by the Athenry Local Area Plan 2024-2030 and is 1 km from any land zoned within the Plan. Cumulative effects with this Plan are therefore not anticipated.

Following a review of Planning Applications in the local area, the Population and Human health assessment has not identified potential cumulative effects above and beyond what has been identified in respective technical chapters Climate change mitigation and adaptation (Chapter 8), Air Quality (Chapter 7), Water Quality or Availability (Chapter 12), Land Quality (Chapter 11), Noise and Vibration (Chapter 9), and Major Accidents and Disasters (Chapter 15).

It is to be noted that interactions with other critical infrastructure such as water supply are dealt with in relevant chapters and form material consideration in construction management plans. All work will be carried out in accordance with appropriate safety guidance and legislative requirements and that safety on the strategic road network will be maintained. Such considerations apply for the project in isolation and in combination with any other projects.

4.7 Residual Effects

Significant residual effects are anticipated during the construction phase in relation to access for residents and businesses and employees along a section of Lisheenkyle East Road due to its closure to facilitate installation of the cable. See Chapter 10 - Traffic & Transportation, Volume 2 of the EIAR, and CTMP for details as to how this will be managed. Further liaison with residents is taking place, but note that matters such as compensation are outside the scope of this assessment.

4.8 Monitoring Requirements

The monitoring of the effects of this development on Population and Human Health will take place in line with the recommendations set out within the specific chapters of the EIAR including air quality (Chapter 7) and noise and vibration (Chapters 9).

4.9 Difficulties encountered during preparation of this chapter

4.9.1 Data Limitations

This assessment of likely effects of the Proposed Project on population and human health is based on guidance and professional judgement and considers both the negative and positive contribution that the Proposed Project of the 'Cashla Peaker Plant' could have on receptors, including the presence of sensitive / vulnerable groups. It provides a high-level assessment of likely effects on population and human health based on a proportionate assessment.

Whilst it is possible to identify past trends in the incidence and prevalence of health conditions, there is no accepted method for predicting health into the future for all of the health effects that will be considered in the assessment. Where information is available to inform the assessment of health effects, it was referenced and incorporated into the assessment. Where information was not available, it was assumed that the population affected in the future assessment years will have the same health status as the population in the baseline. This limitation does not affect the robustness of the approach to assessment.

Whilst it was possible to identify changes to some of the wider health determinants relevant to the Proposed Project, health outcomes are dependent on multiple factors, some of which rest with individuals and/or fall outside the powers or influence of physical infrastructure and/or planning decisions. Identifying health effects of the Proposed Project and their significance is therefore a qualitative exercise.

The findings are based upon a high-level desk-based study of the area and initial information provided by the Project Development Team, along with consultants' professional judgement and knowledge based on similar development types. Information, where relevant, is also used from other technical assessments to help to assess the potential impacts of the Proposed Project on receptors.

In the absence of prescriptive guidance for human health assessment Study Areas, the likely effects of the Proposed Project on human health has been assessed within more than one Study Area i.e. the Proposed Project and its immediate environs and a wider buffer of up to 500 metres from the site boundary. It is considered that these Study Areas will capture the most relevant human health impacts likely to arise from the Proposed Project.

The human health assessment is by nature a cumulative assessment which considers the human health impacts of all environmental effects of the Proposed Project. Therefore, there will be a degree of overlap between this chapter and the other technical chapters (e.g. Air Quality, Noise and Vibration) that has also been summarised in the other technical chapters of the EIA Report.

5. Biodiversity

5.1 Introduction

Bord Gáis Energy Limited is applying to An Coimisiún Pleanála (ACP) for permission for a Strategic Infrastructure Development (SID) consisting of a Gas-Powered Peaker Plant and associated infrastructure at Pollnagroagh / Rathmorrissy, Athenry, Co. Galway which will be primarily fueled by natural gas. The project will include for an emission stack with a proposed height of 30 m and balance of plant, 220 kV electrical transformer, secondary fuel storage and transfer facilities, workshop, stores, car park and administration buildings, GNI146 Rathmorrissy Gas Pipeline (subject to Section 39A Consent under the Gas Act 1976, as amended), and Rathmorrissy Above Ground Installation (AGI), subject to the SID application, ancillary grid connection infrastructure, and ancillary infrastructure including internal roads, external lighting, security fencing, utilities and drainage, along with soft landscaping, within the administrative area of Galway County Council. Depending on the final technology used, the turbine will have a total output capacity of either 325MW or 334MW. For a full project description see Chapter 2.

The Proposed Project lands are hereafter referred to as the 'Proposed Project'.

The site of the Proposed Project is currently agricultural in nature and generally surrounded by other agricultural lands. The M18 motorway bounds the west of the Proposed Project, and agricultural lands are immediately to the north and east. The M6 motorway is to the south of the Proposed Project, and further north is the M17 motorway. The Proposed Projectwill be accessed off the L3103 ca. 900m north of the site through agricultural lands. Sporadic rural houses and agricultural properties are located within the vicinity of the proposed access point off the L3103. The underground cable (UGC) route, connecting the Proposed Project to the existing Cashla Sub-station is proposed along the northern access route to the Proposed Project, before turning west along the L3103 roadway to cross the M17 via HDD techniques. The UGC will then turn south along an unnamed local road, which it will follow as far as the Cashla Sub-station. 2no. crossings of the M6 are required along the local road, for which HDD techniques will be employed. See Chapter 2 for drawings and detailed description of the UGC route.

This Chapter outlines the baseline ecological conditions and potential ecological constraints found within the study area (the Site and its immediate surroundings, including any surface waterbodies and subsequent downstream areas) of the Proposed Project. Information and data on habitats and sites that are protected, of conservation value, or of ecological importance are detailed below.

5.2 Study Assessment and Methodology

This assessment has been undertaken in accordance with and has regard to the following relevant best practice guidelines, legislation, policies and plans:

- EPA Guidelines on the Information to be Contained in Environmental Impact Statements (EPA, 2022);
- EPA Advice Notes of Current Practice (in the Preparation of Environmental Impact Statements (EPA, 2003) (and revised advice notes 2015);
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Commission, 2013);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018);
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA 2009);
- Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM 2018; 2024 reprint);
- Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017);
- A Guide to Habitats in Ireland. The Heritage Council. The Heritage Council (Fossitt, J.A. 2000);
- Best Practice Guidance for Habitat Survey and Mapping. (Smith, G., O'Donoghue, P., O'Hora, K. & Delaney, E) The Heritage Council, Church Lane, Kilkenny, Ireland (2011);
- European Commission (EC) Habitats Directive 92/43/EEC;
- European Commission (EC) Water Framework Directive 2000/60/EC;
- European Commission (EC) Birds Directive 2009/147/EC;
- European Commission (EC) Birds and Natural Habitats Regulation 2011 S.I. NO. 477/2011 (Invasive Species);
- European Communities (Birds and Natural Habitats) Regulations, 2011-2015;
- Flora (Protection) Order, 2022;
- EIA Directive 2011/92/EU, as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014;
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018);
- The Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000;
- The Planning and Development Acts (2000, as amended);
- Planning and Development Regulations (2001, as amended), S.I. No. 600/2001
- Fourth National Biodiversity Plan 2023 – 2030;
- Galway County Heritage and Biodiversity Plan, 2024-2030 (present). Galway County Council;
- Galway County Development Plan, 2022 – 2028;
- Planning for Watercourses in the Urban Environment. Inland Fisheries Ireland 2020; and,
- All-Ireland Pollinator Plan 2021-2025[63]. National Biodiversity Data Centre[64].

The methodology used to carry out the various ecological surveys undertaken of the Site, to evaluate the ecological value and baseline ecological environment, and to prepare this impact assessment is outlined as follows.

[63] https://pollinators.ie/aipp-2021-2025/

[64] https://biodiversityireland.ie/

5.2.1 Desk Study

Sources of data including; published reports, records, datasets and on-line mapping, which were used to collate and compile information of ecological features of interest and importance within and around the Site include:

- National Parks and Wildlife Service (NPWS) webpage / data (last accessed 09/06/2025);
  - Information on sites designated for nature conservation, including spatial data (NPWS);
  - Habitats and species data
  - Wildfowl Sanctuaries
  - Red List of Terrestrial Mammals (Marnell et al, 2019)
- National Biodiversity Data Centre (NBDC) – specifically the M42N, M42P, M42T and M42U 2km grid squares which encompass the Proposed Project (last accessed 09/06/2025);
  - Protected species records
  - Invasive species records
- Environmental Protection Agency data (last accessed 09/06/2025));
  - Watercourses and lake spatial files
  - Water quality data
  - CORINE land cover data
- Geological Survey of Ireland data (last accessed 09/06/2025);
  - Underlying geology, soils and hydrogeology
- Bat Conservation Ireland (last accessed 09/06/2025);
  - Bat monitoring data
- Wetland Survey Ireland (last accessed 09/06/2025);
  - Information on identified wetland habitats within the study area.

5.2.2 Ecological Field Surveys

14 no. field surveys have been carried out at the Site, the results of which are presented in the relevant sections below. The summary of the field surveys are provided in Table 5-1.

Table 5-1 - Field surveys carried out at the Site

Survey Type	Surveyor	Date
Bat Activity Survey (1no.)	Dr. Caroline Shiel	Static detectors deployed 04/06/2025 to 17/06/2025
Winter Bird Survey (4no.)	Delichon Ecology	19/12/2024, 30/12/2024, 22/01/2025, 27/02/2025
Breeding Bird Survey (3no.)	Delichon Ecology	02/05/2025, 23/05/2025, 26/06/2025
Mammal Survey	AtkinsRéalis	07/02/2025
Smooth Newt Survey	AtkinsRéalis	01/07/2025

Survey Type	Surveyor	Date
Habitat and Plant Survey	AtkinsRéalis	07/02/2025, 06/06/2025
Preliminary Bat Roost Assessment/Bat Suitability Assessment	Dr. Caroline Shiel	07/02/2025
Invasive Species Survey	AtkinsRéalis	06/06/2025
Tree Survey	Independent Tree Surveys Ltd.	11/07/2025, 24/07/2025

The methodologies for each survey type are described in the following sections.

5.2.2.1 Preliminary Bat Roost Assessment/Bat Suitability Assessment

The site was walked on the 07 February 25 to assess the site for potential bat roosts and foraging areas. Particular focus was made on mature trees and structures present on Site. Survey methodology was based on the most recent Bat Conservation Trust guidelines (2023). The full methodology is included in Appendix 5.2.

5.2.2.2 Bat Activity (Detector) Survey

On 04/06/25 four Songmeter static bat detectors were deployed to monitor bat activity on site. The detectors were left in place until 17 June 25 which gave 13 no. consecutive nights of recordings (best practice recommends at least 5 consecutive nights). Detectors were programmed to switch on 20 minutes before sunset and switch off 20 minutes after sunrise. The locations of the static detectors are displayed in Figure 5-1. The full methodology is included in Appendix 5.2.

Figure 5-1 – Location of the static bat monitors

5.2.2.3 Mammal Survey

The Site was searched for signs of mammal activity, following best practice guidelines as per the National Roads Authority (NRA, 2009). The Site was also assessed for its overall potential to house protected mammal species. A camera trap was deployed on an additional visit on 3 July 2025 (until 8 July) to observe a series of burrows/dens to determine if they are in use (and by what species).

5.2.2.4 Breeding Bird Survey

The breeding bird survey methodology undertaken involved two line transects (See Figure 5-2) with all birds seen or heard recorded (Bibby *et al*. 2000 & BirdWatch Ireland, 2012). Birds were recorded in three distance bands from the observer: <25m, 25-100m and >100m.

Three survey visits were conducted; an early breeding season survey (before May 15) to identify and determine the occurrence abundances of resident breeding birds and two later breeding season surveys (after May 15) to identify the occurrence and abundance of migratory breeding bird species.

The survey area extent and the line transect locations were based on the footprint and surrounding environs of the Proposed Project. The full methodology is included in Appendix 5.1.

The line transect locations are presented in Figure 5-2. The survey locations remained the same for both field visits.

Three field walkover surveys were undertaken between May 2025 and June 2025, during suitable weather conditions (Bibby et al. 2000). Survey dates are provided in Table 5-2 - Breeding bird survey dates below.

Table 5-2 - Breeding bird survey dates

Survey Date and Period	Survey Time (Extent)	Survey conditions	Survey Effort
May 02 2025 (Early Season)	07:04 – 07.22	Bright, dry and cool. Good to Excellent visibility, Octas 2/8. No rain, Windspeed BF 0-1 North.	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.
May 23 2025 (Late Season)	07.02 – 07.33	Good to Excellent visibility, Octas 7/8. No rain, Windspeed BF 0-1 South.	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.
June 26 2025 (Late Season)	07.08 – 07.36	Octas 3/8. No rain. Excellent Visibility, Windspeed BF 0-1 W / SW.	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.

All bird species encountered (seen or heard) during the surveys were recorded, together with the abundance of each species. Birds flying over the site were also included as part of the observations. Casual records of birds encountered during the spot counts and field walkovers, but outside of dedicated survey period were also noted.

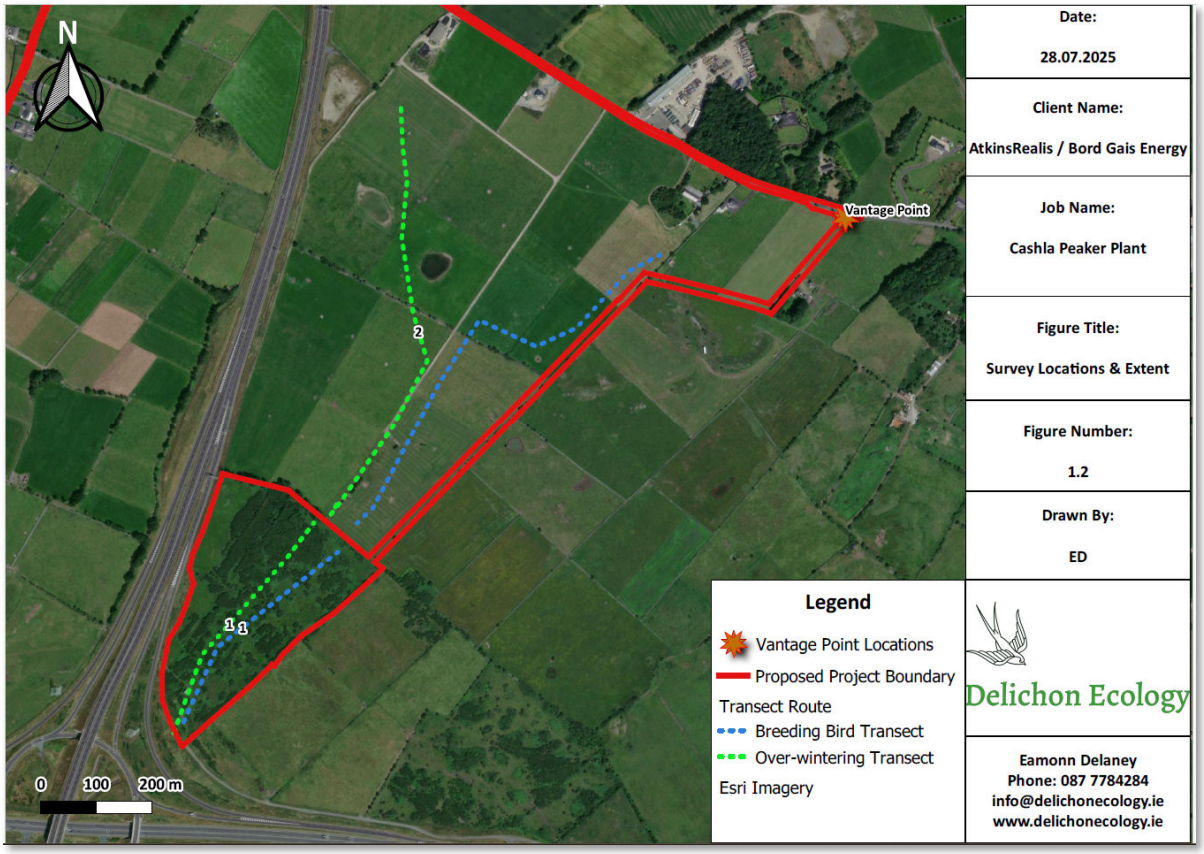


Figure 5-2 - Survey Locations & Extent

5.2.2.5 Wintering Bird Survey

The wintering bird survey methodology undertaken for the Proposed Project included a series of line transects, field scans and distribution mapping from vantage points affording good views. The bird surveys were conducted in accordance with the methodology described by Bibby et al. (2000), BirdWatch Ireland (2021) and line transect methodologies presented in BirdWatch Ireland (2012). The survey area extent was based on the footprint and surrounding environs of the Proposed Project.

A widely used method for wetland and waterbirds is that described by Bibby (2000) as a 'look-see' approach which is an instantaneous count from one or more (or continuous) viewpoints over a subject waterbody or larger wetland area/site. The walkover surveys were supplements by two Vantage Point look-see locations which provided an overview of the northern section of the study area, in particular the access road serving the proposed Peaker Plant.

Four field walkover surveys were undertaken between December 2024 and February 2025, between 08.00 – 17.00 hrs, during suitable weather conditions (Bibby et al. 2000). Survey dates are provided in Table 5-3 below. The location and extent of the line transect surveys and Vantage Points are presented in Figure 5-2. The full methodology is included in Appendix 5.1, Volume 3 of the EIAR.

Table 5-3 - Over-wintering bird survey dates

Survey Date	Survey Effort	Survey conditions
December 19 2024	Wintering Bird Survey – spot counts, Vantage Point Look-see in accordance with Bibby et al., (2000)	Octas 1/8, Visibility Good – Excellent, BF 1-2 NW, No rain
December 30 2024	Wintering Bird Survey – spot counts, Vantage Point Look-see in accordance with Bibby et al., (2000)	Octas 8/8, Visibility Good, BF 2-3 SW, No rain
January 25 2025	Wintering Bird Survey – spot counts, Vantage Point Look-see in accordance with Bibby et al., (2000)	Octas 4/8, Visibility Good - Excellent, BF 0-1 SW, No rain
February 27 2025	Wintering Bird Survey – spot counts, Vantage Point Look-see in accordance with Bibby et al., (2000)	Octas 4/8, Visibility Good - Excellent, BF 0-1 W, No rain

All bird species encountered (seen or heard) during the surveys were recorded, together with the abundance of each species. Birds flying over the site were also included as part of the observations. Casual records of birds encountered during the spot counts and field walkovers, but outside of dedicated survey period were also noted.

5.2.2.6 Habitat Survey

The habitats present within and in proximity of the Site were mapped as per *A Guide to Habitats in Ireland* (Fossitt, 2000). Floral species lists were gathered for each habitat, and information regarding overall condition, structure and connectivity of the habitat was noted. Habitat photographs were also taken.

5.2.2.7 Smooth Newt Survey

2 no. ponded areas in proximity to the Site were surveyed for smooth Newt activity. The torching method as described in Irish Wildlife Trust National Smooth Newt Survey 2023 was used to survey both ponds.

Torching is the most successful method of newt surveying after trapping. To carry out a torch survey the site was visited at night shortly after sunset, as this is when smooth newts are most active. Torching involved moving around the waterbody perimeter and stopping every 2 m to torch. Torching is carried out by shining a high-

powered torch into the water from the bank outward and examining the water for newts, paying particular attention to examine amongst vegetation and on the pond floor as newts are more difficult to see there. Surveyors ensured that they did not shine the beam further up the bank as this may have disturbed newts in areas not yet surveyed. A high-powered torch was used for torching, desirably 500,000 candle-watts in power. Surveyors were careful not to leave the torch beam shining on detected newts for too long for risk of damaging their eyes.

5.2.2.8 Invasive Alien Species (IAS) Survey

The Site was surveyed for invasive plant species listed on the third schedule of the EC (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/ 2011. IAS locations were mapped and photographed, if present.

5.2.3 Evaluation of Ecological Receptors

Ecological features can be important for a variety of reasons. Importance may relate, for example, to the quality or extent of the site or habitats found within, or the rarity of the habitat and / or species, the extent to which such habitats and / or species are threatened throughout their range, or to their rate of decline[65].

The importance of an ecological feature was considered within a defined geographical context. The frame of reference used to determine ecological value relied on known and published accounts of the feature's ecological importance, rarity and distribution combined with professional judgement.

The following geographic frame of reference was used for evaluating the importance of ecological features within the Site:

- International importance;
- National importance;
- County importance;
- Local importance (higher value); and,
- Local importance (lower value).

The geographical context for determining the value of ecological receptors followed recommendations as outlined in the Guidelines for Assessment of Ecological Impacts of National Roads Scheme, National Roads Authority (2009). This methodology is consistent with the Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018, 2024 reissue).

5.2.4 Determining Ecological Significant Effects

CIEEM (2018, 2024) define an ecologically significant impact as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographic area.

The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified (CIEEM, 2018, 2024). The significance of predicted effects has been assessed in line with National Roads Authority Guidelines for Assessment of Ecological Impacts of National Road Schemes, (NRA, 2009) and best scientific evidence as well as professional judgement. The evaluation of significant effects should

65 NRA's Guidelines for Ecological Impact Assessment of National Road Schemes (NRA, 2009), Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (CIEEM 2018).

always be based on the best available scientific evidence. If sufficient information is not available, further survey or additional research may be required. In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect should be assumed. Where uncertainty exists, it must be acknowledged in the ecological impact assessment.

5.2.5 Mitigation and Overall Residual Ecological Impact

Where significant impacts have been identified, the mitigation hierarchy has been taken into account considered, as suggested in the 2018 Ecological Impact Assessment Guidelines and 2022 EPA Guidelines, which sets out a sequential approach of avoidance of impacts where possible, application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, along with any necessary compensation measures, and opportunities for enhancement incorporated, residual impacts have then been identified.

Overall residual, or mitigated, ecological effects are assessed by taking account of any expected beneficial ecological effects and those measures which have been integrated within the project proposals in order to avoid, eliminate or reduce the significance of ecological impacts (and any further recommended measures which attach a high probability of successful implementation). The following widely accepted strategy for mitigation (Chapter 6 of the CIEEM Guidelines (2024)) has been employed (Table 5-4).

Table 5-4 - Approach to mitigation taken from CIEEM guidelines (2024)

Avoidance	Where viable, the project has been re-designed to avoid adverse ecological effects.
Elimination	Where possible and feasible, measures which eliminate adverse ecological effects are employed.
Reduction	Measures intended to reduce the significance of adverse ecological effects are employed where options for avoidance or elimination have been exhausted or are deemed to be impractical.
Compensation	Where adverse ecological effects cannot be avoided or eliminated or reduced in significance to an acceptable level, consideration is given to compensating for residual adverse effects.
Remediation	Where adverse ecological effects are unavoidable, consideration is given to undertaking limiting remedial works.
Enhancement	Consideration is given to providing opportunities for ecological improvement, enhancement and the realisation of beneficial ecological effects.

5.2.6 Uncertainty in Assessment

In Impact Assessment, uncertainty is associated with both the prediction and assessment of environmental effects. The precautionary principle, a central feature of environmental legislation, planning policy and professional guidance, provides a mechanism for managing uncertainty in ecological assessment – the precautionary principle requires that where there is a lack of full scientific certainty, the protection of the environment is prioritised.

Where confidence or uncertainty is expressed, an objectively defined scale (see Table 5-5[66]) is used. Decisions as to confidence in predictions are necessarily based primarily on expert judgement.

Table 5-5 - Confidence and uncertainty

Confidence Level	Details
Certain	Probability estimated at 95% chance or higher.
Probable	Probability estimated at above 50% but below 95%.
Unlikely	Probability estimated at above 5% but below 50%.
Extremely Unlikely	Probability estimated at less than 5%.

5.3 Receiving Environment

5.3.1 Hydrology and Hydrogeology

The Water Framework Directive (WFD), Directive 2000/60/EC, was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters. Its objectives include the attainment of good status in water bodies that are of lesser status at present and retaining good status or better where such status exists at present (EPA, 2023). Status relates to the condition of the water in the waterbody as defined by its chemical status and its ecological status, whichever is worse.

The Site is situated in the *Galway Bay South East* catchment and the *Carrowmoneash [Oranmore]_SC_010* subcatchment. Within this subcatchment, the nearest surface waterbody is the *Carrowmoneash (Oranmore)_010* stream (6.34km away), which ultimately flows into the *Oranmore Bay* transitional waterbody and the *Inner Galway Bay North* coastal waterbody.

The Site is situated above the *GWDTE-Galway Bay Complex Fens* and *Clarinbridge* ground waterbodies.

The *GWDTE-Galway Bay Complex Fens* ground waterbody is poorly documented, and it is unclear how ground water travels within this waterbody. The nearest surface waterbodies to the Site that fall within this same ground waterbody are the *Carrowmoneash (Oranmore)_010* River which flows into *Oranmore Bay* as described above. Given the uncertainty regarding this ground waterbody, it is precautionarily assumed that ground water from the Proposed Project could drain into the above waterbodies, despite the distance (>6km).

The *Clarinbridge* ground waterbody traditionally encompasses the *GWDTE* body, and is described as "*The GWB occupies the area between Galway, Athenry, Kinvara and Loughrea, with Clarinbridge at a central location along the coastline. The land surface is low lying and relatively flat, with elevations ranging from sea level to 60 mAOD*." (GSI, 2004). It drains in a south-westerly direction into the *Clarinbridge_050* and *Kilcolgan_050* rivers. These both deposit into the *Dunbulcaun Bay* transitional water body and subsequently *Inner Galway Bay South* coastal waterbody.

Table 5-6, , highlights the latest status and risk of each of these waterbodies. The relevant hydrology is highlighted in Figure 5-3, and the hydrogeology in Figure 5-4.

[66] The confidence levels employed were originally set out in an earlier (2006) version of the CIEEM guidelines, have been adapted and reproduced in several other guidance documents since then, and are widely applied and accepted in Ecological Impact Assessment.

The groundwater vulnerability to contamination under the Site is classified as a combination of ‘Extreme’ and ‘Rock at or near surface or karst’ (GSI, 2025). The bedrock aquifer underlying the Site is ‘Regionally Important Aquifer – Karstified (conduit)’, and the underlying soils are a combination of ‘Shallow well drained mineral (mainly basic)’ and ‘deep well drained mineral (mainly basic)’.

Table 5-6 - Waterbodies relevant to the Proposed Project

Name	Waterbody Type	EU Code	Latest WFD Status	WFD Risk Status	Relevance to the Proposed Project
Surface Waterbodies					
Carrowmoneash (approx. 6.3 km SW of the Proposed Project)	River	IE_WE_29C050400	Poor	Review*	Closest surface waterbody within the same sub-catchment
Clarinbridge River (approx. 2.7 km SE of the Proposed Project)	River	IE_WE_29C020400	Poor	At Risk	Downstream of the Site in the Clarinbridge ground waterbody
Kilcolgan River (approx. 8.4km S of the Site)	River	IE_WE_29K010600	Poor	At Risk	Downstream of the Site in the Clarinbridge ground waterbody
Transitional Waterbodies					
Oranmore Bay (approx. 9.2 km SW of the Site)	Transitional	IE_WE_170_0500	Unassigned	Not at Risk	Downstream of the Carrowmoneash Stream
Dunbulcaun Bay (approx. 9.5 km SW of the Site)	Transitional	IE_WE_160_0800	Good	Not at Risk	Downstream of the Kilcolgan and Clarinbridge Rivers
Coastal Waterbodies					
Inner Galway Bay North (approx. 11.5 km SW of the Site)	Coastal	IE_WE_170_0000	Good	Not at Risk	Downstream of Oranmore Bay
Inner Galway Bay South (approx. 12.6 km SW of the Site)	Coastal	IE_WE_160_0000	High	Not at Risk	Downstream of Dunbulcaun Bay
Sub-catchments					
Carrowmoneash	Sub-catchment	29_6	N/A	N/A	Underlying sub-catchment
Catchments					
Galway Bay South East	Catchment	29	N/A	N/A	Underlying catchment
Groundwater bodies					
GWDTE-Galway Bay Complex Fens (SAC000268)	Groundwater	IE_WE_G_0087	Good	Review*	Underlying groundwater body
Clarinbridge (IE_WE_G_0008)	Groundwater	IE_WE_G_0008	Good	Review*	Underlying groundwater body

Note: * A WFD Status classification by the EPA (Environmental Protection Agency) of Review / Under Review means that the agency does not currently have enough evidence or data to officially classify a water body (such as a river, lake, or coastal area) as "At Risk" or "Not at Risk" of failing its water quality objectives under the Water Framework Directive. It signifies that the water body is undergoing closer investigation to determine its true ecological or chemical health.

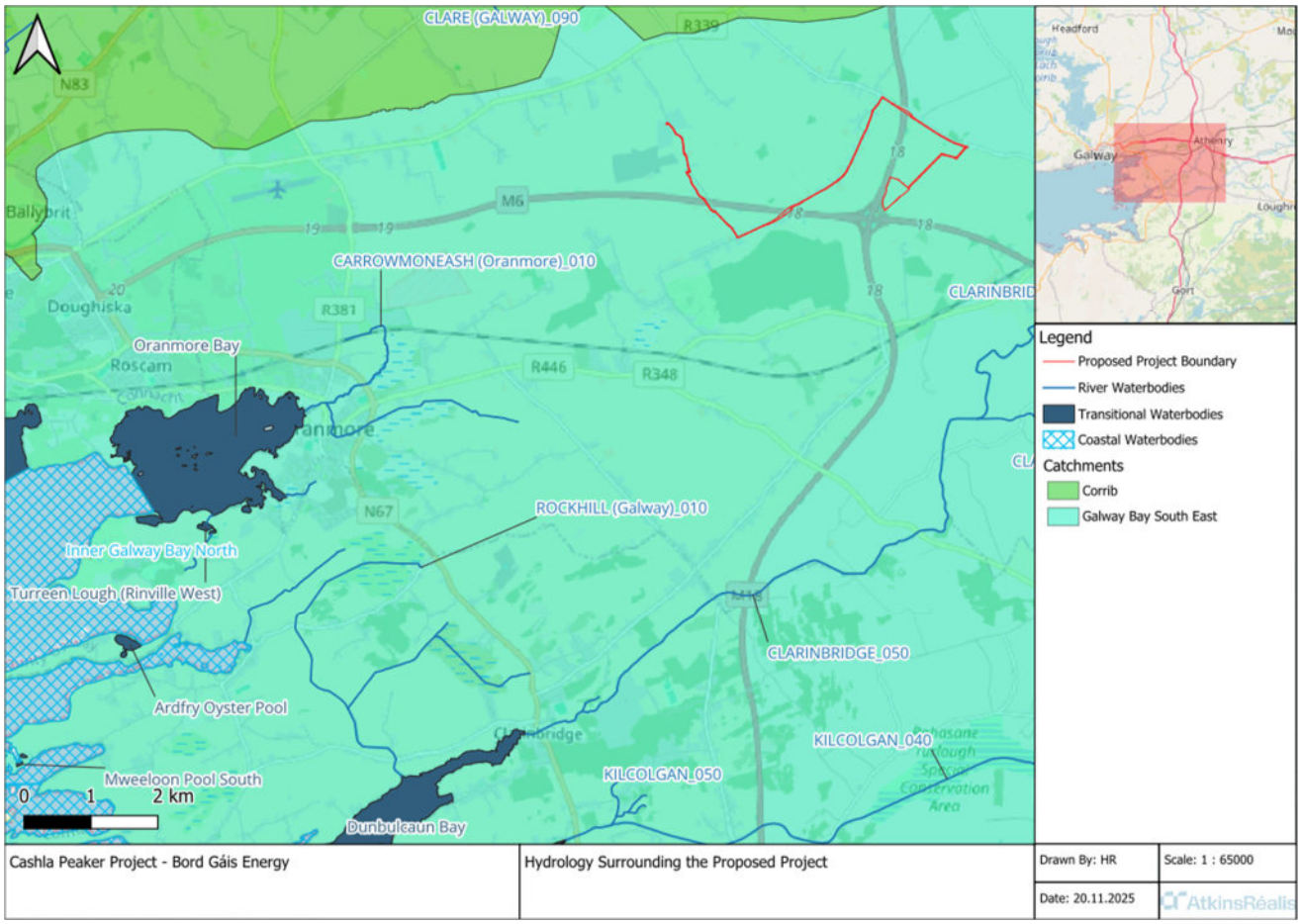


Figure 5-3 - Relevant hydrological features associated with the Proposed Project

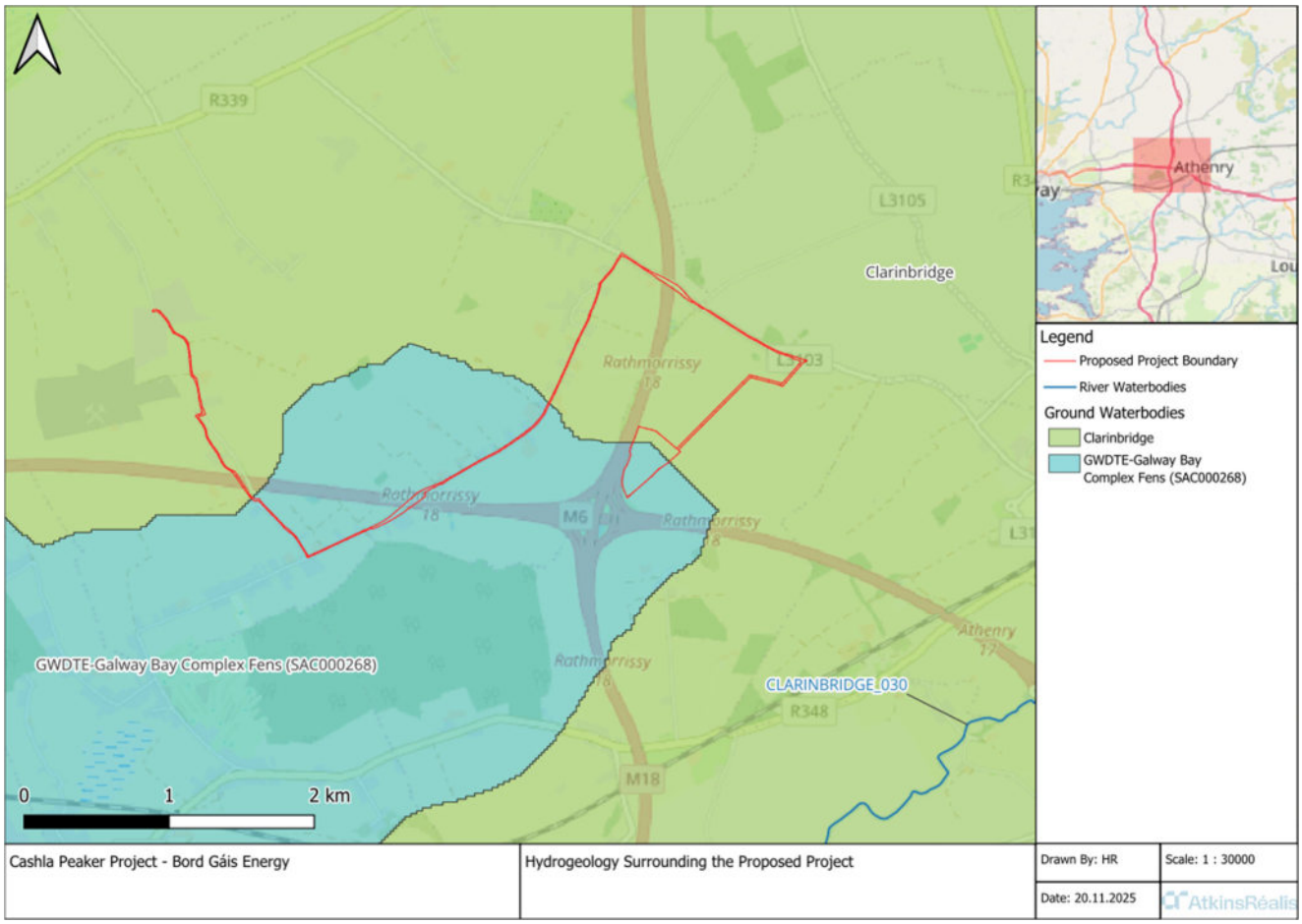


Figure 5-4 - Hydrogeology relevant to the Proposed Project.

5.3.2 Designated Conservation Areas

5.3.2.1 European Designated Sites (Natura 2000 Sites)

The potential for impacts on European Sites within the '*zone of influence*' (ZoI) of the Site was considered. Full details of the assessment are outlined in the accompanying Appropriate Assessment and Natura Impact Statement, (AtkinsRéalis, 2025a). The ZoI of a project is the area over which ecological features may be subject to significant effects as a result of the project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the Site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2024).

Thus, given the nature, scale and extent of the Proposed Project in the Athenry area, the potential zone of influence will consider European Sites with regard to the location of a European site, the Qualifying Interests of the site and their potential mobility outside that European site, the Cause-Pathway-Effect model and potential environment effects of the project.

The Proposed Project does not lie within any European Site.

There are 11 no. European Site within the potential ZoI of the Proposed Project (8no. Special Areas of Conservation; SACs, and 3no. Special Protection Areas; SPAs), as outlined in Table 5-7 below.

Table 5-7 - European Sites in proximity to the Proposed Project

European Site (Site Code)	Linear Distance & Direction from Proposed Project
Lough Corrib SAC (000297)	6.95 km NW
Galway Bay Complex SAC (000268)	7.04 km SW
Rahasane Turlough SAC (000322)	7.72 km S
Monivea Bog SAC (002352)	9.42 km NE
Castletaylor Complex SAC (000242)	11.66 km S
Lough Fingall Complex SAC (000606)	12.34 km S
Kiltiernan Turlough SAC (001285)	13.35 km S
Ardrahan Grassland SAC (002244)	13.90 km S
Rahasane Turlough SPA (004089)	7.72 km S
Cregganna Marsh SPA (004142)	8.69 km SW
Inner Galway Bay SPA (004031)	9.11 km SW

The nearest European Site (Lough Corrib SAC; IE000297) is almost 7km from the Proposed Project, which is such a distance that no viable pathway exists between the two via either land or air. This rationale can be extended to all European Sites further afield by proxy, and such no land/air pathway exists between the Proposed Project and any European Sites.

The nearest surface water body (Carrowmoneash River) in the same sub-catchment as the Proposed Project is 6.34km away, a distance at which surface water runoff is unlikely to travel. As such there exists no hydrological pathway between the Proposed Project and any European Sites via surface water hydrological connectivity.

Groundwater, which may become exposed during construction and/or excavation works, may move in a southwestern direction, ultimately draining into the overlying surface waters mentioned above and into Galway Bay (via Oranmore Bay and Dunbulcaun Bay). Some sections of the Site are classified as having groundwater that is ‘extremely vulnerable’ to contamination upon exposure (GSI, 2025). As such, a hydrogeological pathway exists between the Proposed Project and European Sites downstream via groundwater pathways. These European Sites are Galway Bay Complex SAC, Cregganna Marsh SPA and Inner Galway Bay SPA (Figure 5-5).

The accompanying Appropriate Assessment (AA) and Natura Impact Statement (NIS) (AtkinsRéalis, 2026) detail mitigation to ensure that no impacts on Galway Bay Complex SAC, Cregganna Marsh SPA and Inner Galway Bay SPA will occur as a result of the Proposed Project.

5.3.2.2 Natural Heritage Areas

A Natural Heritage Area (NHA) is the basic designation for wildlife sites. These sites are considered to represent important habitats for species of plants and animals whose habitat needs protection[67]. These sites are protected under the Wildlife Amendment Act (2000)[68]. Proposed Natural Heritage Areas (pNHA) are those which have been published on a non-statutory basis, and have yet to be statutorily designated. These sites are of significance to flora, fauna, and their respective habitats. These sites will be designated on a phased basis over the coming years. Prior to designation pNHAs are subject to limited protection[69].

The Proposed Project does not overlap with any NHA or pNHA (Figure 5-6). The nearest pNHA is the *Galway Bay Complex pNHA (7000268)* approximately 7.05km SW of the Site and the nearest NHA is the *Cregganna Marsh NHA (000253)* approximately 8.67km SW of the Site (Figure 5-6). These two areas directly overlap with two European Sites: Galway Bay pNHA overlaps Galway Bay Complex SAC, and Cregganna Marsh NHA overlaps Cregganna Marsh SPA. As such they are assessed by proxy in Section 5.3.2.1.

[67] https://www.npws.ie/protected-sites/nha

[68] https://www.npws.ie/legislation/irish-law/wildlife-amendment-act-2000

[69] https://www.npws.ie/protected-sites/nha

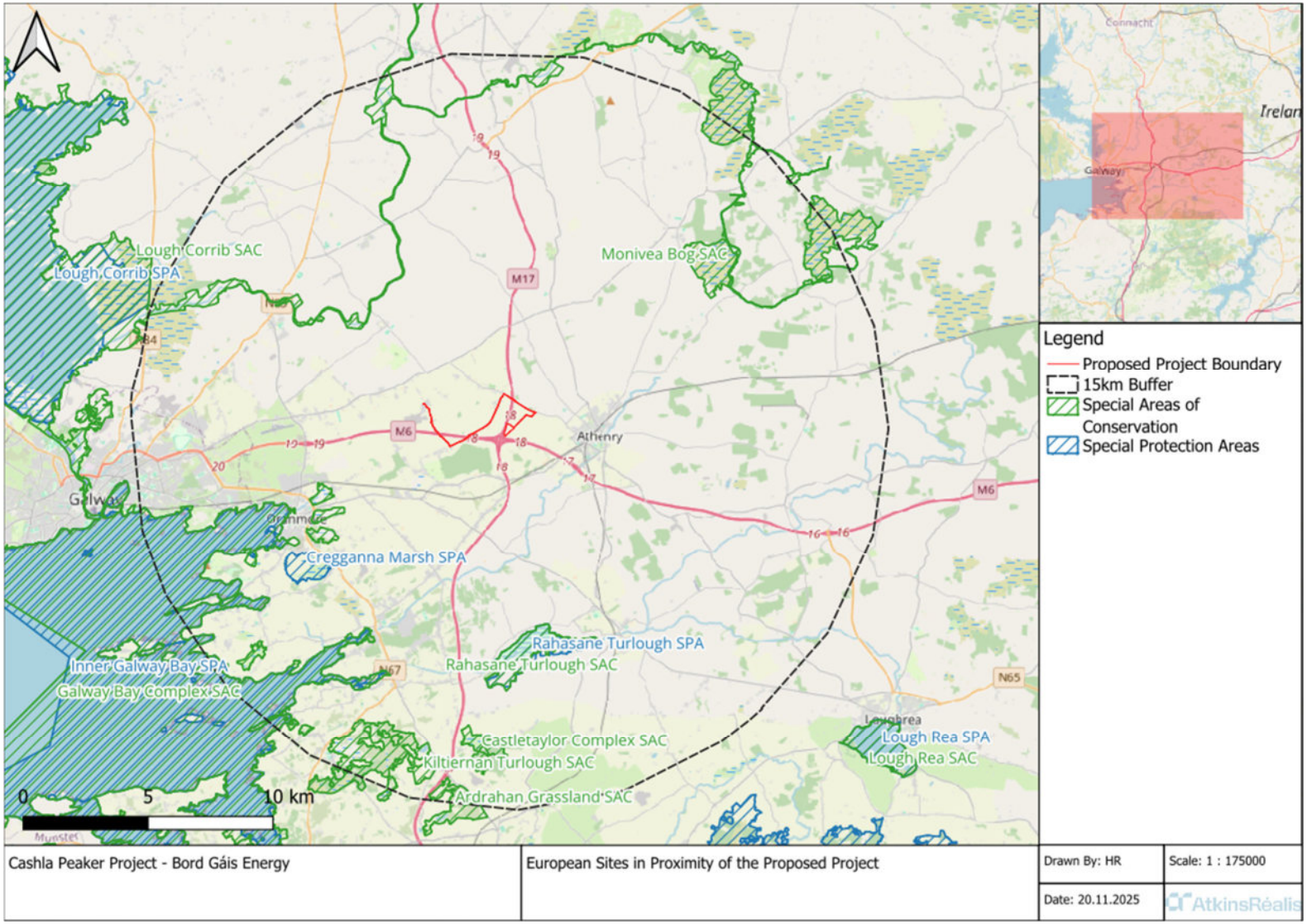


Figure 5-5 - European Sites in proximity to the Proposed Project

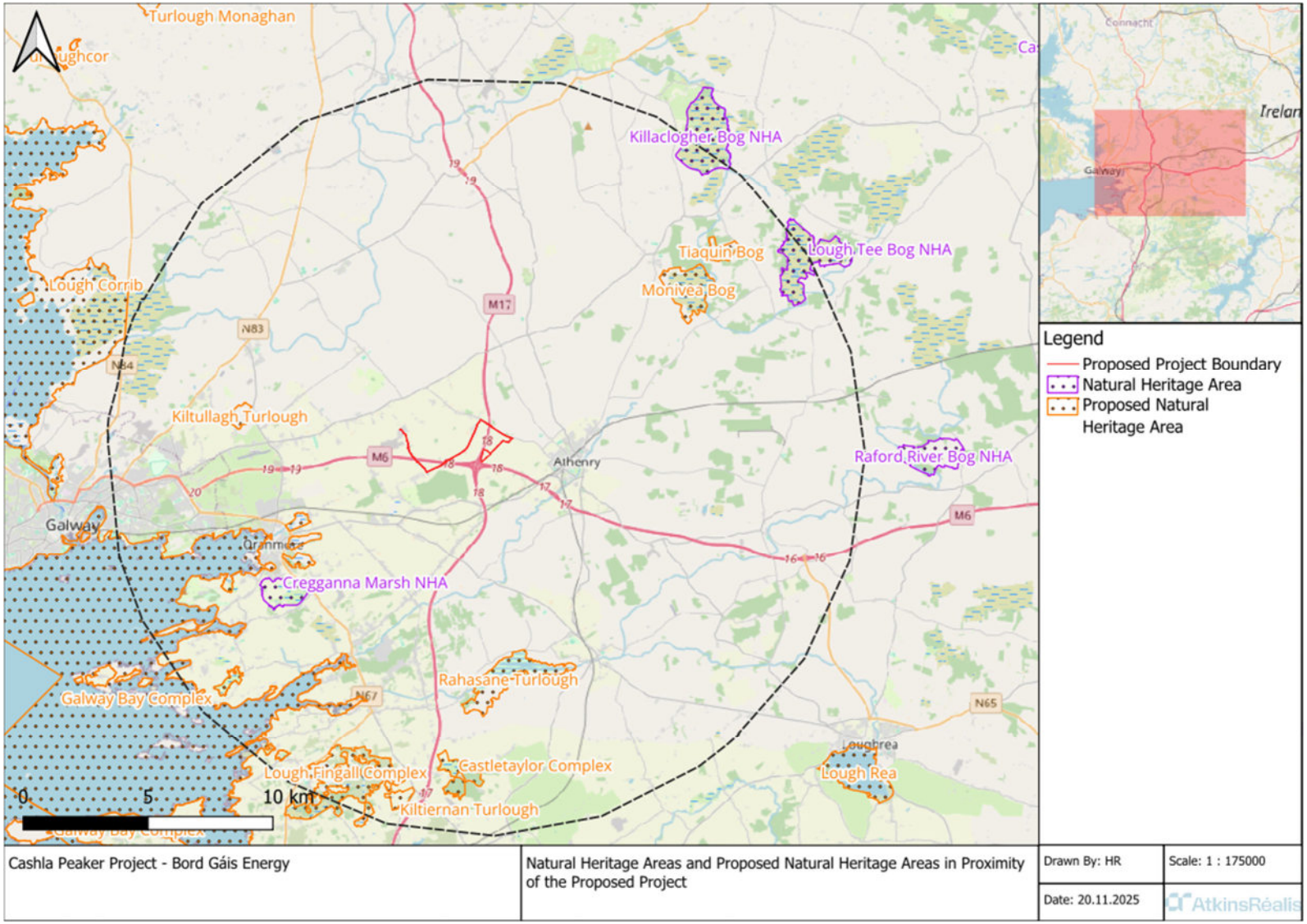


Figure 5-6 – Natural Heritage Areas and proposed Natural Heritage Areas in proximity to the Proposed Project

5.3.2.3 Other Known Ecological Sites

There are no National Parks or National Nature Reserves within the immediate vicinity of the Proposed Project. The closest examples of each are the Burren National Park which is over 25 km from the Proposed Project, and the Ballynastaig Wood Nature Reserve which is over 22.5 km from the Proposed Project. There is no direct or indirect connectivity from the Proposed Project to any National Parks or Nature Reserves.

A review of wetland sites from Wetland Survey Ireland datasets[70], did not identify any wetlands within or adjacent to the Proposed Project. There are no wetland sites within the Proposed Project designated under the Convention of Wetlands, i.e. Ramsar Sites.

A review of the Inventory of Long Established and Ancient Woodlands of Ireland[71] and the National Survey of Native Woodlands[72] did not identify any protected woodlands within or adjacent to the Proposed Project.

Datasets were reviewed of the Irish Semi-natural Grassland Survey (2007–2012), published by Department of Culture, Heritage and the Gaeltacht[73]. There are no semi-natural grasslands within the Proposed Project, however mapped (by ISGS, 2012) Annex I habitat for 'orchid-rich calcareous grassland [6210]' is located within 450m of the Proposed Project (Figure 5-7).

Furthermore, as per the NPWS' Article 17 reporting[74] there are three additional instances of mapped Annex I habitats in the vicinity of the site (Figure 5-7). These are 'cladium fens* [7210]' approximately 350m southwest of the site boundary and approximately 550m southeast of the grid connection route (GCR), 'dry heaths [4030]' approximately 930m south of the GCR and 'turloughs [3180]' approximately 1.6km southwest of the GCR. It should be noted that the mapped instance of dry heath may be outdated, as this area is now represented by a conifer plantation (as per Google Earth, March 2025).

No other Annex I habitats are in the vicinity of the Proposed Project.

[70] http://www.wetlandsurveysireland.com/wetlands/map-of-irish-wetlands--/map-of-irish-wetlands---map/index.html

[71] Perrin, P.M. & Daly, O.H. (2010) A provisional inventory of ancient and long-established woodland in Ireland. Irish Wildlife Manuals, No. 46. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

[72] https://maps.biodiversityireland.ie/Map

[73] <https://data.gov.ie/dataset/irish-semi-natural-grassland-survey-2007-2012>

[74] https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17-gis-and-metadata-downloads

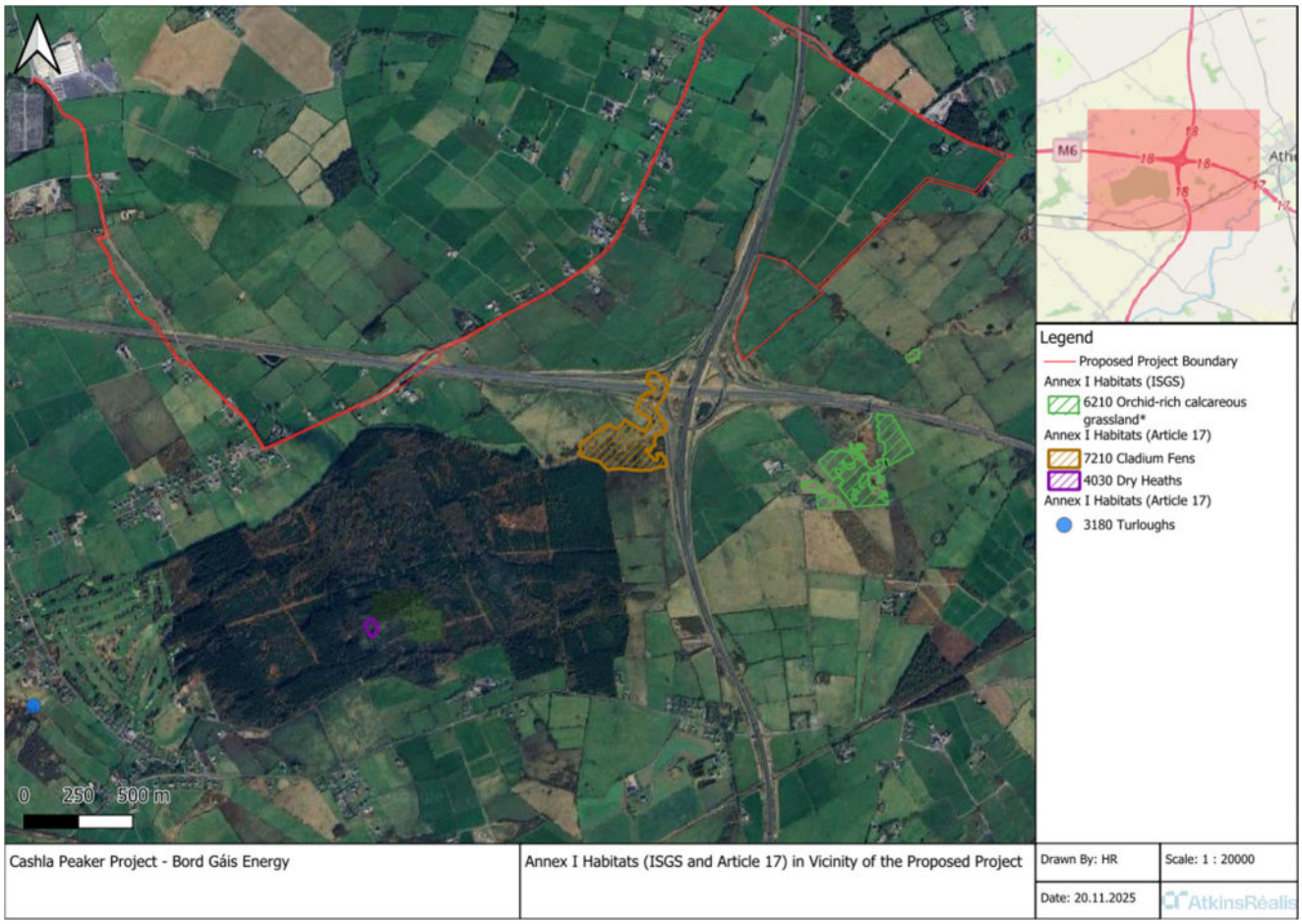


Figure 5-7 – Annex I orchid-rich calcareous and neutral grassland [6210], cladium fens [7210], dry heaths [4030] and turloughs [3180] in proximity to the Proposed Project

5.4 Field Survey Results and Species Records

5.4.1 Habitats and Flora

5.4.1.1 Habitats

The main habitat present on site is improved agricultural grassland (GA1), which occupies the Site of the Proposed Project, as well as the surrounding lands to the north and east. The Site is bounded by a stone wall (BL1) to the north and east; the most northern section is further bounded by a treeline (WL2), and the eastern section by hedgerow (WL1) atop the wall. There is a small structure (BL3) within the Site boundary. In the surrounding lands are four ponds, areas of scrub (WS1) and an exposed calcareous rock/calcareous spring (ER2/FP1) habitat. Immediately east of the Site there is a small area of scrub (WS1) and immature woodland (WS2). In the field to the north, and slightly overlapping with the proposed access road, is a small area which is an exposed sand, gravel till (ED1) habitat. The habitats are displayed in Figure 5-8 and individual descriptions for habitats are in the following text.

The grid connection route is predominantly along road (BL3) with occasional areas of low-quality dry meadows and grassy verges (GS2) along the motorway crossing points.

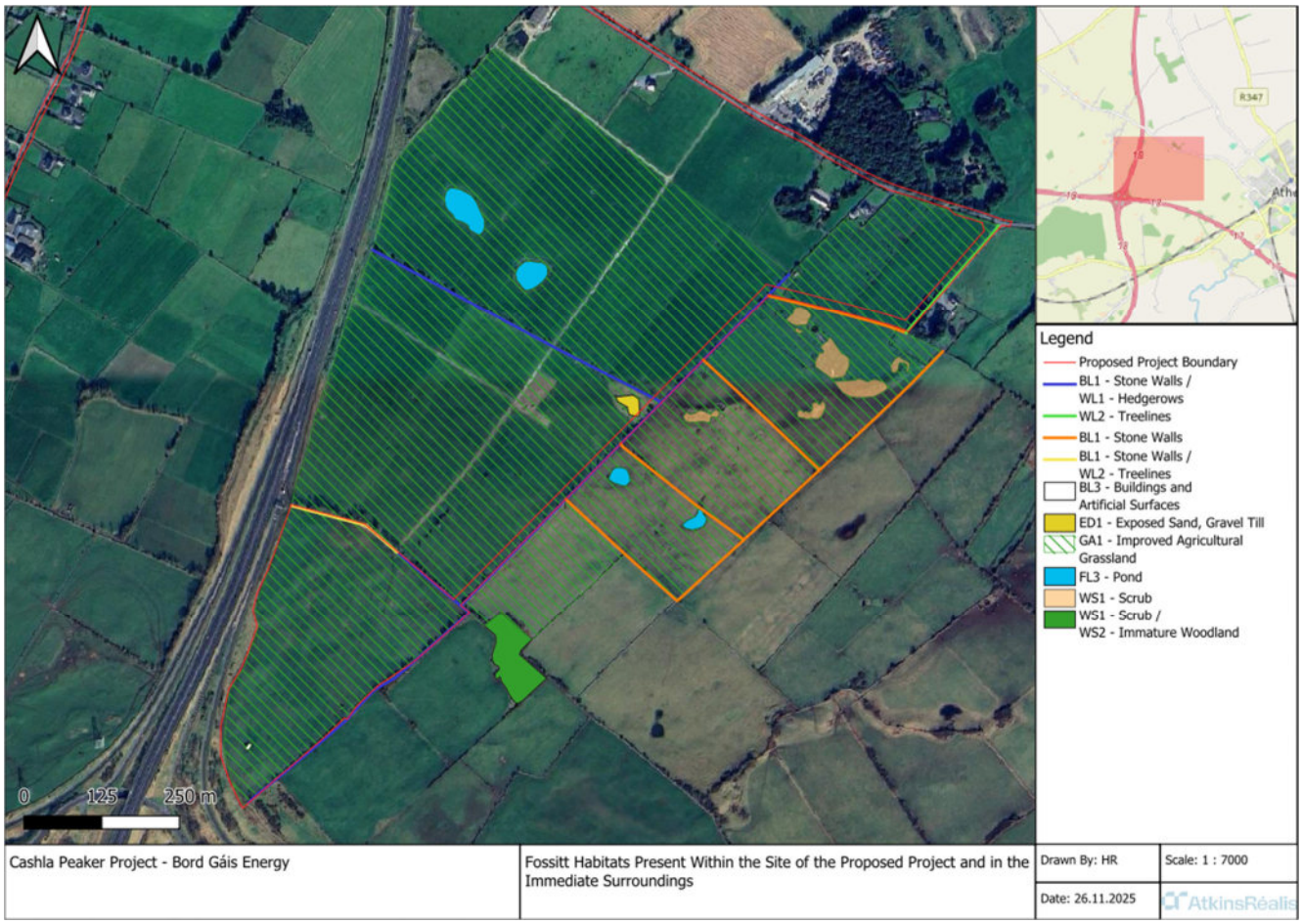


Figure 5-8 - Habitats (as per Fossitt) present within, and in the vicinity of, the Proposed Project

- The GA1 habitat (Figure 5-9) constitutes the majority of the Proposed Projectarea and has been actively grazed during some surveys. During the IAS survey it was however noted that recent grazing had not occurred, and the grass had been allowed to grow. Species diversity is very low, and this habitat possesses very limited ecological value.
- The BL1 with WL1 habitat (Figure 5-10) is predominantly made up of two native species: hawthorn (*Crataegus monogyna*) and brambles (*Rubus* sp.). The hedgerow is gappy in places but present along the majority of the eastern boundary. This habitat nonetheless has ecological value.
- The BL1 with WL2 habitat (Figure 5-11) is predominantly made up of ash (*Fraxinus excelsior*), and a large presence of ash dieback (*Hymenoscyphus fraxineus*) was noted on the trees. This habitat has ecological value.
- The BL3 (Figure 5-12) is a small concrete structure, with a metal roof and fully exposed to the air. It has negligible ecological value.
- There is no WS1 habitat within the Site boundary, however, multiple instances are present in the areas immediately surrounding it (e.g. Figure 5-13). Species compositions are typically a mixture of hawthorn, brambles and gorse (*Ulex Europaeus*). This habitat has ecological value.
- The WS1 and WS2 area to the east (Figure 5-14) is comprised of a mixture of gorse and blackthorn (*Prunus spinosa*). This area has significant ecological value.
- The ED1 area (Figure 5-15) overlaps with the proposed access route. The floral ecological quality is low, however, there is a fox den present within this habitat.
- The ER2/FP1 habitat (Figure 5-16) is a small well-like area, lined with stones and fern species with a hawthorn canopy. There are no works proposed in this area, which is outside of the redline boundary. This habitat has the potential to house different types of fauna.
- Groundwater dependant pond which is present year round (FL3/FL6) (Figure 5-17).
- The grid connection route is predominately BL3 comprising tarmac roads, these have negligible ecological value.
- There are a number of small areas of semi natural habitats present along the grid connection route located at the HDD motorway crossing points and the temporary passing bays. The habitats present include GS2 Dry meadows and grassy verges, WL1 Hedgerows, WS1 Scrub and BL1 Stone walls. The HDD crossings are located on the historic road alignment prior to the motorway construction and new overpasses. As such the Launch and receiving pits are located in areas that have been previously disturbed. Additionally, trimming of foliage within the road corridor may be required.
- There are a number of trees along the grid connection route, all of which have been assessed for their overall health and value in the accompanying arborist's report. Of the 54 trees assessed none were of high value/quality, 6 were of moderate value/quality, 29 of low value/quality and 19 of such low quality that condition that they will not survive 10+ years. Given the proximity of some trees to the proposed grid connection route, impacts such as root damage may be possible in some cases.

Figure 5-9 - Improved agricultural grassland (GA1) habitat on Site

Figure 5-10 - Stone wall (BL1) with overlying hedgerow (WL1) present on the Site

Figure 5-11 - Stone wall (BL1) with overlying treeline (WL2) present on the Site

Figure 5-12 - Buildings (BL3) habitat present on Site

Figure 5-13 - Scrub (WS1) habitat present in the fields adjacent to the Site

Figure 5-14 - Scrub and immature woodland (WS1/WS2) habitat in the field to the east of the Site

Figure 5-15 - Spoil and bare ground and recolonising bare ground (ED2/ED3) habitat present on Site

Figure 5-16 - Artificial underground habitat (EU2) present to the northeast of the Site

Figure 5-17 - An example of pond habitat in proximity of the Site (approx. 260m west of the access track)

Figure 5-18 – M17 HDD crossing point looking west toward the motorway, (GS2) Dry meadows and grassy verges, (WL1) Hedgerows, (WS1) Scrub present

Figure 5-19 – Eastern M6 HDD crossing point looking south, (GS2) Dry meadows and grassy verges present

Figure 5-20 – Western M6 HDD crossing point looking north, (GS2) Dry meadows and grassy verges and (WS1) Scrub establishing on old road alignment

Rare Flora

No rare or protected flora was observed during any surveys. NBDC records for the relevant grid squares indicate records of one protected species designated under the Flora Protection Order within the last ten years: wood bitter-vetch (*Vicia orobus*), recorded in 2023 with a designation of 'endangered'. This recorded is for the 10 km grid square which over laps with the Proposed Project, there are more precise records within this 10 km grid square (100 m and 1km grid squares) which do not overlap with the Proposed Project. It should be noted that this species was not found within the Site during any field surveys.

5.4.1.2 Invasive Alien Species (IAS)

There were no IAS recorded on the Site during the survey carried out on 06/06/2025. NBDC records for the relevant grid squares indicate the presence of a single IAS within the last ten years: Himalayan honeysuckle (*Leycesteria formosa*). Himalayan honeysuckle is classified as having a risk of 'Medium Impact'.

5.4.2 Fauna

This section covers all protected species for which records for the surrounding Proposed Project area were obtained or suitable habitat exists within the Proposed Project area.

5.4.2.1 Bats

5.4.2.1.1 Desk Study

Four species of bat have been recorded in the relevant NBDC grid squares in the last ten years (NBDC, 2025): Natterer's bat (*Myotis nattereri*), soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*) and Leisler's bat (*Nyctalus leisleri*). All bat species are protected under the Habitats Directive (Annex IV) and Wildlife Acts in Ireland. The area immediately surrounding the Site is a landscape of 'Medium' suitability for bats (as per Lundy *et al.* 2011; see Figure 5-21).

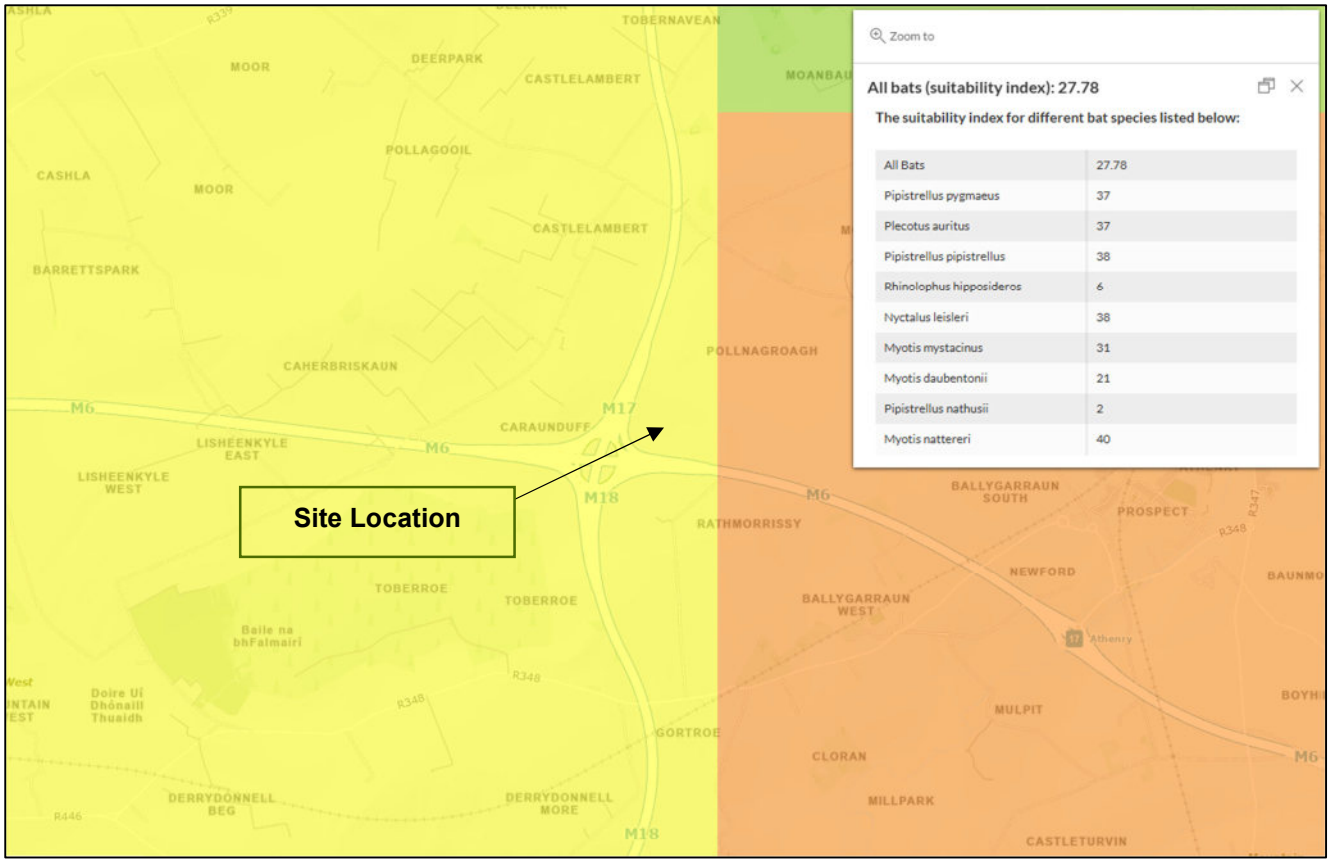


Figure 5-21 - Bat landscape suitability (Lundy *et al*. 2011) for the area surrounding the Proposed Project. Source: Taken from NBDC maps, adapted from Lundy *et al*. (2011). As per Lundy *et al.* (2011), orange denotes an area of moderate-high bat suitability, yellow an area of moderate suitability and green an area of low-moderate suitability

5.4.2.1.2 Preliminary Bat Roost Assessment

Within the Site it was concluded that the two existing structures could be used as a night-roost by bats as well as a foraging perch for brown long-eared bats specifically, and thus the structures could be low-medium potential for bats. However, as per Section 5.4.2.1.3, below, the structures are not regularly used by bats (total of 2 no. calls in the area), and as such the structures can be considered as being of low potential as no clear roosting signs were apparent.

The majority of the linear boundaries encompassing the Site have no potential to house roosting bats, however the treeline along the north-western boundary does. There are mature trees, including ash and sycamore (*Acer pseudoplatanus*), which are sheltered and could be suitable for roosting and foraging bats. Thus this treeline is considered to have medium potential for roosting bats. However no bats were recorded roosting in any trees during the surveys. The full results of the survey are included in Appendix 5.2, Volume 3 of the EIAR.

5.4.2.1.3 Bat Activity Surveys

A total of 6 no. species of bat were recorded foraging on the Site during the activity surveys; common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle (*Pipistrellus nathusii*), Leisler's bat, whiskered bat (*Myotis mystacinus*) and brown long-eared bat (*Plecotus auritus*), however the majority of the Site is considered too exposed to represent ideal foraging conditions for bats. Bat activity was highest along the mature treeline at the north-western boundary. The full results of the survey are included in Appendix 5.2, Volume 3 of the EIAR.

5.4.2.1.4 Grid Connection Route

The grid connection route follows tarmac roads, occasionally intersecting areas of grassy verges towards the motorway crossings. These habitats are not suitable for either foraging or commuting bats. There are no mature trees within the grid connection route that would be suitable for roosting bats.

5.4.2.2 Terrestrial Mammals

5.4.2.2.1 Desk Study

Five species of terrestrial mammal have been recorded in proximity of the Site within the last ten years (NBDC, 2025): west European hedgehog (*Erinaceus europaeus*), Eurasian red squirrel (*Sciurus vulgaris*), Irish hare (*Lepus timidus hibernicus*), pine marten (*Martes martes*) and red fox (*Vulpes vulpes*). All of these species except for the red fox are protected under the Wildlife Act. Pine marten and Irish hare are further protected under Annex V of the Habitats Directive.

5.4.2.2.2 Mammal Survey

During the mammal survey a single red fox was observed using the Site. The fox was also observed incidentally during the IAS survey. A fox was observed re-entering the den by the camera trap. No other mammal signs were observed on Site.

5.4.2.2.3 Grid Connection Route

The grid connection route follows tarmac roads, occasionally intersecting areas of grassy verges towards the motorway crossings. These roads do not represent suitable habitat for terrestrial mammals, and the grassy verge habitat is immediately adjacent to motorway, and thus also not suitable for terrestrial mammals to reside in. Mammals may use the grid connection route areas for commuting, but the construction and operation of a grid connection route will not impact this.

5.4.2.3 Amphibians

5.4.2.3.1 Desk Study

Two species of amphibian have been recorded in the areas surrounding the Site in the last ten years: common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*). Both species are protected under the Wildlife Act, and the common frog is further protected under the Habitats Directive (Annex V).

5.4.2.3.2 Smooth Newts Survey

No amphibians were observed in either ponded area surveyed during the amphibian survey. The western of the two ponded areas was almost completely dry at the time of surveying. This pond is not fenced off and there was significant pouching through the base of the pond. As such this pond is of limited value during summer months, it may be used by waders during the winter season. The more eastern of the ponds appear to be more permanent in nature as was evident by the presence of reed beds and substantial submerged macrophyte growth. The abundance of macrophyte growth (80% coverage), along with the high turbidity of the water made it difficult to effectively survey the pond for smooth newts. There was however an abundance of macroinvertebrates present and as such an abundance of food for newts. Given that smooth newts have been recorded in the general area it is likely that they be found in this pond. This ponded area is located 260m from the access road.

There is an additional ponded area located 20m to the east of the proposed access road. This pond could not be fully surveyed as access to this field was not available at the time of survey. Instead the pond was surveyed visually using binoculars from a distance of 25 m. The pond has not been fenced off and so there is open access for cattle to enter the pond. The pond was very shallow at the time of survey and there was no permanent

aquatic vegetation such as reed beds or macrophytes visible. As such it is considered that this pond is of low ecological value and likely represents sub-optimal habitat for breeding smooth newt. However in the absence of a complete survey and adopting the precautionary principle, it is assumed that smooth newt could nonetheless use the habitat and thus they are considered to be present.

5.4.2.3.3 Grid Connection Route

The grid connection route follows tarmac roads, occasionally intersecting areas of grassy verges towards the motorway crossings. There is no suitable habitat for any amphibians within these areas.

5.4.2.4 Otter

5.4.2.4.1 Desk Study

There are no records of otter in the areas immediately surrounding the Site from the last ten years.

5.4.2.4.2 Survey Findings

There is no suitable habitat for otter on or in the vicinity of the Site. The closest river by distance is the Clarinbridge River which is 2.7 km away over land. There are a number of roads between the river and the Proposed Project which includes the M6 motorway and a rail line. Given this and the lack of suitable habitats on site it is unlikely that otters would visit the Proposed Project area.

5.4.2.4.3 Grid Connection Route

The grid connection route follows tarmac roads, occasionally intersecting areas of grassy verges towards the motorway crossings.

5.4.2.5 Reptiles

5.4.2.5.1 Desk Study

There are no records of any reptiles in the areas immediately surrounding the Site from the last ten years.

5.4.2.5.2 Survey Findings

Dry stone walls are present in and around the project area as field boundaries. Stone walls can provide habitat for basking and shelter for reptiles. However given the exposed nature of the surrounding intensive agricultural land the habitat is considered suboptimal in the project area due to increased risk of predation.

5.4.2.5.3 Grid Connection Route

The grid connection route follows tarmac roads, occasionally intersecting areas of grassy verges towards the motorway crossings. Given the level of traffic on these roads and the habitats present they are considered suboptimal for reptiles.

5.4.2.6 Other Notable Fauna

5.4.2.6.1 Desk Study

Other notable faunal species recorded in the areas immediately surrounding the Site from the last ten years is limited to a single marsh fritillary record from 2019. The habitats present within the Proposed Project area are not suitable for marsh fritillary given the existing intensive agricultural land use and lack of wet grassland.

5.4.2.6.2 Survey Findings

No other notable fauna, or suitable habitat, was observed on Site.

5.4.2.6.3 Grid Connection Route

The grid connection route follows tarmac roads, occasionally intersecting areas of grassy verges towards the motorway crossings. There is no suitable habitat for any other protected fauna within these areas.

5.4.2.7 Birds

5.4.2.7.1 Desk Study

Twenty-three species of bird have been recorded in the areas surrounding the Site in the last ten years. These are detailed in Table 5-8 which also details the conservation status of the birds (red and amber) as outlined in Birds of Conservation Concern in Ireland 4[75]. Of these twenty-three, two are red listed and four are amber listed.

Table 5-8 - NBDC bird records for areas surrounding the Site

Species	Scientific Name	BoCCI Status	Year Recorded
Barn Swallow	*Hirundo rustica*	Amber	2024
Blackcap	*Sylvia atricapilla*	Green	2023
Blue Tit	*Cyanistes caeruleus*	Green	2023
Chaffinch	*Fringilla coelebs*	Green	2023
Common Blackbird	*Turdus merula*	Green	2024
Common Bullfinch	*Pyrrhula pyrrhula*	Green	2023
Common Buzzard	*Buteo buteo*	Green	2023
Common Coot	*Fulica atra*	Amber	2022
Common Kestrel	*Falco tinnunculus*	Red	2022
Common Magpie	*Pica pica*	Green	2023
Common Raven	*Corvus corax*	Green	2021
Eurasian Jay	*Garrulus glandarius*	Green	2018
Eurasian Treecreeper	*Certhia familiaris*	Green	2021
European Robin	*Erithacus rubecula*	Green	2024
Goldcrest	*Regulus regulus*	Amber	2024

[75] Gilbert, G., Standbury, A. & Lewls, L. 2021. Birds of Conservation Concern in Ireland 4; 2020-2026.

Species	Scientific Name	BoCCI Status	Year Recorded
Great Tit	*Parus Major*	Green	2021
Hen Harrier	*Circus cyaneus*	Amber	2017
Long-tailed Tit	*Aegithalos caudatus*	Green	2024
Peregrine Falcon	*Falco peregrinus*	Green	2019
Redwing	*Turdus iliacus*	Red	2021
Rook	*Corvus frugilegus*	Green	2021
Song Thrush	*Turdus philomelos*	Green	2024
Stonechat	*Saxicola torquata*	Green	2020

5.4.2.7.2 Breeding Bird Survey

A total of 23 no. species of bird (of which 1 no. is red-listed, 11 no. are amber-listed and 11 no. and green-listed) were observed during the breeding bird surveys (Table 5-9). The full results are included in Appendix 5.1, Volume 3 of the EIAR.

Table 5-9 Birds observed during the breeding bird surveys

Common Name	Scientific Name	BOCCI Status	Dates Observed
Blackbird	*Turdus merula*	Green	02/05/2025, 23/05/2025, 26/06/2025
Chaffinch	*Fingilla coelebs*	Green	02/05/2025, 23/05/2025
Dunnock	*Prunella modularis*	Green	23/05/2025
Goldcrest	*Regulus regulus*	Amber	23/05/2025
Greenfinch	*Chloris chloris*	Amber	23/05/2025
Hooded Crow	*Corvus corone*	Green	23/05/2025
House Martin	*Delichon urbicum*	Amber	26/06/2025
Linnet	*Linaria cannabinna*	Amber	02/05/2025
Lesser Black-backed Gull	*Larus fuscus*	Amber	26/06/2025
Mallard	*Anas platyrhynchos*	Amber	02/05/2025, 23/05/2025
Meadow Pipit	*Anthus pratensis*	Red	23/05/2025, 26/06/2025

Common Name	Scientific Name	BOCCI Status	Dates Observed
Mistle Thrush	*Turdus viscivorus*	Green	23/05/2025
Moorhen	*Gallinula chloropus*	Green	02/05/2025
Pied Wagtail	*Motacilla alba yarrelli*	Green	02/05/2025, 23/05/2025
Rook	*Corvus frugilegus*	Green	02/05/2025, 23/05/2025, 26/06/2025
Sand Martin	*Riparia riparia*	Amber	23/05/2025
Skylark	*Alauda arvensis*	Amber	02/05/2025, 23/05/2025, 26/06/2025
Song thrush	*Turdus philomelos*	Green	02/05/2025, 23/05/2025
Starling	*Sturnus vulgaris*	Amber	23/05/2025
Swallow	*Hirundo rustica*	Amber	23/05/2025, 26/06/2025
Willow Warbler	*Phylloscopus trochilus*	Amber	02/05/2025, 23/05/2025
Wood Pigeon	*Columba palumbus*	Green	26/06/2025
Wren	*Troglodytes troglodytes*	Green	02/05/2025, 23/05/2025, 26/06/2025

5.4.2.7.3 Winter Bird Survey

The Site itself did not support any significant wintering bird activity. A total of 3 bird species (of which 2 are red-listed and the other is amber-listed) were recorded in the vicinity of the Site during the winter bird surveys (Table 5-10). Both Golden Plover and Snipe are red-listed as breeding birds, rather than wintering. The full results are included in Appendix 5.1, Volume 3 of the EIAR.

Table 5-10 – Bird species observed during the winter bird surveys

Common Name	Scientific Name	BOCCI Status	Dates Observed
Golden Plover	*Pluvialis apricara*	Red	25/01/2025
Mallard	*Anas platyrhyncos*	Amber	19/12/2024
Snipe	*Gallinago Gallinago*	Red	19/12/2024, 25/01/2025

Incidental sightings of non-wintering birds were also recorded during the winter bird surveys including the red-listed meadow pipit and redwing, and the amber-listed starling.

5.4.2.7.4 Grid Connection Route

The grid connection route follows tarmac roads, occasionally intersecting areas of grassy verges towards the motorway crossings. The road provides no habitat for any birds, and while grassy verge could provide foraging/breeding grounds for some bird species, the proximity to the motorway and the accompanying noise disturbance means that, in this instance, the habitat is not suitable for them.

5.4.3 Overall Evaluation of the Site

Significance criteria are available from guidance published by the National Roads Authority (NRA, 2009). The ecological evaluation of the various ecological constraints found within the Site is detailed in Table 5-11.

Table 5-11 - Ecological Evaluation of the Site as per NRA (2009)

Habitat/Fauna	Evaluation	Rationale
Improved Agricultural Grassland (GA1)	Local Importance (Lower Value)	This habitat is of low ecological value.
Building and Artificial Surfaces (BL3)	Local Importance (Lower Value)	This habitat is of low ecological value.
Stone Walls (BL1)	Local Importance (Lower Value)	This habitat is of low ecological value.
Scrub (WS1)	Local Importance (Lower Value)	This habitat is present outside of the Site boundary and is of low ecological value.
Hedgerow (WL1) (Including mosaic with Stonewall (BL1))	Local Importance (Higher Value)	The habitat type can provide significant foraging/roosting/commuting habitat for species such as birds and bats.
Treeline (WL2) (Including mosaic with Stonewall (BL1))	Local Importance (Higher Value)	The habitat type can provide significant foraging/roosting/commuting habitat for species such as birds and bats.
Scrub (WS1) / Immature Woodland (WS2) Mosaic	Local Importance (Higher Value)	The habitat type can provide significant foraging/roosting/commuting habitat for species such as birds and bats.
Exposed Sand, Gravel Till (ED1)	Local Importance (Lower Value)	This habitat type does not represent a significant habitats for any rare/protected fauna or flora.
Exposed Calcareous Rock/Calcareous Spring (ER2/FP1)	Local Importance (Higher Value)	This habitat is important as it provides foraging habitat for bats and varied habitats for invertebrate and plant species. This habitat is outside of the Proposed Project boundary.
Groundwater depend Ponds (FL3/FL6)	Local Importance (Higher Value)	This habitat can provide suitable habitat for a wide variety of species at different life stages including

Habitat/Fauna	Evaluation	Rationale
		birds, bats, amphibians and invertebrates.
Rare Flora	Local Importance (Lower Value)	No rare plants were present on the site of the Proposed Project.
Invasive Alien Species	Local Importance (Lower Value)	No IAS were observed on the site of the Proposed Project.
Bats	Local Importance (Higher Value)	Bats actively use the site of the Proposed Project for commuting and/or foraging. There was no evidence of bats roosting on the site of the Proposed Project.
Terrestrial Mammals	Local Importance (Higher Value)	The Site contains an active fox den.
Amphibians	Local Importance (Higher Value)	There are no ponds present within the Proposed Project boundary. There are two ponded areas located north of the Proposed Project. One contains suitable habitat for amphibians although none were recorded when surveyed. The other pond appear to have suboptimal habitat however due to access issues could not be surveyed in detailed. As such the precautionary principal is being followed and it is assumed that amphibians are present in both ponds.
Otter	Local Importance (Lower Value)	No signs of otter on the site of the Proposed Project. No suitable habitat in, or in vicinity of, the site of the Proposed Project.
Reptiles	Local Importance (Lower Value)	No signs of any reptiles were seen on the site of the Proposed Project, nor does the site of the Proposed Project represent suitable breeding habitat for them.
Marine Mammals & Fish	Local Importance (Lower Value)	No suitable aquatic habitat in, or in vicinity of, the site of the Proposed Project.
Breeding Bird Assemblage	Local Importance (Higher Value)	Locally important populations of breeding birds observed on the site of the Proposed Project, including red-listed meadow pipit.
Wintering Bird Assemblage	Local Importance (Higher Value)	Activity on the site of the Proposed Project itself was negligible, however some activity of red-listed golden plover and snipe was observed in adjacent lands.

5.5 Potential Impact of the Proposed Project

The potential impacts arising from the construction and operation of the Proposed Project are discussed in the following sections.

5.5.1 Potential Impacts Assessed

In the absence of mitigation measures, the Proposed Project could cause potential impacts on the ecological receptors within the ZoI during the construction, operational and decommissioning phases. The different potential impacts are described and assessed, considering both field and desktop data, below.

5.5.1.1 Physical Damage / Habitat Loss

Physical damage includes the degradation to, modification, fragmentation or loss of habitats. Direct physical damage of habitats could occur within working areas of the Proposed Project and along access routes where construction works are undertaken. Physical damage of habitats can also be an indirect impact and could occur, for example, through the introduction of fine sediments into an aquatic system, causing changes to the particle composition of downstream benthic habitats. Physical damage may be temporary or permanent in nature.

5.5.1.2 Noise

5.5.1.2.1 Construction

The potential noise impacts are associated with construction of the Peaker Plant (Including AGI facility), access road to the L3103 and UGC route to Cashla substation (Including three HDD location under the M17 and M6). With regards to works within the main development site a worst case scenario was taken. The noise levels relating to site clearance, ground excavation and mobile plant items (Breakers, dozers, tracked excavators and wheeled loaders) reach a maximum of 83 dB $L_{Aeq,T}$ at a distance of 10 m. For this assessment, a worst-case scenario is assumed of 3 no. such items with a sound pressure level (SPL) of 83 dB at 10 m all operating simultaneously along the closest works boundary. This would result in a total noise level of 88 dB at 10 m and an equivalent combined sound power level of 116 dB L_{WA}. Piling may become necessary in the event that there is a Karst feature under the foundations footprint, a Drop Hammer (C.4.31) with sound power level of 116 dB L_{WA} will be required. The total sound power level will be increased to 119 dB L_{WA}. This worst-case scenario is the typical assumption made for developments of this size, on the basis that it is unlikely that more than 3 no. items of plant/equipment with equivalent noise levels would be operating simultaneously in such close proximity to each other.

In the case of works with the SPL of 116dB it was calculated that at 450m noise levels would have decreased to 49dB.

There are no European, National or local designated sites within 450m of the Proposed Project. Noise modelling found that beyond 450m levels will be below 50dB. Baseline noise levels in the area for day time ranged from 47- 62 dB. Therefore, it is not anticipated that there will be any impact on any sensitive protected site. During site surveys bats were recorded foraging along the treeline along the northern boundary of the main site, however, no roosts were recorded. Bats generally hibernate from October to March, with some variation due to weather conditions. The proposed construction is to take place during normal working hours. As such works will not overlap with summer foraging period for bats.

The indicative total construction noise for the UGC route was calculated as 87 dB 10m from the works. The UGC is estimated to take 9 months to construct with the progression along the line 30-50m per day. As such noise will not impact on any given area for more than one day during general construction of the UGC. The

noise levels associated with the HDD location is lower than for general UGC construction at a max of 78 dB 10m from the works. Given that the UGC is located along existing road network any species using the area will be acclimatised to a similar level of noise associated with busy rural roads. As such no noise impact is expected for the cable route.

See Chapter 9 Noise and Vibrations for full details.

5.5.1.2.2 Operation

A number of scenarios were modelled for the noise levels associated with the operation of the Proposed Project. Of these the Day to Day operation scenario produced the highest level of noise. The model showed a quick drop off in noise levels with increasing distance from the facility. With the levels dropping below 50dB before leaving the boundary of the site in most directions. Given that there are no European or nationally important sites within 6km of the site there will be no impact on any site due to noise.

5.5.1.3 Air quality

5.5.1.3.1 Construction

The IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to dust-related ecological impacts. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability of the plant, as well as other effects. The guidance states that dust impacts to vegetation can occur up to 50 m from the site, 50 m from site access roads and up to 250 m from the site entrance. The sensitivity of the area is determined based on the distance to the source, the designation of the site, (European, National or local designation) and the potential dust sensitivity of the ecologically important species present. There are no sensitive ecological receptors that meet these criteria within the study area and therefore there is no potential for impacts to sensitive ecology from construction dust emissions and no further assessment is required. (See Chapter 7 Air Quality and Chapter 8 Climate for further detail).

Additionally, dust management mitigation measures have been set out in Chapter 7 Air Quality and Chapter 8 Climate to minimise dust during construction.

5.5.1.3.2 Operation

Annual mean NO_X, NH_3 and SO_2 concentrations and nitrogen and acid deposition are compared to the relevant critical levels and loads in line with IAQM (IAQM, 2020), UKEA (UKEA, 2025) and EPA (EPA, 2024b) guidance. As per this guidance, where the (PC) of a pollutant emitted from a facility is less than 1% of the relevant critical level and critical load the further assessment is not required and the effect on ecology can be considered not significant. (See Chapter 7 Air Quality and Chapter 8 Climate for further detail).

5.5.1.4 Disturbance

Disturbance can cause sensitive species to deviate from their normal and preferred behaviour, resulting in stress and increased energy expenditure. Disturbance can result in species being displaced from suitable habitat areas that provide areas for feeding and foraging, commuting routes, and resting and breeding sites. Physical disturbance of species can also result in direct mortalities of species and thus, disturbance impacts can be both direct and indirect and may be temporary or permanent in nature. Examples of direct disturbance includes activities such as damage to a breeding or resting site of a protected species, e.g. a badger sett. Indirect disturbance may result from the presence of works crews and personnel on site during construction, noise emanating from a construction site or artificial lighting of a bat foraging area, causing bats to avoid the area.

5.5.1.5 Changes in Water Quality

The release of pollutants to water can impact upon downstream waterbodies and the species they support. This can result in impacts such as increased turbidity of the water column, a reduction in photosynthesis, contribution to eutrophication and changes to the species composition of the system as a result. The degree of impact depends on the type of pollutant released and the nature of the receiving receptor. For example, the release of fine sediments to a stream or river is likely to cause siltation of the river bed and interrupt the functioning of species, from aquatic plants to macroinvertebrates to fish, and larger predators that depend on these biotic groups as a food supply, e.g. otter. Impacts to water quality could be temporary in the form of surface water runoff during construction, or permanent in the form of a continued discharge impacting negatively on the receiving environment during the operation of the project.

In this instance there are no major surface waterbodies in the vicinity of the Proposed Project. There are some small surface water ponds located in close proximity to the proposed access road. However, limestone is present in the area and so there is potential for impact on groundwater quality. Impacts are associated with release of sediment during excavation, oil or fuel spills from machinery and pouring of concrete for foundations. Given the size of the project substantial excavation works and use of concrete will be required.

5.5.1.6 Dispersal of Invasive Species

Non-native invasive species can have negative impacts on biodiversity. Negative impacts of non-native invasive species on native biota occur through competition, predation, herbivory, habitat alteration, disease and genetic effects such as hybridisation. In the cases of non-native invasive species such as Japanese knotweed, the main impacts are a reduction in species diversity due to dense plant growth, heavy shading and disruption of trophic levels. These species can potentially be spread via plant fragments and soil containing plant material, and by vectors such as machinery and personnel.

5.5.2 Do Nothing Scenario

In the absence of the Proposed Project, it is assumed that the Site would remain as highly managed agricultural grassland. The value of the Site to house locally important populations of birds and bats would continue to exist, assuming that no linear features, such as treelines, hedgerows and stonewalls were removed.

Additionally, the Site would continue to provide a habitat for a local fox populations.

5.5.3 Development Design

5.5.3.1 Landscape Design

A landscape plan has been development for the Proposed Project (This includes the main site and access road north to the L3103) see Figure 5-22 below. As can be seen from the landscape plan extensive tree planting and hedgerows are being proposed along the boundary of the site. The exact number and species of trees and hedgerow plants will be decided in the detailed design stage. However, the trees will be a mixture of evergreen and deciduous. The evergreen species are likely to include Scots pine, yew, holly (native) and Douglas fir (non-native) and deciduous will include native species such as oak, alder, birch, hazel, hawthorn and whitebeam. The hedgerows will contain only native species. Much of the grassland within the site will become wildflower meadows.

The grassland component will seek to emulate the existing species-rich calcareous grassland that is present in the surrounding lands, predominantly to the east of the Proposed Project boundary. Management of this area will be carried out in line with the NBDC guidance for creating and restoring meadows (NBDC, 2023). Tall

weeds, such as dock, nettles and ragwort, will be manually removed during the early years of the grassland development between March and August. The grassland will be cut once per year, ideally in September. The cut grass, is possible, will be left for a few days before being removed. No wildflower planting packs will be required; with the above management the grassland should become species-rich over time. The full landscape plan is included in Appendix 2-12, Volume 3 of the EIAR.

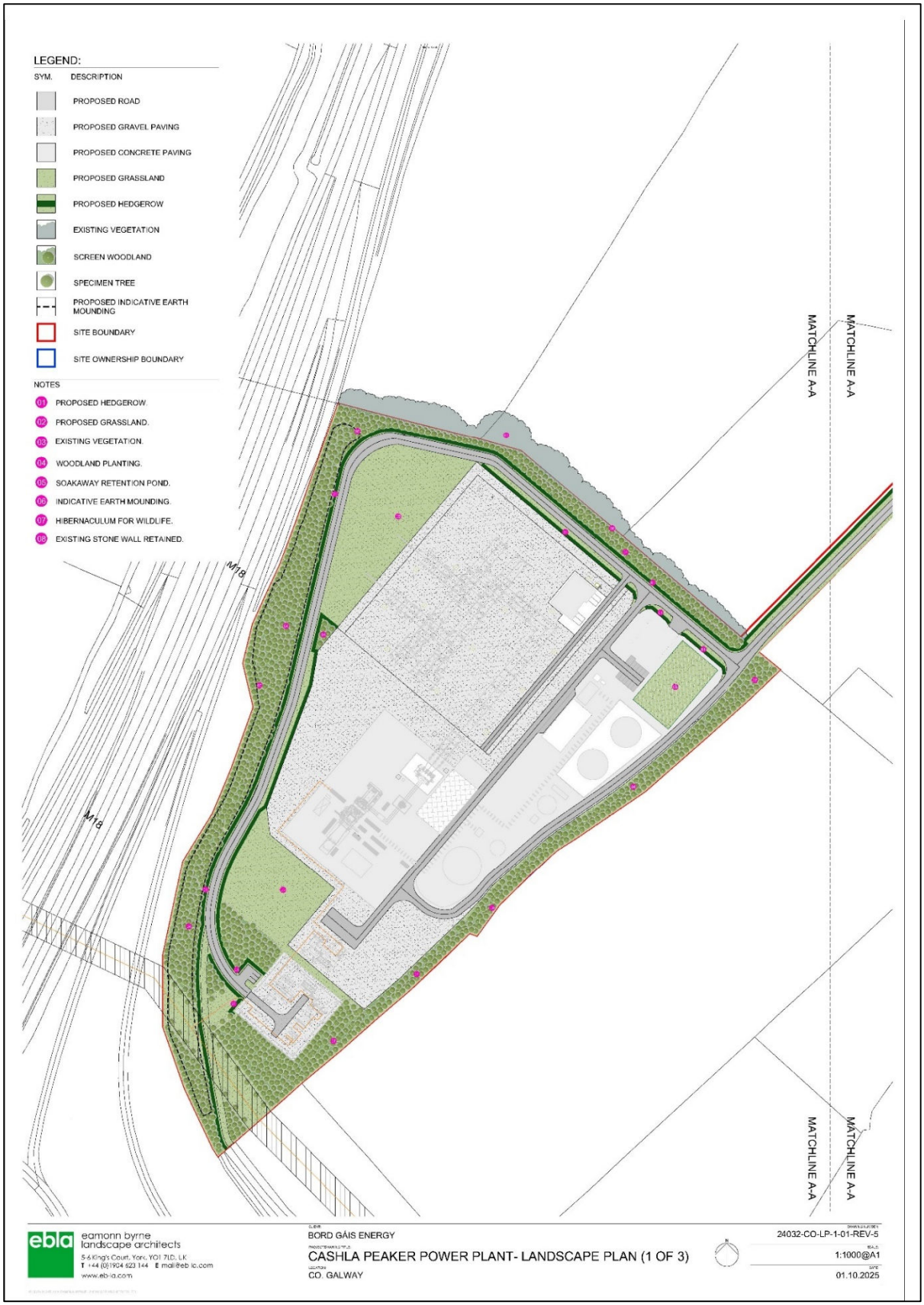


Figure 5-22 Proposed Landscape plan

5.5.3.2 Lighting Design

The operational lighting for the Proposed Project has been designed in line with Bat Conservation Trust guidance (GN 08/23) as much feasibly possible given operational requirements. With the exception of the AGI compound, lighting along the boundary of the site will be 2700 K. Lighting along the boundary of the AGI will be 3000K. The lighting has been designed so that levels reduce to less than 1 lux before reaching the exiting boundary of the site. In the majority of cases this has been achieved by careful placement and orientation of the luminaries. With regards to lighting required for the substation this could not be achieved with orientation due to lighting requirements for the area. As such baffles have been included on these lights to direct the light as needed. Importantly the current design achieves less than 1 lux before reaching the northern boundary which recorded the most bat activity during the bat surveys and contains trees which have bat roost potential (although bats were recorded using the trees to roost). In addition, as part of the landscaping extensive tree planting has been included to provide screening. This will further reduce light spill from the Proposed Project. The detailed lighting report (AtkinsRéalis, 2025b) will be included in the planning pack. The proposed site layout for lighting is provided in Figure 5-23. More information on the lighting design is included in Appendix 2-8, Volume 3 of the EIAR.

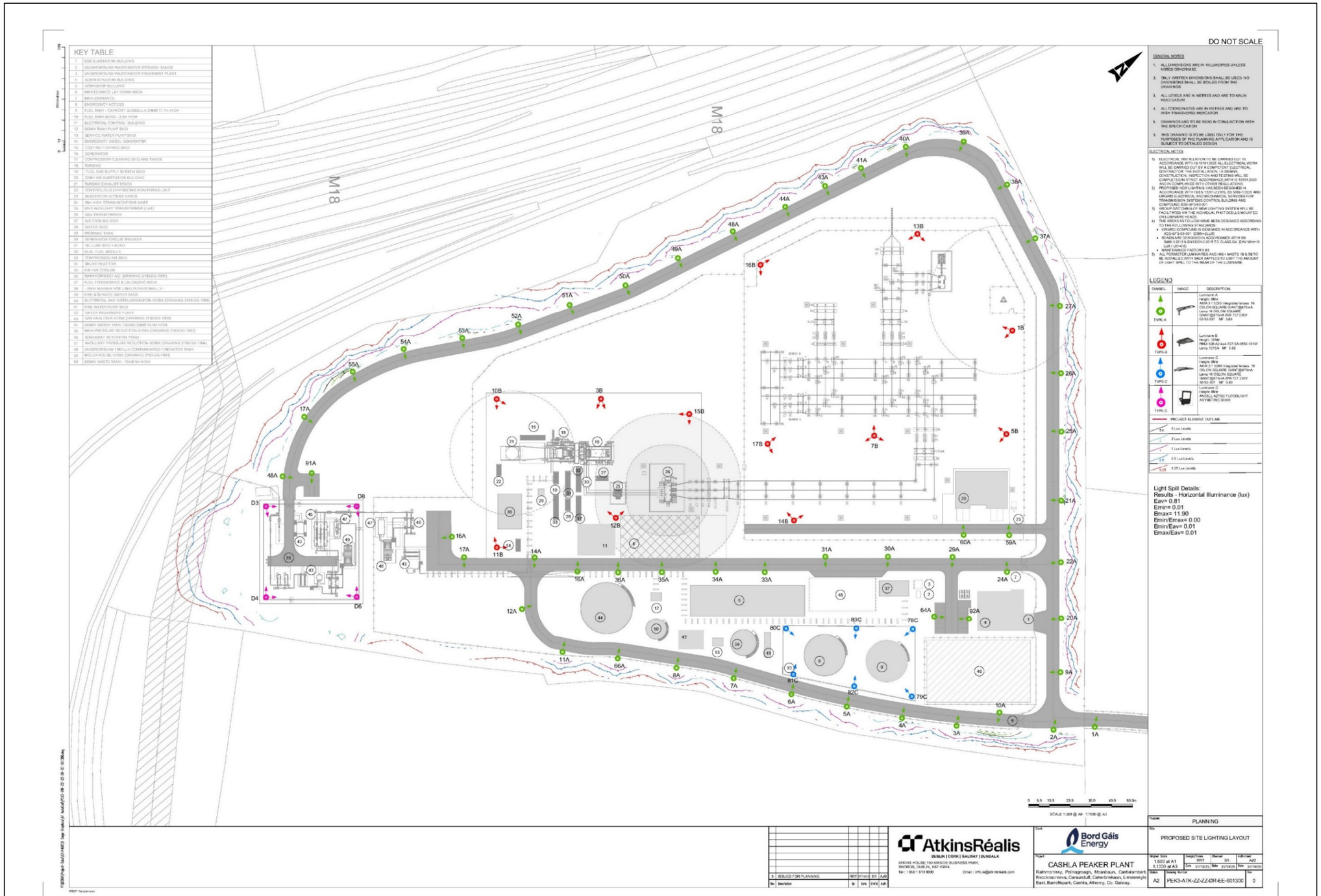


Figure 5-23 Lighting Plan (included here for information, refer to planning pack for full scale drawing)

5.5.3.3 Drainage Design

Sustainable urban Drainage Systems (SuDS) are an important aspect of the Proposed Project design, and include filter drains (external to the Site), an infiltration pond with a hydrocarbon interceptor and sealed permeable paving in all car parking areas. These are further detailed in the Civil Planning Engineering Report (AtkinsRéalis, 2025c; see Appendix 2-1, Volume 3 of the EIAR).

5.5.4 Construction Phase

The potential impacts likely to arise during construction of the Proposed Project are discussed in the following sections.

5.5.4.1 Impacts on Sites Designated for Nature Conservation

The potential for adverse impacts on European Sites is discussed in the accompanying AA and NIS (AtkinsRéalis, 2026). The AA identified the possibility of adverse effects on three European Sites during the Construction Phase due to a hydrogeological pathway:

- Galway Bay Complex SAC (000268),
- Cregganna Marsh SPA (004142),
- Inner Galway Bay SPA (004031).

The NIS provides mitigation measures to ensure that no significant groundwater contamination will occur during the Construction Phase of the Proposed Project. The conclusion of the NIS is as follows:

"Given the full and proper implementation of the mitigation measures detailed in this NIS, ground water contamination during the construction phase of the Proposed Project will not have a significant impact on water quality within either Clarinbridge or GWDTE-Galway Bay Complex Fens ground waterbodies. As such there will be no significant effects on the downstream European sites within these ground waterbodies, namely Galway Bay Complex SAC, Cregganna Marsh SPA and Inner Galway Bay SPA via hydrogeological pathways.

This NIS provides the competent authority with supporting information to undertake the Appropriate Assessment in relation to the Proposed Project and its potential for direct, and indirect and in-combination effects on Galway Bay Complex SAC, Cregganna Marsh SPA and Inner Galway Bay SPA.

The NIS has examined the potential impacts of the proposed project on the integrity of these three sites, alone and in combination with other plans and projects, considering the site's structure, function and conservation objectives. Where impacts potentially constituting adverse effects on the site were identified, mitigation measures have been prescribed to avoid or minimise those impacts such that they no longer constitute adverse effects on the integrity of the site.

Following a comprehensive evaluation of the potential direct, indirect and in-combination impacts on the qualifying interests of Galway Bay Complex SAC, Cregganna Marsh SPA and Inner Galway Bay SPA and the implementation of the proposed mitigation measures, it has been concluded beyond reasonable scientific doubt by the authors of this report that there will be no residual impacts and the Proposed Project, alone or in combination with other plans and projects, will not have an adverse effect on the integrity of these, or any other, European sites."

As explained in Section 5.3.2.2 the relevant NHA and pNHAs in vicinity of the Site overlap with the above European Sites, and thus are assessed by proxy in the NIS.

5.5.4.2 Impacts on Habitats

There will be the loss of agricultural grassland due to the construction of buildings and hard stands areas (69,900m2), as well as a small loss (72.5m) of stone wall (including a small section of poor quality and sparse hedgerow, totalling 49.2m) to facilitate the access roads. Given that the hedgerow has ecological value (such as connectivity for commuting bats, and habitat for local breeding bird populations), the loss of habitat, in the absence of mitigation, is considered a permanent significant negative impact at the local scale.

5.5.4.2.1 Trees along the Grid Connection Route

The vast majority of trees assessed in the Arborist report (Independent Tree Surveys Ltd, 2025; see Appendix 5.3, Volume 3 of the EIAR) are classified as being of low value or worse. Potential impacts to trees along the grid connection route include root damage in cases where the roots spread out under the road whereon the grid connection will be constructed. As per the Arborist's report there are 12 instances of trees/groups of trees where there is potential for roots to be spread under the road, and subsequently be damaged during construction. Tree species included in these 12 instances (including both single trees and groups of trees, see arborist report) are ash, beech (*Fagus sylvaticus*), elder (*Sambucus nigra*), sycamore, wych elm (*Ulmus glabra*), hawthorn, Leyland cypress (*X Cuprocryparis leylandii*), lime (*Tilia* sp.), pedunculate oak (*Quercus robur*), Italian alder (*Alnus cordata*), Scot's pine (*Pinus sylvestris*), sitka spruce (*Picea sitchensis*), Lawson cypress (*Chamaecyparis lawsoniana*) and horse chestnut (*Aesculus hippocastanum*).

Within these 12 instances there are only 3 examples wherein a tree has been classified as high or moderate value (A-class or B-class in report, respectively); all others are either low value (C-class) or of a condition so low that they will not survive 10+ years (U-class). In all 3 of these examples the arborist's conclusion was that significant root spread was either 'unlikely' to exist, 'unlikely to be significant' or that the likelihood 'is low, but possible'. In the case where the likelihood was assessed as 'low, but possible' the composition of the trees in question is a mixture of non-native sitka spruce and Leyland cypress and native lime and Scot's pine. Furthermore, while the conclusion was that root spread is possible, given the distance to the actual carriageway, trenching in the carriageway is unlikely to cause significant damage to any eventual roots.

In the other 9 instances all trees are classified as either low quality (C-class) or worse (U-class). In some of these instances there is the possibility that root spread may stretch into the road. However, given the low quality of the trees in each case, the ecological significance is also low (immature/diseased trees provide little to no ecological value). Thus were roots to be exposed and damaged within these groupings, the ecological value loss would be negligible.

Therefore the potential damage to trees roots as a result of the grid connection route being constructed does not constitute a significant negative impact.

The remnant habitats within the grid connection route also have low ecological value and thus the small areas that will be removed to facilitate the route do not constitute a significant negative impact.

5.5.4.3 Spread of Invasives

Given the lack of IAS present on the Site, the spread of invasives during the Construction Phase is unlikely to occur. To prevent introduction of IAS during construction standard IAS measures will be included as part of the CEMP. As such the impacts due to the potential spread of invasives are negligible.

5.5.4.4 Impacts on Bats

This section details the potential impacts of the Proposed Project on bats during the Construction Phase.

5.5.4.4.1 Loss of Foraging/Commuting Habitat

Bat foraging/commuting activity across the Site was notable, in particular along the treelined northern boundary of the site. The loss of linear habitats such as hedgerow/stone wall will reduce the connectivity for bats within the Site, impacting commuting (and ultimately foraging) habits. In the absence of mitigation, it is considered that the slight removal of commuting habitat would be a permanent significant negative impact at the local scale.

5.5.4.4.2 Loss of Bat Roosts

No roosts were recorded during the bat surveys and as such there will be no loss of roosts. There are a number of trees along the northern boundary of the site which have bat roost potential. The proposed access to the site will require the removal of hedgerow and dry stone wall. This is located away to the east of the trees identified as having roost potential. It is not envisaged that any of these trees will be removed as part of the Proposed Project. However, the majority of the trees present are Ash which are showing signs of Ash Die Back. The following text is taken from the Arborist report "*All Ash trees should be monitored to check the level of crown dieback from Ash Dieback disease. Trees located in areas regularly accessed by people and vehicles etc. should be coppiced or felled if crown dieback approaches or exceeds 50% of crown volume., as recovery is unlikely*". If it in the future it becomes necessary to remove any diseased trees, a bat roost survey will be required prior to removal. It is not currently proposed to remove any of these trees.

5.5.4.4.3 Lighting

Lighting can cause avoidance of an area for commuting bats and can prevent or reduce foraging for some species, including Myotis species[76]. Studies have also found that pipistrelle and Leisler's bat can congregate around white mercury street lights and white metal halide lamps feeding on the insects attracted to the light, however, even bat species that have been shown to opportunistically forage in lit conditions have subsequently been recorded being impacted by artificial lighting. In cities, for example, common pipistrelles have been recorded avoiding gaps that are well illuminated, thereby creating a barrier effect[77]. Temporary lighting measures which may be required during the Construction Phase may affect bats commuting through or feeding within the proposed Site.

In the absence of mitigation, disturbance to bats from lighting during the Construction Phase would have short-term significant negative impact at the local scale.

5.5.4.4.4 Noise Disturbance

During site surveys bats were recorded foraging along the treeline along the northern boundary of the main site, however, no roosts were recorded. Bats generally hibernate from October to March, with some variation due to weather conditions. The proposed construction is to take place during normal working hours and as such works will not overlap with night time summer foraging periods for bats.

5.5.4.5 Impacts on Birds

5.5.4.5.1 Breeding Bird Assemblage

Bird species recorded during the site surveys are mostly a mixture of green and amber-listed species, however the red-listed meadow pipit was also recorded. Redwing, which are red-listed, were incidentally recorded during the winter bird surveys. Additionally, the NBDC records include further red/amber listed bird species in the surrounding area.

[76] Stone E.L. (2013). Bats and Lighting: Overview of current evidence and mitigation.
[77] Bat Conservation Trust and Institute of Lighting Professionals (2018) Guidance Note 08/18: Bats and artificial lighting in the UK. ILP, Rugby.

There will be a net loss of grassland habitat within the Site, and a lesser loss of some stone wall and accompanying hedgerow to accommodate the access tracks. The loss of hedgerow and grassland will have a minor localised effects on nesting and feeding resources for the local breeding bird assemblage. However, given the very small area of hedgerow loss and abundance of similar agricultural grassland in the surrounding area in the absence of mitigation, the loss of breeding/foraging habitat for breeding birds represents a permanent non-significant negative impact at the local scale.

Noise disturbance during the Construction Phase can impact local breeding bird populations. The low-quality hedgerows which border the Proposed Project site provide suboptimal breeding habitat, there is an abundance of suitable alternative habitat both to the north and east. Thus in the event that local breeding birds were disturbed, they would easily be able to switch to such habitats. Therefore it is not expected that there will be any significant impacts to breeding birds as a result of noise disturbance during construction..

5.5.4.5.2 Winter Bird Assemblage

Winter bird activity was predominantly low, however, red-listed species such as snipe and golden plover were observed using the lands adjacent to the Site.

Given that the Site itself does not support regular wintering bird occurrences, loss of foraging habitat for wintering birds is not envisaged.

Wintering bird activity in the surrounding lands was low but present nonetheless. As such, noise disturbance during the Construction Phase could disturb such bird populations. The majority of the wintering bird species were observed in the wider area surrounding the Site at distances that exceed 450m wherein noise disturbance is not considered significant (as per Section 5.5.1.2.1). Furthermore, in the case that wintering bird populations use the low-quality grassland within the site as *ex-situ* foraging habitat, there is an abundance of suitable alternative habitat both to the north and east. Thus in the event that wintering breeding birds were disturbed, they would easily be able to switch to such habitats. Therefore it is not expected that there will be any significant impacts to wintering birds as a result of noise disturbance during construction.

However, in the case of the Proposed Project, it is not envisaged that noise during the Construction Phase will greatly exceed the current baseline in the area caused by agricultural machinery and the M6 Motorway. Therefore, it is not expected that there will be any significant impacts to wintering birds as a result of noise disturbance during construction.

5.5.4.6 Impacts on Mammals

Terrestrial mammal surveys undertaken within the Proposed Project site did not find any evidence of badger setts, otter holts or protected mammal refugia within the Site extents. A fox den was noted within the Site boundary which is located in close proximity to the proposed access road, it is noted that foxes are not subject to protection under the Wildlife Act. The loss of habitat represents a permanent significant negative impact on fox at the local scale.

The loss of grassland habitat represents a reduction in potential foraging and commuting habitat for mammals. Given the presence of similar habitat to the north and east, however, this is not considered to be a significant impact to foraging/commuting mammals.

It is possible that mammals may become entrapped in excavations or other construction areas, potentially leading to mortality. As such, there exists a potential permanent significant negative impact to local mammal populations.

5.5.4.7 Impacts on Amphibians

Adopting the precautionary principle the ponded area 20m to the east of the access route is assumed to contain smooth newt. The pond is outside the site boundary and will not be directly altered during construction, thus no direct habitat loss to smooth newt is envisaged. Water quality deterioration as a result of surface water run-off during the construction phase is not envisaged (see Section 5.5.4.9.1). Groundwater deterioration as a result of the construction phase cannot be ruled out, and thus impacts to the newt habitat are possible. In the absence of mitigation measures, this could constitute a short-term significant negative impact on water quality and subsequently on local smooth newt populations.

5.5.4.8 Impacts on Other Fauna

There is no other notable protected fauna present on the Site, nor is there any habitat present on Site to house them. As such there will be no impacts on other fauna as a result of the Construction Phase of the Proposed Project.

5.5.4.9 Impacts on Water Quality

5.5.4.9.1 Indirect Impacts via Surface Water Run-off

During wet conditions sediment can mobilise in the form of over-ground run-off during excavations and/or movement of heavy machinery through the Site. Sediment is of particular concern for aquatic species within receiving water bodies. However, in the case of the Proposed Project there are no surface waterbodies in the vicinity of the Site, and thus impacts on water quality as a result of surface water run-off is not envisaged.

5.5.4.9.2 Indirect Impacts via Groundwater

During the Construction Phase of the Proposed Project, groundwater may become exposed during excavation and drilling, thus groundwater vulnerability is considered. The Proposed Project is located in areas sensitive to groundwater contamination and located in a groundwater body in *GWDTE-Galway Bay Complex Fens* which is poorly documented (see Section 5.3.1), as well as the *Clarinbridge* ground waterbody. As such, there is the potential for flora, fauna and habitats (including the Annex I habitats referenced in Section 5.3.2.3) which are dependent on these ground waterbodies to be indirectly impacted by reduced water quality stemming from groundwater contamination during the Construction Phase of the Proposed Project.

In the absence of mitigation measures, this could constitute a short-term significant negative impact on water quality.

5.5.5 Operational Phase

5.5.5.1 Impacts on Sites Designated for Nature Conservation

As per the NIS there are no impacts envisaged to any sites designated for nature conservation, including European Sites, during the Operation Phase of the Proposed Project.

5.5.5.2 Impacts on Habitats

There are no impacts on any terrestrial habitats envisaged during the Operational Phase of the Proposed Project.

5.5.5.3 Spread of Invasives

There is the possibility of accidental introduction of invasive floral species during the landscaping of the Proposed Project during the Operational Phase. In the absence of mitigation, this could constitute a permanent significant negative impact.

5.5.5.4 Impacts on Bats

5.5.5.4.1 Lighting

There is the potential for lighting during the Operational Phase of the Proposed Project to impact local commuting/foraging populations of bats by way of disturbance, causing them to change their foraging/commuting pathways. In the absence of mitigation measures, this would constitute a Permanent significant negative impact on local bats. Lighting has been designed in accordance with all relevant best practice guidelines (Bat & Lightinig – guidance note for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010); Bats and Artificial Lighting at Night (Institute of Lighting Professionals, 2023)).

5.5.5.4.2 Noise

The modelling of noise levels during the operational phase of the Proposed Project showed that noise will quickly dissipate with increased distance from the facility. The modelling of day to day operation showed that the levels will drop to 50-45 dB by the time they reach the northern boundary of the site. This is in line with baseline data recorded in the area. See Chapter 9 Noise and Vibration, Volume 2 of the EIAR.

5.5.5.5 Impacts on Birds

Collision risk with features tall windowed structures and narrow poles is a threat to bird species that may fly over any given area. In the case of the Proposed Project, the tallest structure is the emissions stack, which will be 30m high and 7m diameter. While this height could hypothetically prove to be a collision risk for birds, the diameter of the stack and the colour of the structure (not a window, a solid visual structure) mean that birds are unlikely to not see it and thus collision risk as a result of the stack is not considered a significant risk.

Noise disturbance during the Operational Phase of the Proposed Project will not exceed the current baseline disturbance level in the area, and thus such impacts are not envisaged on birds.

5.5.5.6 Impacts on Mammals

During the Operational Phase of the Proposed Project there will be significant landscaping, including the planting of a wooded area, towards the west of the Site (adjacent to the M6), where there exists a mammal underpass. The provision of a wooded area, once established, will facilitate commuting/foraging of mammals. This constitutes a permanent significant positive impact on local mammal species.

5.5.5.7 Impacts on Amphibians

There are no impacts envisaged to any amphibians, including smooth newt, during the Operational Phase of the Proposed Project.

5.5.5.8 Impacts on Other Fauna

There are no impacts envisaged to any other protected fauna during the Operational Phase of the Proposed Project.

5.5.5.9 Impacts on Water Quality

5.5.5.9.1 Indirect Impacts via Surface Water Run-off

During the Operational Phase, surface water run-off impacts are not envisaged due to the embedded SuDS design measures incorporated into the Proposed Project (see Section 5.5.3.3) and the significant distance from the site to any surface waterbodies (*c.*2.6 km).

5.5.5.9.2 Indirect Impacts via Foul Effluent

There is a proposed onsite wastewater treatment plant (WWTP) as part of the Proposed Project. Foul water from the Operational Phase of the project will initially be treated here and stored in underground tanks. These will be periodically emptied and taken to a suitable WWTP for disposal. The WWTP will have capacity to accommodate the Proposed Project. As such, no impacts as a result of foul effluent are envisaged.

5.5.6 Decommissioning Phase

It is proposed that the Peaker Plant will operate until 31 December 2050. During the life of the Cashla Peaker Plant, some equipment items will require replacement in their entirety. Such equipment will be decommissioned and removed to a suitable recycling facility where the materials will be recycled to the extent that a commercially viable demand exists.

At the end of life of the plant, unused fuel, fluids and chemicals will be removed from site and sold for re-use or repurposed within the operator's other facilities. If no viable re-use option exists, the fluids will be removed by a licenced waste contractor for processing in a suitable treatment plant. Process equipment will be removed and repurposed with the operator's other facilities if possible or will be sold to the used equipment market where such demand exists. If equipment is able to be repurposed or sold the equipment would be transported from site in the same manner as for the original delivery. If the re-use potential only exists in the form of component spares or no re-use potential is viable, the equipment will be dismantled into manageable sections to enable transport by standard heavy goods vehicles. If there is no viable re-use option the equipment components will be removed to licenced recycling facilities and recycled as much as is possible.

As part of the Decommissioning Phase and in line with IE Licence requirements, BGE will be required to prepare and maintain both an Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP). During the Decommissioning Phase impacts to biodiversity and not considered to be likely, given the lack of significant sensitive habitats/species within the Proposed Project boundary.

Following the Decommissioning Phase, the Proposed Project site will be restored to the habitats previously present onsite, with the exception of the woodland planting bordering the site which will be left in place.

5.6 Mitigation Measures

5.6.1 Construction Phase Mitigation

5.6.1.1 Protection of Sites Designated for Nature Conservation

There are no designated sites which overlap or are in close proximity to the Proposed Project. As such any potential impacts will be indirect through impacts on long ranging species, loss of *ex-situ* habitats or through groundwater. Mitigation measure to remove or reduce potential impacts are discussed in the following sections.

5.6.1.2 Habitat Loss

Refer to the landscape plan for proposed planting to offset any habitat loss and in fact lead to a significant increase in biodiversity value of the area due to the planting of a significant number of trees, hedgerows and wildflower meadows.

5.6.1.3 Pre-Construction Survey

Prior to any site clearance and/or construction, a walkover survey will be carried out by a suitable qualified ecologist, as appointed by the Contractor. Should any rare or protected species be observed then consultation shall be made with the relevant parties on how to proceed (e.g. consultation with NPWS and subsequent provision of derogation licences) before construction can proceed. There is currently no requirement for a derogation licence for any species with regards to the Proposed Project and these pre-construction surveys are solely to ensure there has been no change between the application for planning and the start of construction.

5.6.1.4 Bats

5.6.1.4.1 Loss of Foraging/Commuting Habitats

The proposed trees and hedgerows to be planted as per the Landscape Plan will increase both foraging and commuting habitats available to bat species present in the area.

5.6.1.4.2 Lighting Disturbance

To minimise light disturbance to bats during the Construction Phase, no construction activities will take place after dark where possible. In the case where construction works require lighting during evening time, directional lighting will be used to direct light away from the linear features that commuting bats may use (treelines and hedgerows).

By adopting this mitigation during the Construction Phase, the potential impact on local bat populations as a result of light disturbance will not be significant.

5.6.1.5 Birds: Loss of Habitats

To reduce the impact of habitat loss on the local breeding bird assemblage, all vegetation clearance will be carried out outside of the breeding bird season, which is from 1 March to 31 August inclusive.

The proposed trees and hedgerows to be planted as per the Landscape Plan will increase both foraging and commuting habitats available to bird species present in the area.

5.6.1.6 Fox Den

To ensure that no foxes are using the den, a pre-construction survey will be carried out by a suitably qualified ecologist and coupled with the deployment of camera traps in the weeks leading up to the removal of the den. If cubs are using the den, then removal of the den will occur after summer months (when cubs will leave the den). By doing this, the impact to local fox populations will be greatly reduced as no mortality will occur, instead the population(s) will source new den(s). The impact on local fox populations after mitigation is therefore not significant in the long-term.

5.6.1.7 Amphibians

During the Construction Phase there is the potential for groundwater related impacts to smooth newt habitat (pond to the east of access route). Detailed groundwater mitigation measures are presented in Chapter 12 Water. The key mitigation measures to reduce impact on groundwater include bunding, containment and groundwater monitoring.

5.6.1.8 Groundwater

Detailed mitigation measures are presented in Chapter 11 Land, Soils and Geology and Chapter 12 Water. The key mitigation measures to reduce impact on groundwater include a karst protocol during construction, bunding, containment, fuel storage protocols and groundwater monitoring (as required).

5.6.2 Operational Phase Mitigation

5.6.2.1 Spread of Invasive Species

During landscaping and habitat creation there exists the possibility of accidental introduction of invasive alien plant species. To mitigate against this, native plant species (Irish provenance) should be used for all planting, and periodic inspections every 6 months for 2 years (see Section 5.7.2) following planting should be conducted by a suitably qualified ecologist as appointed by the Contractor.

5.6.2.2 Bats

5.6.2.2.1 Lighting

The operational lighting for the Proposed Project has been design in line with Bat Conservation Trust guidance (GN 08/23) as much as feasibly possible given operational requirements. See section 5.5.3.2 for detail on the lighting design.

5.7 Monitoring Requirements

5.7.1 Monitoring During the Construction Phase

General monitoring during the Construction Phase will be carried out by the site Ecological Clerk of Works (ECoW). The ECoW will carry out monitoring of the successful implementation of the construction phase mitigation measures at frequencies set out in the CEMP.

5.7.2 Monitoring During the Operational Phase

During the Operational Phase, monitoring is required to ensure no accidental invasive alien plant species become established in any of the planting areas in the landscape design. This monitoring will be carried out twice per year for two years following the completion of planting, and shall be carried out by the Contractor's appointed ecologist.

5.8 Major Accidents and Disasters

The likelihood of major accidents and disasters has been assessed in Chapter 15, with the following conclusion:

"*The Proposed Project has been designed in line with good industry practice, and, as such, mitigation against the risk of major accidents and/or disasters is embedded through the design and in accordance with planning and legislative requirements.*

As no likely significant effects were identified, no additional mitigation measures are proposed."

As major accidents and disasters are not considered likely, there is no likely significant effect as a result of such to biodiversity.

5.9 Residual Effects

Impacts on Habitats

The Proposed Project will result in the loss of a small section of hedgerow to facilitate access roads. Proposed planting during the operational phase will serve to offset this small loss. Given the extensive planting proposed in the Landscape Design Plan, there will be an increase in ecologically valuable habitat at the site. This will constitute a permanent significant positive impact on habitats as a result of the Proposed Project.

Impacts on Bats

The loss of a section of hedgerow will constitute a negative impact to local populations of commuting bats. Given the extensive planting proposed in the Landscape Design Plan, there will be a net increase in commuting and foraging habitat for bats. This will constitute a permanent significant positive impact on bats in terms of commuting habitat.

Mitigation measures will be implemented to negate impacts to bats due to lighting during the Construction Phase. Where possible, the construction compound will not be lit at night. Where night-lighting is essential, directional lighting points away from the linear features used by bats (hedgerows/treelines) will be used. Adopting this mitigation measure will constitute a not-significant impact to bats with regards to light disturbance during the Construction Phase.

Lighting during the Operational Phase has been designed in so far as possible given lighting requirement of the Proposed Project to mitigate impacts to bats. With the exception of the AGI in the south east of the site the light levels have been designed so as to be less than 1 lux before reaching the existing field boundary. The key area identified for commuting and foraging bats during the bat surveys was the mature treeline along the northern field boundary. Light levels will be below 1 lux before reaching this boundary and in most cases less than 0.5 lux. Additionally, the extensive screening planting will reduce light spill further as the trees mature.

Impacts on Birds

Impacts to local breeding bird populations have been negated by timing works such that vegetation clearance occurs outside of the breeding bird season (i.e. occurs between 1st September and 29th February). Furthermore, the extensive planting proposed in the Landscape Design Plan will create additional foraging/breeding habitat for local populations of breeding birds, ultimately providing a permanent significant positive impact.

Impacts on Mammals

The loss of the fox den represents a significant negative impact to fox. However, as per the described mitigation, the fox den will be continuously monitored in the weeks leading up to the demolition of the den to ensure that it is no longer being used. The impacts to fox as a result of this are not significant.

Impacts on Amphibians

Given the proposed mitigation to negate the effects of groundwater deterioration during the construction phase it is not expected that there will be any significant impact to smooth newt populations in the area.

Impacts to Groundwater

Given the proposed mitigation, including groundwater monitoring during piling it is not expected that there will be a significant impact on groundwater.

Spread of Invasive Species

Accidental introduction of invasive flora during the landscaping plan constitutes a significant negative impact. The Landscape Design has been designed to use native flora as much as possible while still providing sufficient visual screening for the Proposed Project, and bi-annual monitoring of the planting will be carried out by a suitably qualified ecologist. These mitigation and monitoring measures will ensure that the potential impact to flora/habitats as a result of accidental spread of invasives will not occur.

5.10 Difficulties and limitations encountered during preparation of this chapter

The inaccessibility to the field to the east containing a pond represented a limitation (as per Section 5.4.2.3.2) to the smooth newt surveys. To combat this, the precautionary principle was adopted and smooth newt were considered to be using the pond, and was assessed as such.

No other difficulties were encountered during the preparation of this chapter.

6. Landscape & Visual

6.1 Study Assessment and Methodology

Landscape and Visual Impact Assessment (LVIA) is used to identify and assess the likely significance of the effects of change resulting from a development. The two components of LVIA are:

- Assessment of landscape effects: assessing effects on the landscape as a resource in its own right; and
- Assessment of visual effects: assessing effects on specific views and on the general visual amenity experienced by people.

Landscape is defined by the European Landscape Convention[78] as '*an area as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'.*

The assessment was carried out in accordance with the following:

- Guidelines for Landscape and Visual Impact Assessment (3rd Edition[79], 2013);
- EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports 2022; and
- Galway County Development Plan 2022-2028.

The study was carried out in February to October 2025 through a combination of desk studies and field survey within the study area. The methodology for undertaking the assessment is detailed below.

6.1.1 Study Constraints

An initial field survey was undertaken on 27 February 2025 when deciduous vegetation was not in leaf, hence providing a good indication of maximum visibility and followed by an additional field survey on 15 June 2025. Photography for verified photomontage purposes was undertaken on 14 March 2025 and 29 April 2025. For safety reasons, no viewpoint photography was taken from the adjacent motorway network (M6, M17 & M18), instead viewpoints were taken from motorway overbridges.

6.1.2 Project Description/Specification

The proposals are summarised in terms of their physical appearance in Chapter 2 project description. Please also refer to the drawing pack for drawings (Appendix 2-12, Volume 3 of the EIAR). The project description sets out the essential aspects of the project considered in this landscape and visual impact assessment, the project details can be summarised as follows:

- The proposed project site will include an entrance road linking with the L3103 road;
- The proposed project site will include various buildings and structures including; an ESB substation building and compound, admin building, workshop building, a turbine and exhaust stack, fuel tanks and a telecommunications mast;
- The proposals will include neutral finishes to buildings and structures;
- The proposed project site will include internal access roads, lighting, paving and fencing;

[78] Council of Europe Landscape Convention as amended by the 2016 Protocol (2000), Council of Europe

[79] Landscape Institute and Institute of Environmental Management and Assessment (2013), Oxon: Routledge

- The proposed project site will include screen planting to the site perimeter, earth mounding and planting to the western site boundary and hedgerows and grassland;
- An above ground gas installation and associated structures will be placed to the southern part of the proposed project site;
- An underground high voltage cable route will connect the proposed project site with Cashla substation. The cable route will follow the local road network to Cashla substation and will be placed underground. The cable route predominantly traverses within the public road curtilage, with some minor sections traversing within privately owned lands. This is necessitated by the use of a horizontal directional drilling (HDD) section to cross the M6 motorway in two separate locations and the M17 motorway in one location; and
- It is proposed the Peaker Plant will operate until 31 December 2050. At the end of this period, the plant will be decommissioned and all associated infrastructure removed from the site. Screen planting established during the operational phase will be retained and areas of hard standing will be returned to grassland.

6.1.3 Study Area

The Study Area for the assessment was devised as an area sufficient to enable the potential significant effects of the project on landscape character and views/ visual amenity to be analysed in accordance with Guidelines for Landscape and Visual Impact Assessment (3rd Edition, 2013).

The Study Area includes areas of land within a 3.5 km radius of the centre of the proposed main project site. Refer also to Section 6.2.3 Zone of Theoretical Visibility.

6.1.4 Baseline Studies

The baseline landscape and visual conditions were established through a combination of desk-based studies and field surveys conducted between February and June 2025.

6.1.4.1 Landscape Baseline

The aim of the landscape baseline is ‘to provide an understanding of the landscape in the area that may be affected, its constituent elements, its character and way it varies spatially, its geographic extent, its history, its condition and the way the landscape is experienced, and the value attached to it’ (Landscape Institute and Institute of Environmental Management and Assessment, 2013). The baseline study was undertaken by a mix of desktop study and fieldwork to identify and record the character of the landscape and the elements, features and aesthetic and perceptual factors which contribute to it. The baseline study also considered the landscape condition and the value attached to landscape. Sources of information for the desktop study consisted of Ordnance Survey maps; aerial imagery of the site and surrounding area sourced from Google Maps and Bing Maps; existing landscape character assessments; and relevant planning policy from the Galway County Development Plan 2022–2028. Additional sources comprised Geological Survey Ireland online maps; National Monuments Service Historic Environment Viewer; National Parks and Wildlife Service (NPWS) Designations Viewer; Tailte Éireann Irish Townland and Historical Map Viewer; Teagasc Irish Soil Information System; The Heritage Council Heritage Maps Viewer; Office of Public Works (OPW) Flood Mapping; and Tailte Éireann Land Registration Boundaries Mapping.

6.1.4.2 Visual Baseline

The aim of the visual baseline is ‘to establish the area in which the project may be visible, the different groups of people who may experience views of the project, the places where they will be affected and the nature of the views and visual amenity at those points’ (Landscape Institute and Institute of Environmental Management and Assessment, 2013). The baseline study was undertaken by desktop study followed by a field survey. The Zone of Theoretical Visibility (ZTV) or areas of land from which the proposed main project site may be potentially

visible was undertaken using; Tailte Éireann 10m LiDAR Digital Terrain Model (DTM), Tailte Éireann Discovery Mapping, aerial photography and the site layout/ elevation drawings. A 3D model was constructed of the Proposed Project on the proposed main project site, using multiple height target points for the proposed building heights located across the terrain data. The height data was derived from the architectural drawing information. There are areas within the ZTV which do not have views of the project due to local variations in vegetation, topography and built development.

The ZTV has been prepared using a 10 m LiDAR digital terrain model, with buildings and vegetation digitised to reflect screening effects. While this increases realism, the ZTV remains a precautionary, worst-case representation of potential visibility. Due to data resolution and the generalisations inherent in modelling, it is more likely to overestimate visibility rather than underestimate it. This does not undermine the robustness of the assessment, and actual visibility has been verified through field survey and detailed visual assessment in accordance with GLVIA guidance.

6.1.5 Landscape Assessment Criteria

The overall significance of effects is established by combining the separate judgements about sensitivity and magnitude of effects.

Sensitivity includes an assessment of landscape receptors' susceptibility to change and value.

Factors considered in assigning landscape value include:

- the presence of international, national or local designations;
- the quality or condition of the attributes and features contributing to character;
- scenic quality (including all sensory aspects);
- the presence of rare elements, features or overall landscape type;
- the degree to which the landscape is representative of important defining characteristics;
- the presence of features of ecological, historical or geological conservation interest;
- the recreational value of the landscape;
- the likely perception of the landscape in connection with its wildness and/or tranquillity; and
- cultural associations such as with notable people or historical events.

The criteria in combination with professional judgment for assessing value to landscape receptors is set out in below.

With regard to susceptibility, an attribute would be judged as very susceptible to change if it is very likely to be substantively affected by change of the nature proposed. Conversely, an attribute would not be susceptible to change if the nature of change proposed would not affect in any way the attribute. The criteria for assessing susceptibility of landscape in combination with professional judgement are described at Table 6.2.

The separate assessments of value and susceptibility are then combined to determine the sensitivity of each receptor against the criteria in Table 6.3 which, in combination with professional judgement, guides the assessment of sensitivity.

Magnitude includes an assessment of the impact on landscape receptors in terms of the size or scale of change, the geographical extent of the area affected, and the duration (temporary, short-term, medium-term, long-term, or permanent) and reversibility of the effect. The nature of effects is described separately as either beneficial, adverse or neutral. The criteria in combination with professional judgment for assessing the magnitude of impact are described in Table 6.4.

The separate assessments of sensitivity and magnitude are then combined with professional judgement to determine the significance of effect on each receptor. These levels of significance can either be beneficial or adverse and are described in Table 6.5.

6.1.6 Visual Assessment Criteria

The overall significance of effects is established by combining the separate judgements about sensitivity and magnitude of effects. Sensitivity includes an assessment of the visual receptors susceptibility to change and the value attached to views.

Value was attributed to visual amenity within the Study Area incorporating the site according to the criteria in combination with professional judgment set out in Table 6.1 below. Factors influencing the judgement of value included:

- recognition of the value attached to particular views, for example in relation to heritage assets, or through planning designations; and
- indicators of the value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment or convenience, and references to them in literature or art.

Next, the susceptibility of visual receptors to changes in their view of the nature proposed was considered. As set out in the GLVIA, this depends upon the occupation or activity of people experiencing the view and the extent to which their attention or interest may be focused upon visual amenity as a result. The criteria for assessing visual receptor susceptibility in combination with professional judgement are described at Table 6.2.

The separate assessments of value and susceptibility are then combined to determine the sensitivity of each receptor against the criteria in Table 6.3 which in combination with professional judgement guides the assessment of sensitivity.

Magnitude includes an assessment of the impact on landscape receptors in terms of the size or scale of change, the geographical extent of the area affected, and the duration (temporary, short-term, medium-term, long-term, or permanent) and reversibility of the effect. The nature of effects is described separately as either beneficial, adverse or neutral. The criteria in combination with professional judgment for assessing the magnitude of impact are described in Table 6.4 below.

The separate assessments of sensitivity and magnitude are then combined with professional judgement to determine the significance of effect on each receptor. These levels of significance can either be beneficial or adverse and are described in Table 6.5.

Table 6.1 Criteria for landscape value and value of views

Value	Landscape Value typical criteria	Value of Views typical criteria
Very High	International or National importance. Highly distinctive landscape characteristics Distinctive/rare/unique features worthy of conservation Strong sense of place No detracting features	Highly distinctive view including nationally or internationally significant features or scenery. Evidence of popular use including access routes facilities and specific viewing infrastructure. No detracting features.
High	National, Regional or Local importance. Highly distinctive landscape characteristics Distinctive/rare/unique features worthy of conservation Strong sense of place	Highly distinctive although not necessarily widely publicised view of unique or rare features or scenery. Evidence of popular use including frequented access routes.

	Occasional detracting features	Occasional or no detracting features.
Medium	Regional or Local importance. Recognised landscape characteristics Some features worthy of conservation Sense of place Some detracting features	Highly or moderately distinctive view not widely publicised and likely to be experienced mainly in passing and by smaller numbers of people living nearby. Some access infrastructure with little evidence of heavy use. Some or occasional detracting features.
Low	Local importance. Distinguishable landscape characteristics Few features worthy of conservation No particular sense of place Frequent detracting features	Moderately distinctive or undistinguished view not widely known or frequented. Some access routes, e.g. Public Rights of Way. Frequent detracting features may be present.
Very Low	Local importance. Degraded/damaged landscape characteristics No features worthy of conservation Extensive detracting features	View with few or no distinctive features. Areas accessed mainly for transitory purposes. Frequent detracting features.

Table 6.2 Criteria for landscape and visual receptor susceptibility

Susceptibility	Landscape Susceptibility Criteria	Visual Receptor Susceptibility to Change Criteria
Very High	The landscape receptor has *no or very limited* ability to accommodate the Proposed Project without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning polices and strategies.	People engaged in outdoor recreation within very important national/ international landscape, cultural/ historic sites (e.g. National Parks, UNESCO World Heritage sites), including users of public rights of way, whose attention is likely to be focussed on the landscape and particular views.
High	The landscape receptor has *limited* ability to accommodate the Proposed Project without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning polices and strategies.	Residents People engaged in outdoor recreation, including user of public rights of way, whose attention is likely to be focussed on the landscape and particular views. Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience.

Susceptibility	Landscape Susceptibility Criteria	Visual Receptor Susceptibility to Change Criteria
		Communities where views contribute to the landscape setting and are enjoyed by residents. Travellers on scenic routes where awareness of views is likely to be high.
Medium	The landscape receptor has *some* ability to accommodate the Proposed Project without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning polices and strategies.	Travellers on road, rail or other transport routes.
Low	The landscape receptor has the ability to accommodate the Proposed Project without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning polices and strategies.	People engaged in outdoor recreation, which does not involve appreciation of views. People at their place of work, whose attention may be focussed on their work and where the setting not important to the quality of working life.
Very Low	The landscape receptor has the ability to accommodate the Proposed Project without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning polices and strategies.	Travellers on road, rail or other transport routes within degraded landscape.

Table 6.3 Criteria for assessing landscape and visual receptor sensitivity

Sensitivity (susceptibility and value)	Landscape criteria	Visual criteria
Very High	Landscapes of very high international/ national importance and rarity or value with no or very limited ability to accommodate change without substantial loss/ gain (i.e. national parks, internationally acclaimed landscapes - UNESCO World Heritage Sites).	1) Static views from and of major tourist attractions; 2) Views from and of very important national/ international landscapes, cultural/ historical sites (e.g. National Parks, UNESCO World Heritage sites); 3) Receptors engaged in specific activities for enjoyment of dark skies.
High	Landscapes of high national importance containing distinctive features/ elements with limited ability to accommodate change without incurring substantial loss/ gain (i.e. designated areas, areas of strong sense of place - registered parks and gardens, country parks).	1) Views by users of nationally important Public Right of Way (PRoW) / recreational trails (e.g. national trails, long distance footpaths); 2) Views by users of public open spaces for enjoyment of the countryside (e.g. country parks);

Sensitivity (susceptibility and value)	Landscape criteria	Visual criteria
		3) Static views from dense residential areas, longer transient views from designated public open space, recreational areas; 4) Views from and of rare designated landscapes of national importance.
Medium	Landscapes of local or regional recognition of importance able to accommodate some change (i.e. features worthy of conservation, some sense of place or value through use/ perception).	1) Static views from less populated residential areas, schools and other institutional buildings and their outdoor areas; 2) Views by outdoor workers; 3) Transient views from local/regional areas such as public open space, scenic roads, railways or waterways, users of local/ regional designated tourist routes of moderate importance; 4) Views from and of landscapes of regional importance.
Low	Local landscape areas or receptors of low to medium importance with ability to accommodate change (i.e. non-designated or designated areas of local recognition or areas of little sense of place).	1) Views by users of main roads or passengers in public transport on main arterial routes; 2) Views by indoor workers; 3) Views by users of recreational/formal sports facilities where the landscape is secondary to enjoyment of the sport; 4) Views by users of local public open spaces of limited importance with limited variety or distinctiveness.
Negligible	Landscapes of very low importance and rarity able to accommodate change.	1) Quick transient views such as from fast moving vehicles; 1) Views from industrial area, land awaiting re-development; 2) Views from landscapes of no importance with no variety or distinctiveness.

Table 6.4 Magnitude of Impact Criteria

Magnitude (change) of effect	Landscape criteria	Visual criteria
Major	Total loss or large-scale damage to existing landscape character or distinctive features or elements; and/or addition of new uncharacteristic, conspicuous features or elements. Large scale improvement of landscape character to features and elements; and/or	The project, or a part of it, would become the dominant feature or focal point of the view.

Magnitude (change) of effect	Landscape criteria	Visual criteria
	addition of new distinctive features or elements, or removal of conspicuous infrastructure elements.	
Moderate	Partial loss or noticeable damage to existing landscape character or distinctive features or elements; and/ or addition of new uncharacteristic, noticeable features or elements. Partial or noticeable improvement of landscape character by restoration of existing features or elements; or addition of new characteristic features or elements or removal of noticeable features or elements.	The project, or a part of it, would form a noticeable feature or element of the view which is readily apparent to the receptor.
Minor	Slight loss or damage to existing landscape character of one (maybe more) key features and elements; Slight improvement of landscape character by the restoration of one (maybe more) key existing features and elements; and/or the addition of new characteristic features.	The project, or a part of it, would be perceptible but not alter the overall balance of features and elements that comprise the existing view.
Negligible	Very minor loss, damage or alteration to existing landscape character of one or more features and elements. Very minor noticeable improvement of character by the restoration of one or more existing features and elements.	Only a very small part of the project work or activity would be discernible or being at such a distance it would form a barely noticeable feature or element of the view.
No Change	No noticeable alteration or improvement, temporary or permanent, of landscape character of existing features and elements.	No part of the project work or activity would be discernible.

Table 6.5 Significance categories of landscape and visual effects

Category	Landscape	Visual
Very Large Beneficial Effect	The project would greatly enhance the character (including quality and value) of the landscape; create an iconic high-quality feature and/or series of elements; enable a sense of place to be created or greatly enhanced.	The project would create an iconic new feature that would greatly enhance the view.
Large Beneficial Effect	The project would enhance the character (including quality and value) of the landscape; enable the restoration of characteristic features and elements lost as a result of changes from inappropriate management or development; enable a sense of place to be enhanced.	The project would lead to a major improvement in a view from a highly sensitive receptor.
Moderate Beneficial Effect	The project would improve the character (including quality and value) of the landscape; enable the restoration of characteristic features and elements partially lost or diminished as a result of changes from inappropriate management or development; enable a sense of place to be restored.	The project would cause obvious improvement to a view from a moderately sensitive receptor, or perceptible improvement to a view from a more sensitive receptor.
Slight Beneficial Effect	The project would complement the character (including quality and value) of the landscape; maintain or enhance characteristic features and elements; enable some sense of place to be restored.	The project would cause limited improvement to a view from a receptor of medium sensitivity or would cause greater improvement to a view from a receptor of low sensitivity.
Neutral Effect	The project would maintain the character (including quality and value) of the landscape; blend in with characteristic features and elements; enable a sense of place to be retained.	Difficult to distinguish, barely perceptible change in view. No perceptible change in view
Slight Adverse Effect	The project would not quite fit the character (including quality and value) of the landscape; be at variance with characteristic features and elements; detract from a sense of place.	The project would cause limited deterioration to a view from a receptor of medium sensitivity or cause greater deterioration to a view from a receptor of high sensitivity
Moderate Adverse Effect	The project would conflict with the character (including quality and value) of the landscape; have an adverse impact on characteristic features or elements; diminish a sense of place	The project would cause obvious deterioration to a view from a moderately sensitive receptor, perceptible damage to a view from a more sensitive receptor.
Large Adverse Effect	The project would be at considerable variance with the character (including quality and value) of the landscape; degrade or diminish the integrity of a range of characteristic features and elements; damage a sense of place.	The project would cause major deterioration to a view from a highly sensitive receptor and would constitute a major discordant element in the view.
Very Large Adverse Effect	The project would be at complete variance with the character (including quality and value) of the landscape; cause the integrity of characteristic features, elements and sense of place to be lost.	The project would cause the loss of views from a highly sensitive receptor and would constitute a dominant discordant feature in the view.

Note: For the purposes of this assessment, effects classified as moderate, large or very large are considered significant in EIAR terms.

6.2 Receiving Environment

6.2.1 Planning Context

This section summarises relevant local landscape planning policy and landscape designations. Information on landscape character is described under the 'landscape baseline' at Section 6.2.2 below.

6.2.1.1 Galway County Council Development Plan 2022-2028

The following polices from the Galway County Development Plan 2022-2028, adopted June 2022 relevant to the application site are as follows:

Policy Objective EG 1: Enhancement of Electricity Infrastructure.

Includes reference to the following: *'Support and promote the sustainable improvement and expansion of the electricity transmission and distribution network that supply the County, while taking into consideration landscape, residential, amenity and environmental considerations.'*

Policy Objective LP 1: Lighting Schemes.

Includes reference to the following: *'To require that all developments shall ensure lighting schemes are designed so that excessive light spillage is minimised to ensure light pollution in the surrounding environment including residential amenity, wildlife and near public roads is limited. Such lighting schemes shall be submitted and agreed with the Planning Authority.'*

Policy Objective LCM1: Preservation of Landscape Character.

Includes reference to the following: *'Preserve and enhance the character of the landscape where, and to the extent that, in the opinion of the Planning Authority, the proper planning and sustainable development of the area requires it, including the preservation and enhancement, where possible of views and prospects and the amenities of places and features of natural beauty or interest.'*

Policy Objective LCM2: Landscape Sensitivity Classification.

Includes reference to the following: *'The Planning Authority shall have regard to the landscape sensitivity classification of sites in the consideration of any significant development proposals and, where necessary, require a Landscape/Visual Impact Assessment to accompany such proposals. This shall be balanced against the need to develop key strategic infrastructure to meet the strategic aims of the plan.'*

Policy Objective LCM3: Landscape Sensitivity Ratings.

Includes reference to the following: *'Consideration of landscape sensitivity ratings shall be an important factor in determining development uses in areas of the County. In areas of high landscape sensitivity, the design and the choice of location of Proposed Project in the landscape will also be critical considerations.'*

Policy Objective PVSR 1: Protected Views and Scenic Routes.

Includes reference to the following: *'Preserve the protected views and scenic routes as detailed in Maps 8.3 and 8.4 from development that in the view of the Planning Authority would negatively impact on said protected views and scenic routes. This shall be balanced against the need to develop key infrastructure to meet the strategic aims of the plan.'* There are no protected views within the study area.

Policy Objective TWHS 1: Trees, Hedgerows, Natural Boundaries and Stone Walls.

Includes reference to the following; *'Protect and seek to retain important trees, tree clusters and tree boundaries, ancient woodland, natural boundaries including stonewalls, existing hedgerows particularly species rich roadside and townland boundary hedgerows, where possible and replace with a boundary type similar to the existing boundary. Ensure that new development proposals take cognisance of significant trees/tree stands and*

that all planting schemes developed are suitable for the specific site and use suitable native variety of trees of Irish provenance and hedgerows of native species. Seek Tree Management Plans to ensure that trees are adequately protected during development and incorporated into the design of new developments.'

Policy Objective: TWHS 2 Planting of Trees and Woodlands.

Includes reference to the following; *'Encourage and promote in co-operation with Coillte and the Department of Agriculture, Food and the Marine and other organisations, the planting of trees and woodlands, as an important means of contributing to its objective of sustaining, protecting and enhancing the County's biodiversity, natural resources, amenity, landscape and developing tourism product. Encourage community woodlands in urban/urban fringe areas utilising funding available through schemes such as the Neighbour Wood and Native Woodland Schemes.*

Policy Objective: GBI 1 New Developments.

Includes reference to the following; *'Require all proposals for large scale development to contribute to the protection, management and enhancement of the existing green/blue infrastructure of the County and the delivery of new green/blue infrastructure, where appropriate by including a green/ blue infrastructure plan as an integral part of any planning application. This plan should identify environmental and ecological assets, constraints and opportunities and shall include proposals which protect, manage, and enhance the development of green infrastructure resources in a sustainable manner.'*

Policy Objective: AH 4 Architectural Conservation Areas.

Includes reference to the following; *'Protect, conserve and enhance the special character of the Architectural Conservation Areas (ACA) included in this plan through the appropriate management and control of the design, location and layout of new development, modifications, alterations or extensions to existing structures, surviving historic plots and street patterns and/or modifications to the character or setting of the Architectural Conservation Area. Works within the ACA shall ensure the conservation of traditional features and building elements that contribute to the character of the area. The special character of an area includes its traditional building stock and material finishes, spaces, streetscape, shop fronts, landscape and setting. New proposals shall have appropriate regard to scale, plot, form, mass, design, materials, colours and function.*

This will be achieved by;

(a) Protecting all buildings, structures, groups of structures, sites, landscapes and all features which contribute to the special character of the ACA from demolition and non-sympathetic alterations.

(b) Promote appropriate and sensitive reuse and rehabilitation of buildings and sites within the ACA.

(c) Ensure new development within or adjacent to an ACA respects the established character of the area and contributes positively in terms of design, scale, setting and material finishes to the ACA.

(d) Promote high quality architectural design within ACAs.

(e) Seek the repair and reuse of traditional shopfronts and where appropriate, encourage new shop fronts of a high-quality architectural design.

(f) Ensure that all new signage, lighting, advertising and utilities to buildings within ACA are designed, constructed, and located in such a manner that they do not detract from the character of the ACA.

(g) Protect and enhance the quality of open spaces within ACAs and ensure the protection and where necessary reuse of street furniture and use of appropriate materials during the course of public infrastructure schemes within ACAs.

(h) Prohibit development proposals, either in whole or in part for the demolition of a structure within an Architectural Conservation Area that contributes to the special character of the area.

(i) Protect structures in ACAs from non-sympathetic alterations and encourage appropriate infill developments

(j) Works materially affecting the character of a protected structure or the exterior of a building/ structure within an ACA will require planning permission;

(k) Any works carried out to a protected structure or the exterior of a building/structure within an ACA shall be in accordance with best conservation practice and use sustainable and appropriate materials.

(l) Ensure that any development, modifications, alterations, or extensions materially affecting the character of a protected structure, or a structure adjoining a protected structure, or a structure within or adjacent to an Architectural Conservation Area (ACA), is sited and designed appropriately and is not detrimental to the character or setting of the protected structure or of the ACA.'

6.2.2 Receiving Environment – Landscape

The aim of the landscape baseline is 'to provide an understanding of the landscape in the area that may be affected, its constituent elements, it's character and way it varies spatially, its geographic extent, its history, its condition and the way the landscape is experienced, and the value attached it' (Landscape Institute and Institute of Environmental Management and Assessment, 2013).

6.2.2.1 Galway County Council Landscape Character Assessment

Galway County Council Landscape Character Assessment, June 2022 is included in Appendix 4 of the Galway Development Plan 2022-2028 defines two Landscape Character Types and one Landscape Character Unit coinciding with the study area: Central Galway Complex Landscape Type, Urban Environs Landscape Type and 6b Southern River Clare Basin Landscape Character Unit (Refer to Landscape Character Types drawing Appendix 5).

The Landscape Type **Central Galway Complex Landscape** is described within the Galway County Council Landscape Character Assessment as follows:

'Most of Galway's settlement and agriculture, with associated roads and infrastructure, occur within this busy working landscape. Each period of history has attracted farming and settlement to the fertile, level soils of this landscape. Ringforts, tower-houses, field walls and parklands occur throughout this area, as evidence of these past uses. Today, the rural housing, with associated roads, schools, powerlines, clubs and signposts that create the domesticated landscape character in the environs of towns, villages and smaller settlements that recurs throughout this landscape. The appearance and character of the majority of this landscape type remains dominated by grass-based agriculture. Fields generally have low enclosure, with limestone walls evident in many areas. The wider landscape is punctuated by stands of large mature trees – often remains of parkland landscapes that surrounded large 17th – 19th estate residences. In some areas there are large blocks of commercial forestry that further subdivide these grasslands. Though largely level, roads along occasional low ridges provide long-distance vistas that extend to distant horizons in other counties.'

Landscape Type Central Galway Complex Landscape is divided into Landscape Character Units. Landscape Character Unit, 6b. Southern River Clare Basin is within the study area. The entire Proposed Project site is within 6b. Southern River Clare Basin.

The key characteristics of Landscape Character Unit, **6b. Southern River Clare Basin** is described within the within Galway County Council Landscape Character Assessment as follows:

- Undulating long-occupied working landscape with high levels of settlement;

- Large regular fields and numerous parkland remnants;
- Extensive wetland areas near Lough Corrib; and
- Low enclosure except for localised areas of mature parkland trees.

Galway County Council Landscape Character Assessment classifies the sensitivity of both Landscape Type Central Galway Complex Landscape and Landscape Character Unit, 6b. Southern River Clare Basin as Class 1 – Low Sensitivity: Unlikely to be adversely affected by change.

The Landscape Type **Urban Environs** includes the part of the study area at/ near Athenry (note the Proposed Project site is not located within Urban Environs landscape type) and is described within the Galway County Council Landscape Character Assessment as follows:

'This category occurs throughout the county outside of the administrative boundaries of settlements of all sizes. Urbanised landscapes occur around settlements. These landscapes often concentrations of individual dwellings, old and new. Around larger towns they also consist of modern estate housing and recreation facilities as well as developments of commercial, industrial and educational buildings. This pattern changes from concentric to radial along major transportation corridors that support many residential communities. Many of County Galway's urban environs are highly distinctive because of their proximity to areas of strong natural character such as the rivers, lakes or coasts. Other settlements adjoin extensive areas of naturalized scrub vegetation, bog or low-lying wetlands.'

Galway County Council Landscape Character Assessment classifies the sensitivity of Landscape Type Urban Environs as Low Sensitivity to change.

6.2.2.1.1 Landscape Designations

Galway County Council Landscape Character Assessment, June 2022 identifies Protected Views and Scenic Routes. There are no Protected Views and Scenic Routes within the study area.

Athenry Town Centre is located within an Architectural Conservation Area (ACA). Athenry Town Centre is located outside of the Zone of Theoretical Visibility (ZTV), Visual Buffers calculation of the proposals due to existing intervening vegetation and built development which screens views of the Proposed Project from the town centre, refer to Zone of Theoretical Visibility drawings including Visual Buffers, Appendix 6-1, Volume 3 of the EIAR.

Appendix 7 of the Galway Development Plan 2022-2028 Statement of Significance for the ACA designation is described as follows:

'Athenry's principal significance lies in its degree of survival as a medieval fortified town, embracing a number of fine monuments and archaeological remains. The street pattern, plot sizes, buildings and architectural coherence visibly emerge directly from this historic role. The majority of town buildings spans the late 19th century and share many characteristics. Surviving traditional shop fronts are important features. The open fields within the walls are notable. The form, attractiveness and uniqueness of the town are of international significance and a potentially greater cultural attraction.'

6.2.2.2 Site Description

The proposed main project site consists of a large pasture field, bounded by a stone wall and a line of trees to the north, a stone wall to the east and a fence to the west and south. The proposed main project site topography is undulating and varies from +51.86m in the northeast to +58.58m in the southwest. There is one hawthorn tree and 2no. concrete structures within the site.

The immediate proposed main project site context includes: pasture farmland to the immediate north and east, the M17 motorway to the west, M6/ M18 & M17 motorway junction to the south west, and the M6 motorway to the south.

The access route to the proposed main project site from the L3103 road passes through pasture fields bounded by stone walls and scattered scrub and trees.

The proposed HV cable route follows the local road network (including the L3103 and L7109 roads) to Cashla Substation, except at three locations where it crosses beneath the M17 and M6 motorways. At each of these crossing points, it will also pass through short sections of greenfield land.

6.2.2.3 Landscape Character Study

The key elements of local landscape character within the study area recorded following desk top study and field survey is summarised below:

Table 6.6 Landscape Character

Natural Factors	
Element	**Description**
Geology	Bedrock Geology: Burren Formation. Pale grey clean skeletal limestone. The formation is typified by pale-grey packstones and wackestones, but also contains intervals of dark cherty limestones, often associated with oolitic grainstones. Quaternary Sediments: Till derived from limestones. Kartsified bedrock outcrop or subcrop. Eskers comprised of gravels of basic reaction. Bedrock outcrop or subcrop Lacustrine sediments. Geological Survey Ireland (2025).
Landform	Undulating lowland.
Hydrology	The River Clarin runs through Athenry. There are numerous field ponds at Pollnagroagh in particular.
Soils	Fine loamy over limestone bedrock to the proposed main project site itself and south and west of the proposed main project site. Fine loamy drift with limestones north and east of the proposed main project site and towards Athenry. Teagasc (2025).
Land cover/ flora and fauna	Numerous trees along roads and in association with buildings and settlement and stream/ river corridors. Fields and roads are usually bounded by stone walls/ hedgerows or open. Semi natural habitats include deciduous woodland, scrub, semi-improved grassland, field ponds and the River Clarin. There are no Proposed Special Protection Areas (pSPA), Special Protection Areas (SPA), Proposed Natural Heritage Areas (pNHA), Natural Heritage Areas (NHA), candidate Special Areas of Conservation (cSAC), Special Areas of Conservation (SAC) within the study area. National Parks and Wildlife Service (2025).
Cultural/ Social Factors	
Element	**Description**
Land Use	Settlement at Athenry and environs including residential, commercial and industrial land use. Ribbon development along local roads including at: Castlelambert, Knocknacreeva, Lisheenkyle, Palmerstown, Rathmorrissy & Moanbaun. Improved grassland farmland. Coniferous forestry. Woodland. Local road network including M6, M18 and M17 motorways and local/ regional roads and lanes. Energy infrastructure including pylon routes. Substation at Cashla. Quarry at Cashla. Dublin to Galway Railway Line.
Settlement	Athenry includes a historic core surrounded by suburban development.

	The rural areas include one-off isolated dwellings and ribbon development along local roads. Building materials include local stone, render and slate roofs.
Enclosure	Small to large sized irregular shaped fields bounded by hedgerows or stone walls. Residential development enclosed by boundary walls, hedges, fencing and ornamental planting.
Time depth	The historic core of Athenry is within an Architectural Conservation Area (ACA). (Note, the ZTV and field studies indicates there will be no views to the Proposed Project site from Athenry ACA due to the effect of distance and intervening built development, topography and vegetation). *Record of Protected Structures:* There are numerous records of protected structures at Athenry. There is a Group of Art Nouveau influenced buildings at the Teagasc Agricultural Centre at Ballygurraun West. Derrydonnell Bridge - 1-arch limestone railway bridge at Derrydonnell. *Sites and Monuments Records:* There are no SMR (Sites and Monuments Records) within the proposed main project site itself. There are numerous SMR surrounding the site including many Raths. The Heritage Council (2025). 6" First Edition maps show a demesne landscape at Castle Lambert northwest of the proposed main project site. Tailte Éireann (2025).

Perceptual and Aesthetic Factors

Element	**Description**
Aesthetic aspects (sight)	Scale: The area appears small, where the landscape is partially enclosed by built development, topography and vegetation. However, the scale feels larger, particularly from the more open rural areas with low stone walls, where long-distance views extend to elevated land in the distance. Enclosure: The landscape is generally open where there are large pasture fields and low stone walls. Areas of landscape with blocks of woodland and tree lined routes are more enclosed. Diversity: A typical blend of pasture farmland interwoven with natural features like woodlands/ trees and enhanced by field stone walls that contribute to the area's local character. Texture: Large areas of pasture grassland create a smooth and uniform appearance across the landscape, while woodlands, trees, scrub, boundary planting, and stone walls introduce contrasting textures and visual depth. Form: Gently undulating lowland with subtle elevation changes. Line: Gently undulating line Colour: Grassland, woodland and tree planting give green colour to the landscape with seasonal change from deciduous trees in autumn and winter. Shifting colours to sky according to weather patterns. Balance: The rural farmland areas generally appear well-balanced, though the landscape near the motorway network and the outskirts of Athenry shows some signs of degradation. However, this will improve over time as the woodland planting along these routes matures. Movement: Still to calm local roads/ lanes, little traffic (during site survey). Areas along motorways/ and at Athenry are busy and active. Pattern: Irregular linear pattern to the built development areas. Ribbon development along local roads. Irregular shaped fields. Smooth continuous curved pattern to motorway network. Overhead transmission lines and electricity pylons are noticeable linear features within the study area.
Other perceptual aspects	Security: Area was perceived as safe. Tranquillity: The area is busy and active near the motorway network and around Athenry. However, along local roads further from the motorways, it transitions into a tranquil and peaceful rural setting. Lighting from settlement areas at Athenry in particular and to motorway junctions. Stimulus: The area is a typical lowland landscape including pasture farmland and gently undulating landform. Stone boundary walls give the area local identity. The local landscape is heavily influenced by the functional aspects of the landscape including the motorway network, existing electricity infrastructure pylons, settlement including residential ribbon development.

Pleasure: The area is perceived as functional and ordinary near the motorway network and to the outskirts to Athenry. Away from the motorway network and along local roads the rural areas are quite pleasant.

6.2.2.4 Landscape Condition and Value

From the field survey it was noted that the landscape in the area is generally in good condition, with intact characteristics such as undulating pasture, hedgerows, trees, historic field patterns and stone walls contributing to character.

There are some detracting features including overhead powerlines and motorway infrastructure. There are no local, regional or national landscape designations coinciding with the rural parts of the study area. The landscape is of local importance. The value of the landscape within the study area is judged to be Low.

6.2.3 Receiving Environment – Visual

The aim of the visual baseline is 'to establish the area in which the project may be visible, the different groups of people who may experience views of the project, the places where they will be affected and the nature of the views and visual amenity at those points.' Landscape Institute and Institute of Environmental Management and Assessment (2013).

6.2.3.1 Zone of Theoretical Visibility

The Zone of Theoretical Visibility (ZTV) or areas of land from which the proposed main project site may be potentially visible were identified and mapped, refer to the Zone of Theoretical Visibility drawings in Appendix 6-1, Volume 3 of the EIAR.

The Zone of Theoretical Visibility (ZTV) was undertaken using; Tailte Éireann 10m LIDAR Digital Terrain Model (DTM), Tailte Éireann Discovery Mapping, aerial photography and the site layout/ elevation drawings. A 3D model was constructed of the Proposed Project on the proposed main project site, using multiple height target points for the proposed building heights located across the terrain data. The height data was derived from the architectural drawing information.

The GIS software used a viewing height of 1.60m across the study area to calculate the areas of potential visibility of the Proposed Project. The first calculation undertaken was purely a bare earth calculation and therefore shows maximum *theoretical* visibility based on landform and does not include the screening effects of intervening buildings or vegetation.

The second calculation undertaken includes the screening effects of visual buffers i.e., intervening buildings and vegetation across the study area. Field survey identified the following typical heights:

- Buildings 9m;
- Woodland 12m;
- Unmanaged Hedgerows 5m; and
- Managed Hedgerows 2m.

The above elements were digitised from aerial photography and extruded to the correct height, to illustrate the effects of the visual buffers in reducing visibility within the study area.

The results of the first calculation (bare earth), which does not include the screening effects of buildings or vegetation illustrate areas of variation of visibility of the Proposed Project based on landform only. The result of the study shows that the proposals (*in theory*) would include extensive areas of land primarily within the study area.

The results of the second calculation which takes in to account the screening effects of; intervening vegetation (hedgerow, trees, woodland) and buildings in the wider landscape. The result of the study shows that the proposals (in theory) give rise to a further reduced ZTV area primarily located in a cluster within a 2km radius of the proposed main project site with further areas of potential visibility located outside the primary cluster especially in areas of rising topography to the north of the study area.

Refer to Zone of Theoretical Visibility drawings including Visual Buffers, Appendix 6-1, Volume 3 of the EIAR. The ZTV study was used to inform the selection of representative viewpoints in the field. Section 6.3 describes the visual effects of the project on selected viewpoints from within the ZTV study area. Refer to Appendix 6-1, Volume 3 of the EIAR. for viewpoint locations and viewpoint images/ photomontage.

6.2.3.2 Visual Receptors

The following groups of people are potential visual receptors to changes within the site:

- Users of public roads near the site including:
  - M17 Motorway;
  - M18 Motorway;
  - M6 Motorway;
  - L3103 Local Road;
  - Local Road through Castlelambert and Knocknacreeva;
  - Local Road at Lisheenkyle East connecting to M6 overbridge;
  - L7109 Barrettspark and L7109 Lisheenkyle East;
  - Local Road at Moanbaun;
  - L3105 Moanbaun;
  - L3125 Ballydavid South;
  - R347 Regional Road;
  - R348 Regional Road;
  - R339 Regional Road; and
  - Local Road at Rathmorrissy.
- Residents of the nearest settlement areas including:
  - Dwellings located along the L3103 Road north/ north west and northeast of the proposed main project site;
  - Dwellings located along the local road at Castlelambert, Knocknacreeva and Caherbriskaun;
  - Dwellings located northeast of the proposed main project site within rural areas at Pollnagroagh/ Ballygarraun North;
  - Dwellings located south of the proposed main project site at Rathmorrissy;
  - Dwellings located along the L7109 Lisheenkyle East Road towards Cashla Substation; and
  - Dwellings to the western suburbs at Athenry.
- Workers and visitors to commercial/ industrial property including:
  - Coffey Group offices at the L3103 Road north of the proposed main project site; and
  - Dexcom manufacturing plant at Athenry.

- Public buildings including:
  - Presentation College at Athenry; and.
  - Teagasc Mellows Campus.
- Railway:
  - Users of the Dublin to Galway railway.

6.2.3.3 Public Roads

The ZTV suggests there may be views towards the proposed main project site from short sections of the M6 and M18 motorways near the junction with the M17 motorway, otherwise intervening topography and vegetation limits views to the proposed main project site development. There may be views from the M17 motorway from its junction with the M6/M18 north towards Tobernavean.

The ZTV suggests there may be some distant views to the main project site from sections of the R339, R347 and R348.

The ZTV suggests there may be some distant views to the main project site from sections of the L3103, Local Road through Castlelambert and Knocknacreeva, L7109, Local Road at Rathmorrissy, L3105 and L3125 Ballydavid South.

6.2.3.4 Settlement

The ZTV suggests there may be some distant views to the proposed main project site from residential dwellings located along the local and regional road network around the main project site including; dwellings located along/ near the local road through Castlelambert, Knocknacreeva and Lisheenkyle East. Dwellings located along/ near the L3103 at Pollnagroagh, Pollagooil and Newtown, dwellings located at Rathmorrissy, dwellings located along short sections of the R348 road, dwellings located along/ near short sections of the L3105 and R347/ R339.

The ZTV suggests the proposed main project site would not be visible from Athenry urban area except for potential visibility from some limited areas to the western edge of the settlement near Ballydavid Road and Ballygarraun South.

6.2.3.5 Commercial Property

The ZTV suggests there may be some distant views to the proposed main project site from Coffey Civil Engineering at Moanbaun and Dexcom manufacturing plant at Ballygarrun South.

6.2.3.6 Public Buildings

The ZTV suggests there will be no views to the proposed main project site from the ground floor areas of Presentation College and Clarin College, Athenry. The ZTV suggests there will be no views to the proposed main project site from the majority of campus buildings at Teagasc Mellows Campus, there will be some distant views to the proposed main project site development from field areas of the campus north of the railway line.

6.2.3.7 Railway

The ZTV suggests there will be no views to the proposed main project site from the Dublin to Galway railway line due to intervening topography and vegetation.

6.2.3.8 Athenry ACA

The ZTV and field studies suggests there will be no views to the proposed main project site from Athenry Architectural Conservation Area (ACA) due to the effect of distance and intervening built development, topography and vegetation. Refer to Cultural Heritage Chapter for effects on cultural heritage.

6.2.3.9 Representative Viewpoints

Twenty-four viewpoint locations were selected based on professional judgement informed by the Zone of Theoretical Visibility (ZTV) and field surveys, to represent the experience of visual receptors in accordance with GLVIA 2013. The viewpoints chosen, do not cover every view but have been selected to represent the different users from a range of directions and distances from the site. The viewpoint locations are illustrated on the Viewpoint Locations and Zone of Theoretical Visibility drawings, in Appendix 6-1, Volume 3 of the EIAR. The viewpoint images are illustrated in Appendix 6-1, Volume 3 of the EIAR. Sixteen of these viewpoints were visited for the purpose of preparing verified photomontage visualisation sequences, showing the existing view, Year 1 view, and Year 15 view (where relevant, when screen planting would be approximately 9 m in height), and these are also illustrated in Appendix 6-1, Volume 3 of the EIAR, and referred to below. The following describes the nature and characteristics of existing baseline views from the selected viewpoints.

6.2.3.9.1 Viewpoint 1: (Verified Visualisation Existing View 1)

This viewpoint is located from an elevated position immediately south of the overbridge over the M6 motorway at Rathmorrissy, approximately 568 metres to the south-east of the proposed main project site, looking in a north-westerly direction.

The foreground comprises the M6 motorway and associated embankments, which form a prominent linear infrastructure element within the view. The middleground includes undulating pasture, interspersed with lines of trees, scrub vegetation, and boundary stone walls. Glimpses of vehicular traffic on the M17 motorway and associated gantry signage are also evident. The background consists of distant, gently rising topography to the north, set beneath an open sky.

The main project site is partially visible from this location, with views limited by the enclosing effect of the undulating topography, intervening stone walls, and existing vegetation. Visual receptors at or near this viewpoint consist of users of the local road. Users of the adjacent M6 motorway would have views to the project site partially restricted by intervening roadside embankments.

6.2.3.9.2 Viewpoint 2: (Verified Visualisation Existing View 2)

This viewpoint is located adjacent to existing dwellings along the local road at Rathmorrissy, approximately 590 metres to the south-east of the proposed main project site, looking in a north-westerly direction.

The foreground comprises open pasture farmland, stone walls and areas of scrub vegetation. The middleground includes lines of trees, gantry signage associated with the M6 motorway and fencing. The M6 motorway itself is not visible from this location, as it is located within a cutting. The background consists of open sky.

The main project site and wider project site is not visible from this location, with views limited by the enclosing effect of the undulating topography, and intervening existing vegetation. Visual receptors at or near this viewpoint consist of users of the local road and residents at adjacent dwellings.

6.2.3.9.3 Viewpoint 3: (Verified Visualisation Existing View 3)

This viewpoint is located adjacent to existing dwellings along the R348 Road at Rathmorrissy, approximately 1,730 metres to the south-east of the proposed main project site, looking in a north-westerly direction.

The foreground comprises pasture farmland, stone wall, areas of scrub and a garden boundary hedge. The middleground includes lines of trees, a residential dwelling, overhead electricity cables and a wooden ESB poles. The background consists of open sky and single electricity pylon is visible.

The main project site and wider project site is not visible from this location, due to the screening effect of intervening vegetation, topography and distance. Visual receptors at or near this viewpoint consist of users of the local road and residents of adjacent dwellings.

6.2.3.9.4 Viewpoint 4: (Verified Visualisation Existing View 4)

This viewpoint is located north of the M6 Motorway overbridge at Caherbriskaun, approximately 1,383 metres to the south-west of the proposed main project site, looking in a north-easterly direction.

The foreground includes the local road, verges, crash barriers and road signage. The middleground includes pasture farmland, trees, scrub vegetation, stone walls, residential dwellings, electricity pylons and overhead cables. The background consists of gently rising topography, open sky and additional electricity pylons and overhead cables.

The project site is not visible from this location, due to the screening effect of intervening vegetation, topography and distance. Part of the route for the proposed underground cable route is visible from this location. Visual receptors at or near this viewpoint consist of users of the local road and residents of adjacent dwellings.

6.2.3.9.5 Viewpoint 5: (Verified Visualisation Existing View 5)

This viewpoint is located along the local road at Castlelambert, approximately 640 metres to the north-west of the proposed main project site, looking in a south-easterly direction.

The foreground includes open pasture farmland, rising topography, a stone boundary wall and line of trees. The middleground includes additional pasture farmland, trees and further boundary stone walls. The background consists of mature trees and open sky.

The main project site and wider project site is not visible from this location, due to the screening effect of intervening vegetation, topography and distance. Visual receptors at or near this viewpoint consist of users of the local road and residents of adjacent dwellings.

6.2.3.9.6 Viewpoint 6: (Verified Visualisation Existing View 6)

This viewpoint is located along the local road at Castlelambert, approximately 657 metres to the north-west of the proposed project site, looking in a south-easterly direction.

The foreground includes roadside verge, stone wall, field gate and a wooden ESB pole. The middleground includes pasture farmland, stone boundary walls, ESB poles with overhead cables, boundary concrete walls and a garage associated with an adjacent dwelling. The background consists of mature trees and open sky. A gantry sign associated with the M17 motorway is also perceptible. However, the M17 motorway itself is not visible from this location, as it is located within a cutting.

The peaker plant site and wider project site is not visible from this location, due to the screening effect of intervening vegetation, topography and distance. Visual receptors at or near this viewpoint consist of users of the local road and residents of adjacent dwellings.

6.2.3.9.7 Viewpoint 7: (Verified Visualisation Existing View 7)

This viewpoint is located on the Castlelambert Overbridge (L3103 road), where it crosses over the M17 motorway, approximately, 1,039 metres to the north of the proposed project site, looking in a southerly direction.

The foreground comprises the M17 motorway and associated embankments, which form a prominent linear infrastructure element within the view. The middleground includes further views along the motorway corridor including road signage and surrounding pasture farmland. The background consists of gently rising topography, lines of mature trees, electricity pylons and open sky.

The line of trees to the northern boundary of the proposed project site are perceptible otherwise the Proposed Project site and wider project site is not visible from this location, with views limited by the screening effects of

the undulating topography, intervening vegetation and distance. Visual receptors at or near this viewpoint consist of users of the L3103 local road.

6.2.3.9.8 Viewpoint 8: (Verified Visualisation Existing View 8)

This viewpoint is located from the L3103 road, approximately, 909 metres to the north-east of the proposed main project site, looking in a south-westerly direction.

The foreground comprises roadside grass verge, stone boundary wall and pasture farmland. The middleground includes further views of open pasture farmland including a track leading toward the project site. The background consists of gently rising topography, lines of mature trees, electricity pylons and open sky.

The line of trees to the northern boundary of the proposed main project site is perceptible; however, the main project site is not otherwise visible from this location. The wider project site is not visible. Views are limited due to the screening effects of the undulating topography, intervening vegetation and distance. Visual receptors at or near this viewpoint consist of users of the L3103 local road, employees and visitors at nearby offices (Coffey Group), and residents of dwellings along the L3102 road.

6.2.3.9.9 Viewpoint 9: (Verified Visualisation Existing View 9)

This viewpoint is located from the L3125 Road (Ballydavid South), approximately, 2,067 metres to the north-east of the proposed project site, looking in a south-westerly direction.

The foreground comprises the junction with the L3103 Road, roadside grass verge, and boundary vegetation. The middleground includes views of open pasture farmland, ESB poles, farm outbuilding, mature trees and hedgerows. The background consists of gently rising topography, lines of mature trees, dwellings and open sky.

The project site and wider project site is not visible from this location. Views are limited due to the screening effects of the undulating topography, intervening vegetation and distance. Visual receptors at or near this viewpoint consist of users of the L3103 and L3125 local roads.

6.2.3.9.10 Viewpoint 10: (Verified Visualisation Existing View 10)

This viewpoint is located on the overbridge at a track in Ballygarraun, where it crosses over the M6 motorway. It is located approximately 1,716 metres to the south-east of the site, looking in a north-westerly direction.

The foreground comprises areas of woodland, pasture, the M6 motorway, associated embankments, and roadside vegetation. These elements, particularly the motorway infrastructure, form a prominent linear feature within the view. The middleground includes extended views along the motorway corridor, incorporating road signage and surrounding woodland. The background consists of mature trees, faint outline of electricity pylons and open sky.

The project site and wider project site is not visible from this location. Views are limited due to the screening effects of the intervening vegetation and distance. Visual receptors at or near this viewpoint consist of users of the local track and M6 motorway.

6.2.3.9.11 Viewpoint 11: (Verified Visualisation Existing View 11)

This viewpoint is located at a lane, leading from the Athenry Relief Road. It is located approximately 2,308 metres to the south-east of the proposed project site, looking in a north-westerly direction.

The foreground comprises the lane itself, a fence, and rough grassland. In the middleground, an earth mound, stone wall, and additional areas of grassland are visible. The background includes pasture, woodland, the faint outline of an electricity pylon, and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, topography, and the distance involved. Visual receptors at or near this viewpoint primarily consist of users of the local lane and students or staff of the nearby Presentation College Athenry.

6.2.3.9.12 Viewpoint 12: (Verified Visualisation Existing View 12)

This viewpoint is located at the R348 road, to the southwestern edge of Athenry and close to the Dexcom manufacturing plant which is currently under construction. It is located approximately 2,713 metres to the south-east of the proposed main project site, looking in a north-westerly direction.

The foreground comprises the R348 road itself, and road signage. The middleground includes a roundabout, street lighting, amenity grassland and fencing. The background includes pasture, woodland, stone walls, an outbuilding, and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, topography, and the distance involved. Visual receptors at or near this viewpoint consist of users of the R348 road and workers at the Dexcom manufacturing plant.

6.2.3.9.13 Viewpoint 13: (Verified Visualisation Existing View 13)

This viewpoint is located on the L3103 road, approximately 1,060 metres to the north-east of the main project site and adjacent to the proposed entrance road to the proposed project site, looking in a south-westerly direction.

The foreground comprises a boundary stone wall and a lane leading to a dwelling, along with areas of pasture farmland. The middleground includes further views of gently rising open pasture, interspersed with ESB poles and overhead cables. The background consists of continued rising topography, lines of mature trees, electricity pylons, a gantry sign associated with the M17 motorway, and open sky.

The line of trees along the northern boundary of the proposed project site is perceptible; however, the proposed project site itself is otherwise not visible from this location The location for part of the proposed access road to the project site is visible and other elements of the wider project site is not visible. Views are limited due to the screening effects of undulating topography, intervening vegetation, and the distance involved. Visual receptors at or near this viewpoint consist of users of the L3103 local road, as well as residents of nearby dwellings located along the L3102 road.

6.2.3.9.14 Viewpoint 14: (Verified Visualisation Existing View 14)

This viewpoint is located along a lane leading from the L3103 road, approximately 1,192 metres to the north-east of the proposed main project site and is oriented in a south-westerly direction.

The foreground comprises a stone boundary wall and areas of scrub vegetation. In the middleground, undulating pasture farmland and a hedgerow with trees are visible. The background includes woodland, the faint outline of electricity pylons, and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, topography, and the distance involved. Visual receptors at or near this viewpoint primarily consist of users of the local lane and residents of adjacent dwellings.

6.2.3.9.15 Viewpoint 15: (Verified Visualisation Existing View 15)

This viewpoint is located along the L7109 road, approximately 2,360 metres to the south-west of the proposed project site, and is oriented in a north-easterly direction.

The foreground comprises areas of scrub vegetation and pasture. The middleground features pasture farmland, boundary stone walls, and further areas of scrub. The background includes motorway gantry signs, a motorway overbridge, woodland, the faint outline of electricity pylons, and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, topography, and the distance involved. Visual receptors at or near this viewpoint consist of users of the local lane and residents of adjacent dwellings.

6.2.3.9.16 Viewpoint 16: (Verified Visualisation Existing View 16)

This viewpoint is located on the L7109 road where it crosses over the M6 motorway, approximately 2,596 metres to the south-west of the proposed main project site, and is oriented in a north-westerly direction.

The foreground comprises the railings of the motorway overbridge. The middleground features pasture farmland, boundary stone walls, scattered trees, electricity pylons, the M6 motorway with associated gantry signage, and motorway embankments with areas of scrub vegetation. The background includes pasture farmland on rising topography, outlines of dwellings and farm outbuildings, the outline of further electricity pylons, and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, topography, and the distance involved. Visual receptors at or near this viewpoint consist of users of the local lane and residents of adjacent dwellings.

6.2.3.9.17 Viewpoint 17:

This viewpoint is located along the L3103 Deerpark Road at Pollagooil, approximately, 1,700 metres to the north-west of the proposed project site, looking in a south-easterly direction.

The foreground comprises pasture farmland. The middleground features pasture farmland and boundary stone walls. The background includes one off dwellings and farm buildings and groups of trees, woodland, the faint outline of electricity pylons, and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, topography, and the distance involved. Visual receptors at or near this viewpoint consist of users of the local road and residents of adjacent dwellings.

6.2.3.9.18 Viewpoint 18:

This viewpoint is located along the R339 road at Newtown, approximately, 3,420 metres to the north-west of the proposed project site, looking in a south-easterly direction.

The foreground comprises pasture farmland. The middleground features pasture farmland, a boundary stone wall and pylons. The background includes glimpses of a one off dwelling/ farm buildings, groups of trees, woodland, rising topography and the faint outline of electricity pylons, wind turbines, and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, topography, and the distance involved. Visual receptors at or near this viewpoint primarily consist of users of the regional road.

6.2.3.9.19 Viewpoint 19:

This viewpoint is located along the R339 road at Ballinloughaun, approximately, 3,350 metres to the north-west of the proposed main project site, looking in a south-easterly direction.

The foreground comprises pasture farmland. The middleground includes pasture farmland and boundary stone walls. The background includes glimpses of a one off dwellings/ farm buildings, woodland, rising topography and the faint outline of electricity pylons, and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, topography, and the distance involved. Visual receptors at or near this viewpoint consist of users of the regional road.

6.2.3.9.20 Viewpoint 20:

This viewpoint is located near the L3105 road at Carnaun, approximately, 2,655 metres to the north-east of the proposed project site, looking in a south-westerly direction.

The foreground comprises pasture farmland and stone wall. The middleground includes pasture farmland and boundary stone wall and woodland. The background includes lines of trees/ woodland, pasture and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, and the distance involved. Visual receptors at or near this viewpoint primarily consist of users of the local road and adjacent GAA club.

6.2.3.9.21 Viewpoint 21:

This viewpoint is located along the L3105 road at Park, approximately, 2,152 metres to the north-east of the proposed main project site, looking in a south-westerly direction.

The foreground comprises pasture farmland and stone wall. The middleground includes undulating pasture farmland, boundary stone walls and trees/ scrub. The background includes lines of trees/ woodland, glimpsed views to one off dwellings/ outbuildings and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation and rising topography, and the distance involved. Visual receptors at or near this viewpoint consist of users of the local road and adjacent dwellings.

6.2.3.9.22 Viewpoint 22:

This viewpoint is located along the Ballydavid South Road, approximately, 2,528 metres to the north-east of the proposed project site, looking in a south-westerly direction.

The foreground comprises the Ballydavid South Road corridor. The middleground includes the road corridor and adjacent grass verges, and hedges. The background includes lines of trees/ woodland, and rising topography in the distance.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation and rising topography, and the distance involved. Visual receptors at or near this viewpoint consist of users of the local road.

6.2.3.9.23 Viewpoint 23:

This viewpoint is located along the R347 road at Mountain North, approximately, 3,595 metres to the north-east of the proposed project site, looking in a south-westerly direction.

The foreground comprises sloping arable farmland. The middleground includes hedges and woodland. The background includes pasture, lines of trees/ woodland, and rising topography in the distance.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation and rising topography, and the distance involved. Visual receptors at or near this viewpoint consist of users of the regional road and adjacent dwellings.

6.2.3.9.24 Viewpoint 24:

This viewpoint is located at a gap in boundary vegetation along the R348 road at Derrydonnell More, approximately, 1,667 metres to the south-west of the proposed main project site, looking in a north-easterly direction.

The foreground comprises pasture farmland. The middleground includes hedges and trees. The background includes, lines of trees/ woodland, pylons and open sky.

The project site and wider project site is not visible from this location due to the screening effects of intervening vegetation, and the distance involved. Visual receptors at or near this viewpoint consist of users of the regional road and adjacent dwelling.

6.3 Potential Visual Effects of the Proposed Project

6.3.1 Visual Receptor Sensitivity

6.3.1.1 Motorways

Users of the M18, M17 and M6 motorways would mostly be travelling at speed and their attention or interest would not primarily be focused on the landscape and are judged to have low to medium susceptibility. There are no highly distinctive views from the motorways within the study area and the value of views is therefore judged to be low. Taking account of the combination of low to medium susceptibility and low value of the views, the sensitivity of these receptors would be low.

6.3.1.2 Regional Roads

Users of regional roads within the study area (R347, R348, R339) would mostly be travelling at speed and their attention or interest would not primarily be focused on the landscape and are judged to have medium susceptibility. There are no designated scenic routes, or views of designated landscapes from the regional roads within the study area and the value of views is therefore judged to be low to medium. Taking account of the combination of medium susceptibility and low to medium value of the view, the sensitivity of these receptors would be medium.

6.3.1.3 Local Roads

Users of local roads and lanes within the study area would mostly experience transient views and their attention or interest would not always primarily be focused on the landscape and are judged to have medium susceptibility. There are no designated scenic routes, or views of designated landscapes from local roads within the study area and the value of views is therefore judged to be medium. Taking account of the combination of medium susceptibility and medium value of the view, the sensitivity of these receptors would be medium.

6.3.1.4 Settlement

Users of residential areas within the countryside would have high susceptibility. However the value of their existing view will vary from low to medium depending upon the amount of infrastructure already present in the existing view. Taking account of the combination of high susceptibility and low to medium value, the sensitivity of these receptors would be medium for residents which already have views towards motorways and/ or pylons and high for residents which already have mostly unspoilt rural views.

6.3.1.5 Commercial

Users of commercial areas within the study area including at Coffey Civil Engineering and Dexcom, their attention or interest would primarily be focused on their work rather than the surrounding landscape and are judged to have low susceptibility. There are no views of designated landscapes from commercial areas within the study area and the value of views is therefore judged to be medium. Taking account of the combination of low susceptibility and medium value of the view, the sensitivity of these receptors would be low.

6.3.1.6 Public Buildings

Users of public buildings within the study area including Teagasc Mellows Campus are judged to have medium susceptibility as their attention or interest would not always primarily be focused on the landscape. There are

no views of designated landscapes from public buildings within the study area and the value of views is therefore judged to be medium. Taking account of the combination of medium susceptibility and medium value of the view, the sensitivity of these receptors would be medium.

6.3.2 Effects on Visual Receptors

This section should read in conjunction with Section 6.2.3.9 Representative Viewpoints which describes the effect on views from viewpoints within the study area.

6.3.2.1 Roads

6.3.2.1.1 Motorways

Users of the M6 and M18 motorways passing in close proximity to the site would experience slight to moderate adverse effects on views during construction, operation and decommissioning (refer to Viewpoints 1, 10). Post-decommissioning, the significance of effect would be slight to moderate beneficial as all site structures would be removed while established screen planting would be retained, resulting in improved views.

Users of the M17 motorway passing in close proximity to the site would experience slight to moderate adverse effects on views during construction, operation and decommissioning (refer to Viewpoint 7). Post-decommissioning, the significance of effect would be slight beneficial as all site structures would be removed while established screen planting would be retained, resulting in improved views.

6.3.2.1.2 Regional Roads

Users of the R348 road would not have views of the Proposed Project, except from limited sections of the route at Ballgarraun South, Gortroe, and Derrydonnell More. From these locations, users may experience distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of no change/ negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 3, 24).

Users of the R339 road would not have views of the Proposed Project, except from limited sections of the route at Newtown and Ballinloughan. From these locations, users may experience very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 18, 19).

Users of the R347 road would not have views of the Proposed Project, except from limited sections of the route at Mountain North. From these locations, users may experience very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoint 23).

6.3.2.1.3 Local Roads

Users of the L3103 road passing north of the proposed main project site (between Castlelambert and Pollnagroagh), would have distant views of the project at the proposed project site partially filtered by intervening stone walls and vegetation. The effect on these views is judged as being of moderate magnitude and moderate adverse significance during construction, operation and decommissioning. Post-decommissioning, the significance of effect would be slight beneficial as all site structures would be removed while established screen planting would be retained, resulting in improved views (refer to Viewpoints 7,8,13). Users of the L3103 road would also experience short term views during construction, related to the laying of the underground cable, of moderate magnitude and moderate adverse significance during construction, once construction of the underground cable is competed these effects would reduce to neutral.

Users of the L3103 road would not have views of the Proposed Project west of Castlelambert, except from limited sections of the route at Pollagooil and Newtown. From these locations, users may experience very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 17 and 18).

Users of the local road through Castlelambert, Knocknacreeva and Lisheenkyle East north and west of the proposed main project site would have distant views of the project at the proposed main project site partially filtered by intervening vegetation and topography. The effect on these views is judged as being of moderate magnitude and moderate adverse significance during construction. During operation and decommissioning the significance of effect is judged as being minor to moderate magnitude and slight to moderate adverse significance. Post-decommissioning, the significance of effect would be slight beneficial as all site structures would be removed while established screen planting would be retained, resulting in improved views (refer to Viewpoints 4,5, 6). Users of the road would also experience short term views during construction, related to the laying of the underground cable, of moderate magnitude and moderate adverse significance, once construction of the underground cable is competed these effects would reduce to neutral.

Users of the L7109 road from Lisheenkyle to Cashla substation, would not have views of the Proposed Project, except from limited sections of the route at Lisheenkyle East and at the M6 overbridge. From these locations, users may experience very distant views of the upper parts of the tallest structures within the main project site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 15, 16). Users of the road would also experience short term views during construction, related to the laying of the underground cable, of moderate magnitude and moderate adverse significance, once construction of the underground cable is competed these effects would reduce to neutral.

Users of the local road through at Rathmorrissy, south of the proposed main project site would have distant views of the project at the proposed main project site partially filtered by intervening vegetation. The effect on these views is judged as being of no change to moderate magnitude and neutral to moderate adverse significance during construction, operation and decommissioning. Post-decommissioning, the significance of effect would be neutral to slight beneficial as all site structures would be removed while established screen planting would be retained, resulting in some improved views (refer to Viewpoints 2, 3).

Users of the L3105 road from Athenry to Carnaun, would not have views of the Proposed Project, except from limited sections of the route at Park. From these locations, users may experience very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 20, 21).

Users of the L3125 Ballydavid South road; users may experience at most very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 9, 22).

6.3.2.2 Settlement Areas

Users of dwellings located along/ near the L3103 road north of the proposed main project site (between Castlelambert and Pollnagroagh), would have distant views of the project at the proposed project site partially filtered by intervening vegetation. The effect on these views is judged as being of moderate magnitude and moderate adverse significance during construction, operation, and decommissioning. However post-decommissioning, the significance of effect would be slight beneficial as all site structures would be removed while established screen planting would be retained, resulting in improved views (refer to Viewpoints 7,8,13). Users of these dwellings would also experience short term views during construction, related to the laying of the underground cable, of moderate magnitude and moderate adverse significance, once construction of the underground cable is competed these effects would reduce to neutral..

Users of dwellings located along/ near the L3103 west of Castlelambert, would not have views of the Proposed Project except from limited sections of the route at Pollagooil and Newtown. From these locations, users may experience very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 17 and 18).

Users of dwellings located along/ near the local road through Castlelambert, Knocknacreeva and Lisheenkyle East north and west of the proposed main project site would have distant views of the project at the proposed main project site partially filtered by intervening vegetation and topography. The effect on these views is judged as being of minor to moderate magnitude and slight to moderate adverse significance during construction, operation and decommissioning (refer to Viewpoints 4, 5, 6). Post-decommissioning, the significance of effect would be slight beneficial as all site structures would be removed while established screen planting would be retained, resulting in improved views. Users of these dwellings would also experience short term views during construction, related to the laying of the underground cable, of moderate magnitude and moderate adverse significance, once construction of the underground cable is competed these effects would reduce to neutral.

Users of dwellings located along/ near the L7109 Lisheenkyle East Road towards Cashla Substation; generally, would not have views of the proposed main project site, some residential users may experience very distant views of the upper parts of the tallest structures within the proposed project site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 15, 16). Users of these dwellings would also experience short term views during construction, related to the laying of the underground cable, of moderate magnitude and moderate adverse significance, once construction of the underground cable is competed these effects would reduce to neutral.

Users of dwellings located northeast of the proposed project site within rural areas at Pollnagroagh/ Ballygarraun North; from these locations, users may experience at most very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoint 14).

Dwellings located south of the proposed main project site at Rathmorrissy; would have distant views of the project at the proposed project site partially filtered by intervening vegetation. The effect on these views is judged as being of no change to moderate magnitude and neutral to moderate adverse significance during construction, operation and decommissioning. Post-decommissioning, the significance of effect would be slight beneficial as all site structures would be removed while established screen planting would be retained, resulting in improved views (refer to Viewpoints 2, 3).

Dwellings located at Athenry would not experience views of the project due to the effect of distance and intervening vegetation and topography. At most some dwellings located within the rural areas to the western edge of Athenry may experience at most very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of no change to negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 9,11,12, 22).

Dwellings located at Park, Carnaun, Mountain North would not experience views of the project due to the effect of distance and intervening vegetation and topography. At most some dwellings may experience very distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoints 20, 21).

6.3.2.3 Commercial Areas

Users of the Coffey Civil Engineering would have distant views of the project at the proposed main project site partially filtered by intervening stone walls and vegetation. The effect on these views is judged as being of moderate magnitude and moderate slight adverse significance during construction, operation and

decommissioning. Post-decommissioning, the significance of effect would be slight beneficial as all site structures would be removed while established screen planting would be retained, resulting in improved views (refer to Viewpoint 8).

Users of the ground floor areas of Dexcom would not experience views of the project due to the effect of distance and intervening vegetation and topography. The effect on these views is judged as being of no change to negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning (refer to Viewpoint 12).

6.3.2.4 Public Buildings

Users of most buildings at Teagasc Mellows Campus would not experience views of the project due to the effect of distance and intervening vegetation and topography. Some users of the campus in areas north of the railway line may experience distant views of the upper parts of the tallest structures within the site. The effect on these views is judged as being of negligible magnitude and neutral significance during construction, operation, decommissioning and post-decommissioning. Refer also to the Cultural Heritage Chapter where assessment of archaeological/ cultural heritage features is assessed.

6.3.3 Representative Viewpoints

The following describes the effects of the Proposed Project on representative viewpoints. The viewpoint locations are illustrated on the Viewpoint Locations and Zone of Theoretical Visibility drawings, in Appendix 6-1, Volume 3 of the EIAR. The viewpoint images are illustrated in Appendix 6-1, Volume 3 of the EIAR. The 13 viewpoints visited for the purpose of preparing verified visualisations based on similar locations are also illustrated at Appendix 6-1, Volume 3 of the EIAR and referred to below.

6.3.3.1 Viewpoint 01 (Verified Visualisation Proposed View 1)

6.3.3.1.1 Sensitivity

The view includes motorway infrastructure and moderately distinctive countryside features, such as undulating pasture and stone walls. The value of this view is judged to be medium. People using the local road are considered to have a medium susceptibility to changes in the view. Combining medium value and medium susceptibility, the overall sensitivity of receptors is judged as **medium**.

6.3.3.1.2 Magnitude

Construction

There would be short term views of construction works, including structures under construction, cranes and stockpiles of materials noticeable within the view. The magnitude of the effect is judged to be **moderate** and the nature of the effect is considered adverse.

Operation

The Proposed Project would form a noticeable feature within the view, located adjacent to the existing motorway network. The effect would be long-term in duration. Open views of taller structures within the site including storage tanks, the turbine, and the emissions stack would be available. While views are expected to improve over time as the proposed screen planting matures, the emissions stack and other taller structures would remain visible above the planting. The magnitude of the effect is judged to be **moderate** and the nature of the effect is considered adverse.

Decommissioning

During decommissioning, temporary/ short term visibility of works including the removal of taller structures would occur above the screen planting to the proposed project site. Given the temporary/ short term duration and

partial visibility, the magnitude of effect is judged to be **moderate**, and the nature of the effect is considered adverse.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a permanent woodland element to the view. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged to be **moderate** and the nature of the effect is considered beneficial.

6.3.3.1.3 Significance

Given the medium sensitivity and moderate magnitude, the significance of the effect is considered to be **moderate adverse** during both construction and operation phases.

During decommissioning, the significance of effect is judged to be **moderate adverse**, as mature screen planting would limit visibility of some decommissioning activities associated with the site within the view it would not screen all activities.

Post-decommissioning, the significance of effect is judged to be **moderate beneficial**, as all site structures would be removed while the established screen planting would be retained, resulting in an improved view.

6.3.3.2 Viewpoint 02: (Verified Visualisation Proposed View 2)

6.3.3.2.1 Sensitivity

The view includes moderately distinctive countryside including pasture and stone walls. The value of this view is judged to be low to medium. People in adjacent dwellings would have high susceptibility. The combination of low to medium value and high susceptibility the sensitivity of receptors is judged to be **high**.

6.3.3.2.2 Magnitude

Construction

There would be short term views of construction works, including structures under construction, noticeable within the view. The magnitude of the effect is judged to be **moderate** and the nature of the effect is considered adverse.

Operation

The Proposed Project would form a noticeable feature within the view, confined to an area north of the M6 motorway. The effect would be long-term duration. There would be open views of taller structures/ buildings within the site including storage tanks, turbine and the emissions stack. Views would improve over time as the proposed screen planting to the site matures, however the planting would never completely screen the emissions stack and other taller structures. The magnitude of the effect is judged to be **moderate,** and the nature of the effect is considered adverse.

Decommissioning

During decommissioning, temporary/ short term visibility of works including the removal of taller structures would occur above the screen planting to the proposed main project site. Given the temporary/ short term duration and partial visibility, the magnitude of effect is judged to be **moderate**, and the nature of the effect is considered adverse.

Post-decommissioning

Following decommissioning, all site structures would be removed and would no longer be visible. The retained perimeter screen planting would provide a permanent woodland element in the view. As the project would be

fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition The magnitude of effect is judged to be **minor**, and the nature of the effect is considered beneficial.

6.3.3.2.3 Significance

Given the high sensitivity and moderate magnitude, the significance of the effect is considered to be **moderate adverse** during both construction and operation phases.

During decommissioning, the significance of effect is judged to be **moderate adverse**, as mature screen planting would limit visibility of some decommissioning activities associated with the site within the view it would not screen all activities.

Post-decommissioning, the significance of effect is judged to be **slight beneficial**, as all site structures would be removed while the established screen planting would be retained, resulting in an improved view.

6.3.3.3 Viewpoint 03: (Verified Visualisation Proposed View 3)

6.3.3.3.1 Sensitivity

The view includes moderately distinctive countryside including pasture and stone walls and visual detractors including pylons. The value of this view is judged to be low to medium. People in adjacent dwellings would have high susceptibility, whist people using local roads would have medium susceptibility. The combination of low to medium value and high susceptibility the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.3.2 Magnitude

Construction

The Proposed Project would not be visible due to the effect of intervening topography, vegetation and distance. The magnitude of the effect is judged as **no change**.

Operation

The Proposed Project would not be visible due to the effect of intervening topography, vegetation and distance. The magnitude of the effect is judged as **no change**.

Decommissioning

The Proposed Project would not be visible due to the effect of intervening topography, vegetation and distance. The magnitude of the effect is judged as **no change**.

Post-decommissioning

The Proposed Project would not be visible due to the effect of intervening topography, vegetation and distance. The magnitude of the effect is judged as **no change**.

6.3.3.3.3 Significance

Given the high/ medium sensitivity and no change magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.4 Viewpoint 04 (Verified Visualisation Proposed View 4)

6.3.3.4.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and visual detractors including pylons. The value of this view is low. People in adjacent dwellings would have high susceptibility,

whilst people using local roads would have medium susceptibility. Considering the combination of low value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.4.2 Magnitude

Construction

There would be short term views of construction works, including structures in the proposed main project site under construction, and cranes noticeable within the view. There would also be views to underground cable works including the working area for tunnelling works under the M6 Motorway. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Operation

There would be distant views to the upper parts of some taller structures/ buildings within the site including fuel tanks, emissions stack, turbine and telecoms tower. The effect would be long-term duration. The underground cable works would not be visible and site compound areas and the road would be reinstated. Views would improve over time as the proposed screen planting to the site matures, however the planting would never completely screen the emissions stack and taller structures in the proposed main project site. The magnitude of the effect is judged to be **minor,** and the nature of effect is considered adverse.

Decommissioning

During decommissioning, there would temporary/ short term visibility of the removal of the taller structures above the screen planting to the proposed main project site. The magnitude of the effect is judged as **minor,** and the nature of effect is considered adverse.

Post-decommissioning

Following decommissioning, all structures within the proposed project site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a permanent woodland element to the background of the view. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged to be **minor,** and the nature of effect is considered beneficial.

6.3.3.4.3 Significance

Given the high/ medium sensitivity and moderate magnitude, the significance of the effect is considered to be **moderate adverse** during construction.

Given the high/ medium sensitivity and minor magnitude, the significance of the effect is considered to be **slight adverse** during operation and decommissioning.

Post-decommissioning, the significance of effect is judged to be **slight beneficial**, as all site structures would be removed while the established screen planting would be retained, resulting in an improved view.

6.3.3.5 Viewpoint 05: (Verified Visualisation Proposed View 5)

6.3.3.5.1 Sensitivity

The view includes moderately distinctive countryside including pasture and stone walls. The value of this view is judged to be medium. People in adjacent dwellings would have high susceptibility, whist people using local roads would have medium susceptibility. Considering the combination of medium value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.5.2 Magnitude

Construction

There would be short term views of construction works, including structures under construction, noticeable within the view. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Operation

There would be distant views to the upper parts of some taller structures/ buildings within the site including fuel tanks, turbine and the emissions stack. The effect would be long-term in duration. Views would improve over time as the proposed screen planting to the site matures, however the planting would never completely screen the emissions stack. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Decommissioning

During decommissioning, there would be temporary/ short term visibility of the removal of the taller structures above the screen planting to the proposed main project site. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged as **moderate** and the nature of effect is considered adverse.

Post-decommissioning

Following decommissioning, all structures within the proposed main project site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a permanent woodland element to the background of the view. The magnitude of the effect is judged to be **minor** and the nature of effect is considered beneficial.

6.3.3.5.3 Significance

Given the high/ medium sensitivity and moderate magnitude, the significance of the effect is considered to be **moderate adverse** during construction, operation and decommissioning.

The significance of the effect post-decommissioning is judged to be **slight beneficial**, as all site structures would be removed while the established screen planting would be retained, resulting in an improved view.

6.3.3.6 Viewpoint 06: (Verified Visualisation Proposed View 6)

6.3.3.6.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and woodland. The value of this view is judged to be medium. People in adjacent dwellings would have high susceptibility, whist people using local roads would have medium susceptibility. Considering the combination of medium value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.6.2 Magnitude

Construction

There would be short term views of construction works, including structures under construction, noticeable within the view. The magnitude of the effect is judged to be **minor** and the nature of effect is considered adverse.

Operation

There would be distant views filtered by vegetation, especially to the upper parts of some taller structures/ buildings within the site including telecoms mast, fuel tanks, turbine and the emissions stack. The effect would

be long-term in duration. Views would improve over time as the proposed screen planting to the site matures. The magnitude of the effect is judged to be **minor** and the nature of effect is considered adverse.

Decommissioning

During decommissioning, there would be temporary/ short term visibility of the removal of the taller structures above the screen planting to the proposed main project site. The magnitude of the effect is judged as **minor** and the nature of effect is considered adverse.

Post-decommissioning

Following decommissioning, all structures within the proposed main project site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a permanent woodland element to the background of the view. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged to be **negligible** and the nature of effect is considered neutral.

6.3.3.6.3 Significance

Given the high/ medium sensitivity and minor magnitude, the significance of the effect is considered to be **slight adverse** during construction, operation and decommissioning.

The significance of the effect post-decommissioning is judged to be **neutral**, as the view would remain similar to the existing baseline view.

6.3.3.7 Viewpoint 07: (Verified Visualisation Proposed View 7)

6.3.3.7.1 Sensitivity

The view includes the M6 motorway and moderately distinctive countryside including pasture, stone walls and woodland. The value of this view is judged to be medium. People using the local road/ overbridge would have medium susceptibility. The combination of medium value and medium susceptibility the sensitivity of users of the local road is judged to be **medium**.

6.3.3.7.2 Magnitude

Construction

There would be short term views of construction works, including structures under construction, noticeable within the view. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Operation

There would be distant views filtered by vegetation, especially to the upper parts of some taller structures/ buildings within the site including fuel tanks, telecoms mast, turbine and the emissions stack. The effect would be long-term in duration. Views would improve over time as the proposed screen planting to the site matures. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Decommissioning

During decommissioning, temporary/ short term visibility of works including the removal of taller structures would occur above the screen planting to the proposed main project site. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a permanent woodland element to

the view. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged to be **minor** and the nature of effect is considered beneficial.

6.3.3.7.3 Significance

Given the medium sensitivity and moderate magnitude, the significance of the effect is considered to be **moderate adverse** during construction, operation and decommissioning.

The significance of the effect post-decommissioning is judged to be **slight beneficial**, as all site structures would be removed while the established screen planting would be retained, resulting in an improved view.

6.3.3.8 Viewpoint 08: (Verified Visualisation Proposed View 8)

6.3.3.8.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and woodland. The value of this view is judged to be medium. People using the local road would have medium susceptibility. Employees and visitors at nearby offices at the Coffey Group would have low susceptibility. People in adjacent dwellings would have high susceptibility.

Considering the combination of medium value and low/ medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity and users of the offices at Coffey Group would have **low** sensitivity.

6.3.3.8.2 Magnitude

Construction

There would be short term views of construction works, including structures under construction, noticeable within the view. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Operation

There would be distant views filtered by vegetation, especially to the upper parts of some taller structures/ buildings within the site including fuel tanks, turbine and the emissions stack. The effect would be long-term in duration. Views would improve over time as the proposed screen planting to the site matures. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Decommissioning

During decommissioning, there would temporary/ short term visibility of the removal of the taller structures above the screen planting to the proposed main project site. The magnitude of the effect is judged as **moderate** and the nature of effect is considered adverse.

Post-decommissioning

Following decommissioning, all structures within the proposed main project site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a permanent woodland feature to the background of the view. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged to be **minor** and the nature of effect is considered beneficial.

6.3.3.8.3 Significance

Given the low sensitivity and moderate magnitude, the significance of the effect is considered to be **slight adverse** during construction, operation and decommissioning for users of offices at the Coffey Group.

Given the medium/ high sensitivity and moderate magnitude, the significance of the effect is considered to be **moderate adverse** during construction, operation and decommissioning for users of the local road and adjacent dwellings.

The significance of the effect post-decommissioning is judged to be **slight beneficial** for all receptors, as all site structures would be removed while the established screen planting would be retained, resulting in an improved view.

6.3.3.9 Viewpoint 09: (Verified Visualisation Proposed View 9)

6.3.3.9.1 Sensitivity

The view includes moderately distinctive countryside including pasture, hedges and trees. The value of this view is judged to be medium. People using the local roads would have medium susceptibility. The combination of medium value and medium susceptibility the sensitivity of receptors is judged to be **medium**.

6.3.3.9.2 Magnitude

Construction

There would be barely perceptible short term views of the upper parts of the emissions stack and construction cranes in the distance. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Operation

The proposed structures within the proposed main project site are unlikely to be visible due to the screening effects of distance, intervening vegetation, and topography. Barely perceptible views of the upper parts of the emissions stack in the distance would be visible. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of the emissions stack being removed in the distance. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged to be **negligible** and the nature of effect is considered neutral.

6.3.3.9.3 Significance

Given the medium sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.10 Viewpoint 10: (Verified Visualisation Proposed View 10)

6.3.3.10.1 Sensitivity

The view includes moderately distinctive countryside including pasture and woodland. The value of this view is judged to be medium. People using the local road would have medium susceptibility. The combination of medium value and medium susceptibility the sensitivity of receptors is judged to be **medium**.

6.3.3.10.2 Magnitude

Construction

There would be short term views of the upper part of the emissions stack, a tank and construction cranes in the distance. The magnitude of the effect is judged as **minor** and the nature of effect is considered adverse.

Operation

The majority of the proposed structures within the proposed main project site are unlikely to be visible due to the screening effects of distance, and intervening vegetation. There would be distant views of the upper parts of the emissions stack and a tank. The effect would be long-term in duration. The magnitude of the effect is judged as **minor** and the nature of effect is considered adverse.

Decommissioning

During decommissioning, there may be barely perceptible temporary/ short term views of the upper parts of the emissions stack and a tank being removed in the distance. The magnitude of the effect is judged as **minor** and the nature of effect is considered adverse.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland feature to the background of the view. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged to be **negligible** and the nature of effect is considered neutral.

6.3.3.10.3 Significance

Given the medium sensitivity and minor magnitude, the significance of the effect is considered to be **slight adverse** during construction, operation and decommissioning. The significance of the effect post-decommissioning is judged to be **neutral**, as the view would remain similar to the existing baseline view.

6.3.3.11 Viewpoint 11: (Verified Visualisation Proposed View 11)

6.3.3.11.1 Sensitivity

The view includes moderately distinctive countryside including pasture and woodland The value of this view is judged to be medium. People using the local road would have medium susceptibility. The combination of medium value and medium susceptibility the sensitivity of receptors is judged to be **medium**.

6.3.3.11.2 Magnitude

Construction

The Proposed Project would not be visible due to the effect of intervening topography, vegetation and distance. The magnitude of the effect is judged as **no change**.

Operation

The Proposed Project would not be visible due to the effect of intervening topography, vegetation and distance. The magnitude of the effect is judged as **no change**.

Decommissioning

The Proposed Project would not be visible due to the effect of intervening topography, vegetation and distance. The magnitude of the effect is judged as **no change**.

Post-decommissioning

The Proposed Project would not be visible due to the effect of intervening topography, vegetation and distance. The magnitude of the effect is judged as **no change**.

6.3.3.11.3 Significance

Given the medium sensitivity and no change magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.12 Viewpoint 12: (Verified Visualisation Proposed View 12)

6.3.3.12.1 Sensitivity

The view includes moderately distinctive countryside including pasture and woodland The value of this view is judged to be medium. People using the local road would have medium susceptibility. Employees and visitors at the nearby Dexcom manufacturing plant would have low susceptibility.

Considering the combination of medium value and low/ medium susceptibility, the sensitivity of people using roads would be **medium** and users of the Dexcom manufacturing plant would have **low** sensitivity.

6.3.3.12.2 Magnitude

Construction

There would be barely perceptible short term views of the upper parts of the emissions stack and construction cranes in the distance. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Operation

The proposed structures within the proposed main project site are unlikely to be visible due to the screening effects of distance, and intervening vegetation. There may be barely perceptible views of the upper parts of the emissions stack in the distance. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Decommissioning

During decommissioning, there may be barely perceptible temporary/ short term views of the upper parts of the emissions stack being removed in the distance. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The magnitude of the effect is judged to be **negligible** and the nature of effect is considered neutral.

6.3.3.12.3 Significance

Given the low/ medium sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.13 Viewpoint 13: (Verified Visualisation Proposed View 13)

6.3.3.13.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and woodland. The value of this view is judged to be medium. People using the local road would have medium susceptibility. People in adjacent dwellings would have high susceptibility.

Considering the combination of medium value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.13.2 Magnitude

Construction

There would be short term views of construction works, including the access road and structures at the proposed main project site under construction, noticeable within the view. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Operation

There would be views along the new access road to the site including new hedgerow planting and grass verges. There would be distant views filtered by vegetation and fencing, especially to the upper parts of some taller structures/ buildings within the proposed main project site including fuel tanks, turbine and the emissions stack. The effect would be long-term in duration. Views will improve over time as the proposed screen planting to the access road and proposed main project site matures. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Decommissioning

During decommissioning, temporary/ short term visibility of works including the removal of the access road and the removal of taller structures would occur above the screen planting to the proposed main project site. The magnitude of the effect is judged to be **moderate** and the nature of effect is considered adverse.

Post-decommissioning

Following decommissioning, the main access road and all structures within the site would be removed and would no longer be visible. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The screen planting to the perimeter of the site would be retained and provide a permanent woodland feature to the view. The magnitude of the effect is judged to be **minor** and the nature of effect is considered beneficial.

6.3.3.13.3 Significance

Given the medium/ high sensitivity and moderate magnitude, the significance of the effect is considered to be **moderate adverse** during construction, operation and decommissioning.

The significance of the effect post-decommissioning is judged to be **slight beneficial**, as all site structures would be removed while the established screen planting would be retained, resulting in an improved view.

6.3.3.14 Viewpoint 14: (Verified Visualisation Proposed View 14)

6.3.3.14.1 Sensitivity

The view includes moderately distinctive countryside including pasture, hedges and trees. The value of this view is judged to be medium. People using the local lane would have medium susceptibility. People in adjacent dwellings would have high susceptibility. Considering the combination of medium value and medium/ high susceptibility the sensitivity of receptors in dwellings is judged to be **high** whilst people using the lane would have **medium** sensitivity.

6.3.3.14.2 Magnitude

Construction

There would be barely perceptible short term views of the upper parts of the emissions stack and construction cranes in the distance. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Operation

The proposed structures within the proposed main project site are unlikely to be visible due to the screening effects of distance, intervening vegetation, and topography. There would be barely noticeable views of the upper parts of the emissions stack in the distance. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Decommissioning

During decommissioning, there may be barely perceptible temporary/ short term views of the upper parts of the emissions stack being removed in the distance. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a more rural baseline condition. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible** and the nature of effect is considered neutral.

6.3.3.14.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.15 Viewpoint 15: (Verified Visualisation Proposed View 15)

6.3.3.15.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and trees. Detractors include pylons and motorway signage. The value of this view is judged to be medium. People using the local road would have medium susceptibility. People in adjacent dwellings would have high susceptibility. Considering the combination of medium value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.15.2 Magnitude

Construction

There would be short-term views of construction activity, including partially constructed structures, which would be barely noticeable within a small portion of this distant view. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Operation

There would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures/buildings within the site including the emissions stack and telecom mast which would be barely noticeable within a small part of the view. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Decommissioning

During decommissioning, there may be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible** and the nature of effect is considered neutral.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a condition similar to the baseline. The magnitude of the effect is judged to be **negligible** and the nature of effect is considered neutral.

6.3.3.15.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.16 Viewpoint 16: (Verified Visualisation Proposed View 16)

6.3.3.16.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and trees. Detractors include pylons and motorway signage. The value of the view is judged to be medium. People using the local road would have medium susceptibility. People in adjacent dwellings would have high susceptibility. Considering the combination of medium value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.16.2 Magnitude

Construction

There would be short-term views of construction activity, including partially constructed structures, which would be barely noticeable within a small portion of this distant view. The magnitude of the effect is judged as **negligible**.

Operation

There would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures within the site including telecoms mast and electrical substation which would be barely noticeable within a small part of the view. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there may be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site will be removed and will no longer be visible. As the project would be fully removed, the visual changes introduced during construction and operation would be reversible, allowing the view to return to a condition similar to the baseline. The screen planting to the perimeter of the site will be retained and provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible**.

6.3.3.16.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.17 Viewpoint 17:

6.3.3.17.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and trees. The value of this view is judged to be medium. People using the local road would have medium susceptibility. People in adjacent dwellings would have high susceptibility. Considering the combination of medium value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.17.2 Magnitude

Construction

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. At most there would be short-term views of construction activity, including the upper parts of partially constructed structures, which would be barely noticeable within a very small portion of this distant view. The magnitude of the effect is judged as **negligible**.

Operation

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. At most, there would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures within the site including the emissions stack which would be barely noticeable within a very small part of the view. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and would provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible**.

6.3.3.17.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.18 Viewpoint 18:

6.3.3.18.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and trees. Detractors include pylons. The value of this view is judged to be medium. People using the local road would have medium susceptibility. The combination of medium value and medium susceptibility the sensitivity of receptors using roads would be **medium**.

6.3.3.18.2 Magnitude

Construction

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. At most there would be short-term views of construction activity, including the upper parts of partially constructed structures, which would be barely noticeable within a very small portion of this distant view. The magnitude of the effect is judged as **negligible**.

Operation

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. At most, there will be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures/buildings within the site including the emissions stack which would be barely noticeable within a very small part of the view. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible**.

6.3.3.18.3 Significance

Given the medium sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.19 Viewpoint 19:

6.3.3.19.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and trees. The value of this view is judged to be medium. People using the local road would have medium susceptibility. People in adjacent dwellings would have high susceptibility. Considering the combination of medium value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.19.2 Magnitude

Construction

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. At most there would be short-term views of construction activity, including the upper parts of partially constructed

structures, which would be barely noticeable within a very small portion of this distant view. The magnitude of the effect is judged as **negligible**.

Operation

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. At most, there would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures within the site including the emissions stack which would be barely noticeable within a very small part of the view. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible**.

6.3.3.19.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.20 Viewpoint 20:

6.3.3.20.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and trees. The value of this view is judged to be medium. People using the local road would have medium susceptibility. People using the adjacent GAA pitch would have low susceptibility. Considering the combination of medium value and medium/ low susceptibility, the sensitivity of receptors using the local road is judged to be **medium** whilst people using the GAA pitch would have **low** sensitivity.

6.3.3.20.2 Magnitude

Construction

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. At most, there would be short-term views of construction activity, including the upper parts of partially constructed structures, which would be barely noticeable within a very small portion of this distant view in winter months only. The magnitude of the effect is judged as **negligible**.

Operation

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. There would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures within the site including the emissions stack which would be barely noticeable within a very small part of the view in winter months only. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible**.

6.3.3.20.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.21 Viewpoint 21:

6.3.3.21.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and trees. The value of this view is judged to be medium. People using the local road would have medium susceptibility. People in adjacent dwellings would have high susceptibility. Considering the combination of medium value and medium/ high susceptibility the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.21.2 Magnitude

Construction

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. There would be short-term views of construction activity, including the upper parts of partially constructed structures, which would be barely noticeable within a very small portion of this distant view. The magnitude of the effect is judged as **negligible**.

Operation

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. There would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures/buildings within the site including the emissions stack which would be barely noticeable within a very small part of the view. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible**.

6.3.3.21.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.22 Viewpoint 22

6.3.3.22.1 Sensitivity

The view includes moderately distinctive countryside including pasture, stone walls and trees. The value of this view is judged to be medium. People using the local road would have medium susceptibility. The combination of medium value and medium susceptibility the sensitivity of receptors using roads would be **medium**.

6.3.3.22.2 Magnitude

Construction

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. There would be short-term views of construction activity, including the upper parts of partially constructed structures, which would be barely noticeable within a very small portion of this distant view. The magnitude of the effect is judged as **negligible**.

Operation

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. There would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures/buildings within the site including the emissions stack which would be barely noticeable within a small part of the view. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. The effect would be long-term in duration. The magnitude of the effect is judged to be **negligible**.

6.3.3.22.3 Significance

Given the medium sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.23 Viewpoint 23

6.3.3.23.1 Sensitivity

The view includes moderately distinctive countryside including arable, pasture, and trees. The value of this view is judged to be medium. People using the local road would have medium susceptibility. People in adjacent dwellings would have high susceptibility. Considering the combination of medium value and medium/ high susceptibility, the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.23.2 Magnitude

Construction

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. There would be short-term views of construction activity, including the upper parts of partially constructed structures, which would be barely noticeable within a very small portion of this distant view. The magnitude of the effect is judged as **negligible**.

Operation

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation. There would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structures/buildings within the site including the emissions stack which would be barely noticeable within a very small part of the view. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible**

6.3.3.23.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.3.3.24 Viewpoint 24

6.3.3.24.1 Sensitivity

The view includes moderately distinctive countryside including pasture, and trees. Detractors include pylons and motorway signage. The value of this view is judged to be medium. People using the local road would have medium susceptibility. People in adjacent dwellings would have high susceptibility. Considering the combination of medium value and medium/ high susceptibility the sensitivity of receptors in dwellings is judged to be **high** whilst people using roads would have **medium** sensitivity.

6.3.3.24.2 Magnitude

Construction

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation and motorway embankments. There would be short-term views of construction activity, including the upper parts of partially constructed structures, which would be barely noticeable within a very small portion of this distant view. The magnitude of the effect is judged as **negligible**.

Operation

The Proposed Project would be mostly screened by the effect of distance, and intervening vegetation and motorway embankments There would be long-distance views, partially filtered by vegetation, of the upper parts of some taller structure within the site including the emissions stack which would be barely noticeable within a very small part of the view. The effect would be long-term in duration. The magnitude of the effect is judged as **negligible**.

Decommissioning

During decommissioning, there would be barely perceptible temporary/ short term views of the upper parts of some taller structures being removed in the distance. The magnitude of the effect is judged as **negligible**.

Post-decommissioning

Following decommissioning, all structures within the site would be removed and would no longer be visible. The screen planting to the perimeter of the site would be retained and provide a barely noticeable permanent woodland element to the background of the view. The magnitude of the effect is judged to be **negligible**.

6.3.3.24.3 Significance

Given the medium/ high sensitivity and negligible magnitude, the significance of the effect is considered to be **neutral** during construction, operation, decommissioning and post-decommissioning.

6.4 Potential Landscape Effects of the Proposed Project

This section describes the effects of the Proposed Project on landscape receptors and assesses the significance of the effects identified.

The value of Landscape Type Central Galway Complex Landscape (which includes 6b. Southern River Clare Basin Landscape Unit) within the study area is judged to be **low** (Refer to Section 6.2.2 above). The susceptibility of this landscape to the Proposed Project type is judged to be **low**. The combination of low value and low susceptibility overall the sensitivity of this landscape to the proposal is judged to be **low**.

The value of Landscape Type Urban Environs (Athenry) within the study area is judged to be **low** (Refer to Section 6.2.2 above). The susceptibility of this landscape to the Proposed Project type is judged to be **low**. The combination of low value and low susceptibility overall the sensitivity of this landscape to the proposal is judged to be **low**.

Table 6.7 below lists the effects on elements contributing to local landscape character.

Table 6.7 Effects on elements of Landscape Character

Natural Factors	
Element	**Effects**
Geology	Grading/ tunnelling of landform required to facilitate the project may affect superficial deposits and bedrock. Once the project is completed the change would not be readily discernible. Construction The magnitude of the effect on local character is moderate adverse during construction and short term. Operation The magnitude of the effect on local character is negligible and long-term. Decommissioning The magnitude of the effect on local character is negligible and short term. Post-decommissioning The magnitude of the effect on local character is negligible and permanent.
Landform	Grading/ tunnelling of landform required to facilitate the project. Once the project is completed the change would not be readily discernible. Construction The magnitude of the effect on local character is moderate adverse during construction and short term. Operation The magnitude of the effect on local character is minor adverse and long-term. Decommissioning The magnitude of the effect on local character is minor adverse and short term. Post-decommissioning

	The magnitude of the effect on local character is minor adverse and permanent.
Hydrology	No Change
Soils	Areas of soil within the site will be stripped, stored and reused for landscaping purposes where feasible within the project. Construction The magnitude of the effect on local character is moderate adverse during construction and short term. Operation The magnitude of the effect on local character is negligible and long term. Decommissioning The magnitude of the effect on local character is moderate adverse and short term. Post-decommissioning The magnitude of the effect on local character is negligible and permanent.
Land cover/ flora and fauna	Existing trees on the proposed main project site will be largely retained. Some small areas of scrub and trees will be removed to facilitate the access road to the proposed main project site. Areas of existing vegetation will be removed to facilitate horizontal directional drilling to cross the M6 motorway in two separate locations and the M17 motorway in one location. The vegetation will be reinstated at completion. The proposed main project site and access road will include additional hedge, woodland planting and grassland areas. Construction The magnitude of the effect on local character is minor adverse during construction and short term. Operation The magnitude of effect is judged to be a moderate beneficial as planting matures and long term. Decommissioning Mitigation planting will be retained, hard standing areas will be returned to grassland. The magnitude of the effect on local character is minor adverse and short term. Post-decommissioning The magnitude of the effect on local character is judged to moderate beneficial and permanent.

Cultural/ Social Factors

Element	**Description**
Land Use	Land-use will change from an area of agricultural pasture land to industrial development mostly screened by woodland and adjacent to the motorway network. The type of land use change is consistent with existing types and patterns of built development within the immediate context. Construction The magnitude of the effect on local character is judged to be moderate adverse during construction and short term. Operation The magnitude of effect is judged to be moderate adverse and long term. Decommissioning Structures will be removed. Mitigation planting will be retained. The magnitude of the effect on local character is moderate adverse and short term. Post-decommissioning The magnitude of the effect on local character is judged to be moderate beneficial and permanent.
Settlement	There will be no change to settlement patterns and dwellings. The underground cable route will avoid dwellings and will mostly utilise the existing road corridor. Construction The magnitude of the effect on local character is judged to be minor adverse during construction and short term. Operation The magnitude of effect is judged to be negligible and long term. Decommissioning The magnitude of the effect on local character is negligible and short term. Post-decommissioning The magnitude of the effect on local character is negligible and permanent.

Enclosure	The proposed screen planting and hedging to the proposed main project site and access road would be appropriate to the surrounding context. This type of boundary treatment is consistent with existing types of vegetation characteristic of the area. Existing stone walls to the proposed main project site will be retained, except for small sections which will be removed to facilitate the site entrance and site access road. The underground cable route will avoid dwellings and will mostly utilise the existing road corridor. Construction The magnitude of the effect on local character is judged to be minor adverse during construction and short term. Operation The magnitude of effect is judged to be moderate beneficial as planting matures. Decommissioning Structures will be removed. Mitigation planting will be retained. The magnitude of the effect on local character is minor adverse and short term. Post-decommissioning The magnitude of the effect on local character is judged to be moderate benefical and permanent.
Time depth	There will be no change to the setting of Athenry Architectural Conservation Area (ACA) and protected structures at Athenry as the Proposed Project would not be visible from that location.

Perceptual and Aesthetic Factors

Element	**Description**
Aesthetic aspects (sight)	Scale: No change, the local landscape will still be perceived as a combination of large open areas and more intimate spaces enclosed by vegetation. Enclosure: The area of the proposed main project site will change from open pasture to become enclosed over time, as woodland screen planting to the site and adjacent motorway network matures. The local landscape already includes a combination of open pasture and blocks of woodland so this change is consistent with existing character. Diversity: The Proposed Project will lead to the addition of industrial elements alongside the motorway network. Texture: The Proposed Project will include industrial buildings and structures. Screen planting is appropriate to the local context. Form: There would be minor change to the perception of landform. Line: There would be no change to the perception of line. Colour: The proposed landscape planting will be in keeping with existing colours. The Proposed Project will include industrial buildings and structures with material finishes/ colours appropriate to the local context. Balance: The Proposed Project will increase the perception of industrial development within the local area. The proposed screen planting to the proposed main project site in combination with maturing planting along the adjacent motorway network will improve the perception of balance over time. Movement: There would be no change to the perception of movement. Pattern: The cable route will follow the existing road network. The access road to the proposed main project site will follow existing field boundaries. The proposed main project site itself will be contained within an existing field boundary. There would be no change to the perception of pattern. Construction The magnitude of the effect on local character is judged to be moderate adverse during construction and short term. Operation Over time the site and buildings will be mostly screened by woodland planting, except for the tallest parts of the exhaust stack and other structures. Some viewers may enjoy views of the exhaust stack and see it as a landscape feature enveloped by woodland, other people may perceive it as adverse. The magnitude of effect is judged to be minor adverse. Decommissioning Structures will be removed. Mitigation planting will be retained. The magnitude of the effect on local character is minor adverse and short term. Post-decommissioning Screen planting to the proposed main project site will be retained and continue to mature. The magnitude of the effect on local character is judged to be minor beneficial and permanent.

Other aspects	perceptual	Security: No change. Tranquillity: The proposed main project site is already located adjacent to the motorway network including lighting to the motorway junction. There would be minor adverse change to the perception of tranquillity. Stimulus: The local landscape is already heavily influenced by the functional aspects of the landscape including the motorway network, existing electricity infrastructure pylons, settlement including residential ribbon development. There would be minor change to the perception of stimulus. Pleasure: The area is perceived as functional and ordinary near the motorway network and to the outskirts to Athenry. As the proposed main project site is already located adjacent to the motorway network there would be minor adverse change to the perception of pleasure. Construction The magnitude of the effect on local character is judged to be moderate adverse during construction and short term. Operation The magnitude of effect is judged to be minor adverse and long term. Decommissioning Structures will be removed. Mitigation planting will be retained. The magnitude of the effect on local character is minor adverse and short term. Post-decommissioning Screen planting to the proposed main project site will be retained and continue to mature. The magnitude of the effect on local character is judged to be minor beneficial and permanent.

6.4.1 Magnitude and Significance of Landscape Effects

6.4.1.1 Central Galway Complex Landscape (6b. Southern River Clare Basin Landscape Character Unit)

The assessment of landscape elements at Table 6.7 above indicates that overall the magnitude of landscape change would be moderate adverse during construction and short term, minor adverse during operation and long term, minor adverse during decommissioning and temporary to short term, and minor beneficial post-decommissioning and permanent.

Construction

The combination of low sensitivity and moderate adverse magnitude indicates that the significance of the effects on Central Galway Complex Landscape (6b. Southern River Clare Basin Landscape Character Unit) within the study area is judged to be **Moderate Adverse Effect** during construction.

Operation

The combination of low sensitivity and minor adverse magnitude indicates that the significance of the effects on Central Galway Complex Landscape (6b. Southern River Clare Basin Landscape Character Unit) within the study area is judged to be **Slight Adverse Effect** during operation.

Decommissioning

The combination of low sensitivity and minor adverse magnitude indicates that the significance of the effects on Central Galway Complex Landscape (6b. Southern River Clare Basin Landscape Character Unit) within the study area is judged to be **Slight Adverse Effect** during decommissioning.

Post-decommissioning

The combination of low sensitivity and minor beneficial magnitude indicates that the significance of the effects on Central Galway Complex Landscape (6b. Southern River Clare Basin Landscape Character Unit) within the study area is judged to be **Slight Beneficial Effect** post decommissioning.

6.4.1.2 Urban Environs (Athenry)

The Proposed Project would not be visible for the most part from Athenry Urban Environs, at most there may be some very distant views of negligible magnitude views from the rural areas to the west of the Urban Environs area.

The overall magnitude of landscape change would be negligible to no change during construction, operation, decommissioning and post-decommissioning.

The combination of low sensitivity and negligible to no change magnitude indicates that the significance of the effects on Urban Environs (Athenry) Landscape Character Type within the study area is judged to be **Neutral Effect** during construction, operation, decommissioning and post-decommissioning.

6.5 Mitigation Measures

This section identifies additional mitigation to reduce any potential adverse effects.

Landscape planting including screen planting to the proposed main project site has been included within the project design. The proposed main project site will include screen planting to the site perimeter, earth mounding and planting to the western site boundary and hedgerows and grassland.

Vegetation removed as part of the underground cable works including site compound areas will be reinstated following completion.

Careful consideration will be given to the material finishes and colours to the proposed buildings and structures within the proposed main project site. The proposals will include neutral finishes to buildings and structures.

6.6 Residual Effects

6.6.1 Landscape Effects

As outlined above the significance of the effects including mitigation on Central Galway Complex Landscape (6b. Southern River Clare Basin Landscape Character Unit) within the study area is judged to be; **Moderate Adverse Effect** during construction, **Slight Adverse Effect** during operation, **Slight Adverse Effect** during decommissioning, and **Slight Beneficial Effect** post decommissioning and permanent.

The significance of the effects on Urban Environs (Athenry) Landscape Character Type within the study area is judged to be **Neutral Effect** during construction, operation, decommissioning and post-decommissioning.

6.6.2 Visual Effects

As outlined above and summarised below at Table 6.8.

Table 6.8 Residual Visual Effects

Viewpoint	Significance of Visual Effect Construction	Significance of Visual Effect Operation	Significance of Visual Effect Decommissioning	Significance of Visual Effect Post-Decommissioning
1	Moderate Adverse	Moderate Adverse	Moderate Adverse	Moderate Beneficial
2	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Beneficial

3	Neutral	Neutral	Neutral	Neutral
4	Moderate Adverse	Slight Adverse	Slight Adverse	Slight Beneficial
5	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Beneficial
6	Slight Adverse	Slight Adverse	Slight Adverse	Neutral
7	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Beneficial
8	Slight/ Moderate Adverse	Slight/ Moderate Adverse	Slight/ Moderate Adverse	Slight Beneficial
9	Neutral	Neutral	Neutral	Neutral
10	Slight Adverse	Slight Adverse	Slight Adverse	Neutral
11	Neutral	Neutral	Neutral	Neutral
12	Neutral	Neutral	Neutral	Neutral
13	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Beneficial
14	Neutral	Neutral	Neutral	Neutral
15	Neutral	Neutral	Neutral	Neutral
16	Neutral	Neutral	Neutral	Neutral
17	Neutral	Neutral	Neutral	Neutral
18	Neutral	Neutral	Neutral	Neutral
19	Neutral	Neutral	Neutral	Neutral
20	Neutral	Neutral	Neutral	Neutral
21	Neutral	Neutral	Neutral	Neutral
22	Neutral	Neutral	Neutral	Neutral
23	Neutral	Neutral	Neutral	Neutral
24	Neutral	Neutral	Neutral	Neutral

6.7 Do Nothing Scenario

Under the Do Nothing scenario, the proposed gas peaking plant and associated structures would not be constructed, and the site would remain in its existing state. The baseline landscape and visual amenity conditions would continue, subject to ongoing natural processes, farming practices and wider development trends in the surrounding area.

The site's location adjacent to the M6/ M17 motorways places it within a nationally significant transport corridor between Galway and Athenry. Continued traffic growth, incremental highway maintenance, and potential minor ancillary works along the corridor would influence the broader landscape setting through changes in noise, movement patterns, and roadside character, even though the site itself remains undeveloped.

The Galway County Development Plan 2022–2028 provides the statutory spatial planning framework for the surrounding area, guiding where development and infrastructure investment should occur. The plan identifies key strategic and economic corridors, including the Galway–Athenry corridor, as focal points for population and employment growth.

Adjacent towns such as Athenry, are subject to ongoing pressures for housing, employment, and infrastructure improvements. Although outside the immediate footprint of the site, expansion of settlement edges, road improvements, or servicing infrastructure may influence the visual and perceptual context over time.

6.8 Monitoring Requirements

The proposed landscape planting to the site will include an initial 3 year post completion establishment maintenance period. The success of planting establishment and landscape management on the site will be checked and reviewed on a regular basis to ensure successful long term establishment. For this reason a landscape management plan for the site will be prepared prior to construction detailing what operations will be undertaken to ensure the successful establishment of landscape planting at the site.

6.9 Difficulties encountered during preparation of this chapter

For safety reasons, no viewpoint photography was taken from the motorway network (M6, M17 & M18) within the study area Instead, viewpoints were taken from motorway overbridges, which provided elevated representative views of the surrounding landscape and the Proposed Project. This approach ensures that visual receptors associated with the motorways have been appropriately considered, and therefore does not affect the robustness of the assessment.

6.10 Conclusion

6.10.1 Landscape Effects

The significance of the effect including mitigation on Central Galway Complex Landscape Type (which includes 6b. Southern River Clare Basin Landscape Character Unit) within the study area is judged to be Moderate Adverse Effect during construction, Slight Adverse Effect during operation, Slight Adverse Effect during decommissioning, Slight Beneficial Effect post decommissioning and permanent. In summary, there would only be some localised significant adverse effects during the construction phase only.

The significance of the effect on Urban Environs (Athenry) Landscape Character Type within the study area is judged to be Neutral Effect during construction, operation, decommissioning and post-decommissioning and not significant in EIAR terms.

6.10.2 Visual Effects

During the construction, operation and decommissioning phases, the Proposed Project will result in a limited number of significant residual visual effects, principally within the immediate context of the main site. Significant adverse effects would be experienced by a small number of nearby receptors where the project would introduce new elements into the landscape and partially alter some existing views. Beyond these areas, residual effects would be slight or neutral and not significant in EIAR terms.

During the post decommissioning phase, any adverse effects would become beneficial as all site structures are removed and mitigation screen planting is retained and has matured contributing to an improvement in views.

7. Air Quality

7.1 Introduction

This chapter assesses the likely air quality impacts associated with the Proposed Project located in Pollnagroagh / Rathmorrissy, Athenry, Co. Galway. A full description of the project is available in Chapter 2 Project Description.

An overview of the methodology undertaken for the air quality impact assessment for the Proposed Project is outlined below:

- Legislation and Guidance:
  - A review of the applicable standards and guidelines has been undertaken in order to define the air quality significance criteria for the construction, operational and decommissioning phases of the Proposed Project (see Section 7.2.1);
- Study Area:
  - Sensitive human health receptors and sensitive ecological receptors with the potential to be impacted by the Proposed Project have been identified (see Section 7.3.3).
- Baseline Environment:
  - The existing ambient environment in the area of the Proposed Project has been characterised by a review of available published ambient air quality monitoring and meteorological data (see Section 7.3);
- Construction Dust Impact Assessment:
  - The impacts of construction dust resulting from construction activities, in terms of dust soiling, human health and ecology effects have been assessed (see Section 7.2.2.1 for methodology and Section 7.4.1 for impacts).
- Operational Emissions Impact Assessment:
  - The impacts of pollutant emissions from the dual-fuel gas turbine (100 hours per year expected) and backup generator (emergency use only) on nearest sensitive human health and designated habitat locations have been assessed (see Section 7.2.3.2 for methodology and Section 7.4.2 for impacts).
- Decommissioning Dust Impact Assessment:
  - The impacts of decommissioning dust resulting from construction activities, in terms of dust soiling, human health and ecology effects have been assessed (see Section 7.2.4 for methodology and Section 7.4.3 for impacts).
- Road Traffic Impact Assessment:
  - The impacts of changes in road traffic impacts due to the construction, operational and decommissioning phases of the Proposed Project on the nearest sensitive human health and designated habitat locations have been considered assessed (see Section 7.2.2.2 and Section 7.2.3.1).
- Cumulative Effects
  - The potential for cumulative effects between construction, operational and decommissioning phases of the Proposed Project and other permitted developments has been considered (see Chapter 16 Cumulative Impacts).
- A schedule of mitigation measures has been incorporated, where required, to reduce, where necessary, the identified potential air quality impacts associated with the Proposed Project (see Section 7.6),
- Monitoring measures are proposed to ensure the mitigation measures are effective (see Section 7.8); and

- An assessment of the significance of any residual impacts after mitigation has also been undertaken (see Section 7.7).

Below is an overview of the key relevant details of the construction, operational and decommissioning phases of the Proposed Project. The information presented in these sections is informed by the project design, but it is not a complete description of the Proposed Project. Therefore, it should be read in conjunction with the full set of planning application documents, and EIAR. For a more comprehensive description of the Proposed Project, please refer to Chapter 2 Project Description, of the EIAR. Chapter 2 provides a detailed overview of the lifecycle of the project, including reference to the architectural and civil engineering, drawings, plans, reports, and other relevant documents in order to define the Proposed Project.

7.1.1 Construction Phase

The proposed works will comprise construction of a Peaker Plant, comprised of a single open-cycle dual-fuel gas turbine and backup generator with associated auxiliary support equipment, as well as the above ground installation (AGI) at Rathmorrissy, the GNI146 Rathmorrissy Gas Pipeline (i.e. underground gas pipeline) and the Underground Cable Grid Connection Route (as detailed in Chapter 2 Project Description). Construction works for the Peaker Plant are expected to last ca. 18 months, with the other elements taking between 2 and 12 months to construct (see Chapter 2 Project Description for full details).

The key civil engineering works which will have likely significant effects on air quality due to dust generation during construction are summarised below:

- Demolition of existing structures.
- Site preparation prior to construction (e.g. topsoil clearance and storing on site) of all Proposed Project elements.
- Excavation of material, such as cut and fill to formation levels, for construction of Peaker Plant, AGI and grid connection substation
- Open-cut trench excavation of material for GNI146 Rathmorrissy Gas Pipeline installation.
- Excavation of material at Horizontal Directional Drilling (HDD) entry and exit pits for the Underground Cable Grid Connection Route.
- Construction of AGI, Peaker Plant and associated structures.
- Temporary storage of construction materials such as cement.

Construction traffic accessing the site will emit air pollutants, primarily nitrogen oxides (NO_x) and particulate matter (as PM_{10} and $PM_{2.5}$) during transport.

7.1.2 Operational Phase

The key works which will have a likely impact on air quality during operation of the Proposed Project are summarised below:

- Process emissions of nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and carbon monoxide (CO) from the gas turbine and backup generator have the potential to affect air quality during the operational phase of the project.
- Road traffic accessing the site will emit air pollutants, primarily NO_X, PM_{10} and $PM_{2.5}$.

7.1.3 Decommissioning Phase

The greatest potential impact on air quality during the decommissioning phase is from dust emissions from the demolition and removal of buildings and materials and road traffic emissions. These are expected to be of a similar or lesser magnitude to those identified during the construction phase.

The Peaker Plant will be regulated by the EPA under an Industrial Emissions licence, which will require the Licensee to prepare and maintain an Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP). The final site closure plan will be subject to approval from the EPA once all closure, restoration and aftercare requirements are nearing completion.

7.2 Study Assessment and Methodology

7.2.1 Criteria for Rating of Impacts

7.2.1.1 Human Health

7.2.1.1.1 Ambient Air Quality Standards

In order to reduce the risk to health from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or "Air Quality Standards" are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set.

Air quality significance criteria are assessed on the basis of compliance with the appropriate standards or limit values. The applicable standards in Ireland are set out in the Ambient Air Quality Standards Regulations 2022 (S.I. 739 of 2022) (the Air Quality Standards Regulations 2022) and Directive (EU) 2024/2881 *of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast)*. This directive supersedes EU Directive 2008/50/EC *of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe* (CAFE Directive). Directive (EU) 2024/2881 sets out air quality standards for pollutants to be reached by 2026 and by 2030 which are more closely aligned with the World Health Organisation (WHO) air quality guidelines.

The ambient air quality limit values for pollutants are set out in Annex I of Directive (EU) 2024/2881. Table 1 of Annex I in Directive (EU) 2024/2881 sets out the updated air quality limit values for pollutants to be achieved by 1 January 2030, which are more closely aligned with the WHO air quality guidelines. Table 2 of Annex I in Directive (EU) 2024/2881 sets out the limit values for air pollutants which are to be achieved by 11 December 2026 and are also applicable up to 2030. The limit values in Table 2 of Annex I are the same as the limits set under Directive 2008/50/EC and the Air Quality Standards Regulations 2022.

The Air Quality Standards Regulations 2022) further transposed the CAFE Directive and revoked the Air Quality Standards Regulations 2011, as amended. With the adoption of Directive (EU) 2024/2881, Ireland must transpose this directive into national law, i.e. update the Air Quality Standards Regulations, before December 2026.

The ambient air quality standards applicable for nitrogen dioxide (NO_2), carbon monoxide (CO), particulate matter (as PM_{10} and $PM_{2.5}$) and sulphur dioxide (SO_2) are outlined in Table 7-1. These pollutants are of relevance to the Proposed Project. The limit values stipulated under Table 2 of Annex I in Directive (EU)

2024/2881 and the Air Quality Standards Regulations 2022 are applicable for the Proposed Project as it will be constructed and operational prior to 2030.

Table 7.1 –Ambient Air Quality Limit Values

Pollutant	Directive (EU) 2024/2881 Annex I Table 2		Directive (EU) 2024/2881 Annex I Table 1	
	Limit Type	**Limit Value** (to be attained by 2026 and applicable until 2030)	**Limit Type**	**Limit Value** (to be attained by 2030)
Nitrogen Dioxide (NO_2)	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	200 µg/m^3	Hourly limit for protection of human health - not to be exceeded more than 3 times/year	200 µg/m^3
	n/a	n/a	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	50 µg/m^3
	Annual limit for protection of human health	40 µg/m^3	Annual limit for protection of human health	20 µg/m^3
Particulate Matter (as PM_{10})	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50 µg/m^3	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	45 µg/m^3
	Annual limit for protection of human health	40 µg/m^3	Annual limit for protection of human health	20 µg/m^3
Particulate Matter (as $PM_{2.5}$)	n/a	n/a	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	25 µg/m^3
	Annual limit for protection of human health	25 µg/m^3	Annual limit for protection of human health	10 µg/m^3
Carbon Monoxide (CO)	8-hour limit (on a rolling basis) for protection of human health	10 mg/m^3	8-hour limit (on a rolling basis) for protection of human health	10 mg/m^3
	n/a	n/a	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	4 mg/m^3
Sulphur Dioxide (SO_2)	Hourly limit for protection of human health - not to be exceeded more than 24 times/year	350 µg/m^3	Hourly limit for protection of human health - not to be exceeded more than 3 times/year	350 µg/m^3
	24-hour limit for protection of human health - not to be	125 µg/m^3	24-hour limit for protection of human health - not to be	50 µg/m^3

Pollutant	Directive (EU) 2024/2881 Annex I Table 2		Directive (EU) 2024/2881 Annex I Table 1	
	Limit Type	**Limit Value** (to be attained by 2026 and applicable until 2030)	**Limit Type**	**Limit Value** (to be attained by 2030)
	exceeded more than 3 times/year		exceeded more than 18 times/year	
	n/a	n/a	Annual limit for protection of human health	20 µg/m^3
	Annual limit value for the protection of vegetation	20 µg/m^3	Annual limit value for the protection of vegetation	20 µg/m^3

7.2.1.1.2 WHO Air Quality Guidelines & Clean Air Strategy

In April 2023, the Government of Ireland published the Clean Air Strategy for Ireland (Government of Ireland 2023), which provides a high-level strategic policy framework needed to reduce air pollution. The strategy commits Ireland to achieving the 2021 WHO Air Quality Guidelines Interim Target 3 (IT3) by 2026 (shown in Table 7.2), the IT4 targets by 2030 and the final targets by 2040 (shown in Table 7.2). The strategy notes that a significant number of EPA monitoring stations observed air pollution levels in 2021 above the WHO targets; 80% of these stations would fail to meet the final $PM_{2.5}$ target of 5 µg/m^3. The strategy also acknowledges that "*meeting the WHO targets will be challenging and will require legislative and societal change, especially with regard to both $PM_{2.5}$ and NO_2*".

Annex II of Directive (EU) 2024/2881 gives assessment thresholds which align with the clean air strategy final 2040 WHO targets. Directive (EU) 2024/2881 states that *"Member States shall endeavour to achieve and preserve the best ambient air quality and a high level of protection of human health and the environment, with the aim of achieving a zero-pollution objective as referred to in Article 1(1), in line with WHO recommendations, and below the assessment thresholds laid down in Annex II."*

These assessment thresholds relate to monitoring of ambient air quality by Member States, where *"exceedances of the assessment thresholds specified in Annex II shall be determined on the basis of concentrations during the previous 5 years where sufficient data are available. An assessment threshold shall be deemed to have been exceeded if it has been exceeded during at least 3 separate years out of those previous 5 years*."

Table 7.2 – WHO Air Quality Guidelines 2021

Pollutant	Limit Type	IT3 (2026)	IT4 (2030)	Final Target (2040)
NO_2	24-hour limit for protection of human health	-	-	25 µg/m^3
	Annual limit for protection of human health	20 µg/m^3	-	10 µg/m^3
PM (as PM_{10})	24-hour limit for protection of human health	75 µg/m^3	50 µg/m^3	45 µg/m^3

Pollutant	Limit Type	IT3 (2026)	IT4 (2030)	Final Target (2040)
	Annual limit for protection of human health	30 µg/m^3	20 µg/m^3	15 µg/m^3
PM (as $PM_{2.5}$)	24-hour limit for protection of human health	37.5 µg/m^3	25 µg/m^3	15 µg/m^3
	Annual limit for protection of human health	15 µg/m^3	10 µg/m^3	5 µg/m^3

The applicable air quality limit values for the purposes of this assessment are those set out in Table 7-1. The limit values stipulated under Table 2 of Annex I in Directive (EU) 2024/2881 and the Air Quality Standards Regulations 2022 are applicable for the Proposed Project as it will be constructed and operational prior to 2030.

7.2.1.1.3 Dust Deposition Guidelines

The concern from a health perspective is focused on particles of dust that are less than 10 microns (PM_{10}) and less than 2.5 microns ($PM_{2.5}$). The EU ambient air quality standards outlined in Table 7-1 have set ambient air quality limit values for PM_{10} and $PM_{2.5}$.

With regards to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland. Therefore, no specific criteria have been stipulated for nuisance dust in respect of this development.

With regard to dust deposition, the German TA-Luft standard for dust deposition (non-hazardous dust) (German VDI, 2002) sets a maximum permissible emission level for dust deposition of 350 mg/m^2/day averaged over a one-year period at any receptors outside the site boundary. The TA-Luft standard has been applied for the purpose of this assessment based on best practice recommendations from the EPA in Ireland in the document titled 'Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA, 2006). The document recommends that the TA-Luft limit of 350 mg/m^2/day be applied to the site boundary of quarries. This limit value can be implemented with regard to dust impacts from construction of the Proposed Project.

7.2.1.2 Ecology

The criteria for assessment of impacts on ecology due to emissions to air are based on compliance with critical levels and critical loads. These are defined and described in detail in the following sections.

7.2.1.2.1 Critical Levels

The Air Quality Standards Regulations 2022 and Directive (EU) 2024/2881 outline an annual critical level of 30 µg/m^3 for NO_X and a level of 20 µg/m^3 for SO_2 (Table 7-1) for the protection of vegetation and natural ecosystems in general. The CAFE Directive (2008/50/EC) defines 'Critical Levels' as "*a level fixed on the basis of scientific knowledge, above which direct adverse effects may occur on some receptors, such as trees, other plants or natural ecosystems but not on humans*".

7.2.1.2.2 Critical Loads

A 'Critical Load' is defined by the United Nations Economic Commission for Europe (UNECE) as *"a quantitative*

estimate of an exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge" (UNECE, 2003).

Critical loads are presented as a range, within which there is the potential for effects on sensitive ecological receptors. Critical load ranges for N deposition and acid deposition were derived from the Air Pollution Information System (APIS) website (APIS, 2025) and are reproduced as shown in Table 7.3 and Table 7.4. Also shown in these tables are the site feature code and name (i.e. the qualifying feature the site is designated for), the corresponding critical load class and EUNIS codes (European Nature Information System (EUNIS) by the European Environment Agency). The methodology for identifying the relevant sensitive ecological receptors is discussed in Section 7.3.3.2).

In order to determine the appropriate nitrogen deposition critical load, and in addition to APIS, the EPA publication *Research 390: Nitrogen-Sulfur Critical Loads: Assessment of the Impacts of Air Pollution on Habitats* (EPA, 2021) was consulted. In Table 3.2 of the publication empirical critical loads of nutrient nitrogen are outlined with a lowest range of 5-10 kg N/ha/yr for certain habitat types. The EPA publication also recommends the midpoint is used to define the critical load for specific habitat types (see Table 3.2 of the EPA publication). Thus, the mid-range critical load for the most sensitive habitat type within the relevant sites have been used as the assessment criteria, shown in Table 7.3 to compare with modelled process contributions.

Acid deposition critical loads (shown in Table 7-4) are further categorised by nitrogen (N) or sulphur (S) components. Modelled acid deposition process contributions are therefore calculated in terms of both nitrogen (N) and sulphur (S) (see Section 7.2.3.2.6).

Deposition of sulphur (as sulphate (SO_4^{2-})) and nitrogen (as nitrate (NO_3^-), ammonium (NH_4^+) and nitric acid (HNO_3^-)), can cause acidification and both sulphur and nitrogen compounds must be taken into account when assessing acidification of soils. For the purposes of determining links between critical loads and atmospheric emissions of sulphur and nitrogen, critical loads are further derived to produce a maximum critical load for sulphur (CLmaxS), a minimum critical load for nitrogen (CLminN) and a maximum critical load for nitrogen (CLmaxN). These components define the critical load function and when compared with deposition data for sulphur and nitrogen, they can be used to assess critical load exceedances.

The modelled acid deposition process contributions (as S) have been compared to the minimum critical load (S) (MinCLmaxS) i.e. the assessment criterion.

The assessment criteria for nitrogen deposition are the minimum critical load (N) (MinCLminN) and the maximum critical load (N) range (MaxCLminN). The modelled acid deposition process contributions (as N) have been compared to the minimum critical load (N) (MinCLminN). Where a process contribution is greater than 1% of this minimum critical load, the Predicted Environmental Concentration (PEC) is calculated by adding the acid deposition background concentration to the process contribution. The PEC is then compared to the lower end of the maximum critical load (N) range i.e. MaxCLminN. This is in line with the *Screening Acidity Critical Loads* approach taken by APIS (available as a tab in the APIS app) for designated sites. Notably, APIS does not consider the critical load function to be exceeded unless the PEC is larger than the maximum critical load, not the minimum (which is typically considered precautionary).

Table 7.3 Critical Loads for Nitrogen Deposition

Site	Site Code	Feature Code	Feature Name	Critical loads for most sensitive feature			Nitrogen Critical Load Class	EUNIS code	Is species sensitive due to nutrient nitrogen impacts on broad habitat?
				Min. Critical Load for N (kg N/ha/yr)	Max. Critical Load for N (kg N/ha/yr)	Assessment Criteria			
Galway Bay Complex SAC	000268	H1150	Coastal lagoons	5	10	5	Pioneer, low-mid, mid-upper saltmarshes	A2.54; A2.55; A2.53	-
Lough Corrib SAC	000297	H91D0	Bog woodland	5	10	5	Raised and blanket bogs	D1	-
Monivea Bog SAC	002352	H7110	Active raised bogs	5	10	5	Raised and blanket bogs	D1	-
Rahasane Turlough SAC	000322	H3180	Turloughs	n/a	n/a	n/a	No comparable habitat with established critical load estimate available	n/a	-
Cregganna Marsh SPA	004142	A395	*Anser albifrons flavirostris* (Greenland/ Ireland/UK)	5	10	5	Raised and blanket bogs	D1	No
Inner Galway Bay SPA	004031	A050	*Anas penelope* (Western Siberia/North-western/North-eastern Europe)	5	10	5	Pioneer, low-mid, mid-upper saltmarshes	A2.54; A2.55; A2.53	Yes
Rahasane Turlough SPA	004089	A050	*Anas penelope* (Western Siberia/North-western/North-eastern Europe)	5	10	5	Pioneer, low-mid, mid-upper saltmarshes	A2.54; A2.55; A2.53	Yes

Table 7.4 Critical Loads for Acid Deposition

Site	Site Code	Feature Code	Feature Name	Acidity Critical Load Class	Min. Critical Load Range (N) (keq/ha/yr)		Max. Critical Load Range (N) (keq/ha/yr)		Min. Critical Load (S) (keq/ha/yr)	Max. Critical Load (S) (keq/ha/yr)	Is species sensitive due to acidity impacts on broad habitat?
					MinCL minN	MinCL maxN	MaxCL minN	MaxCL maxN	MinCL maxS	MaxCL maxS	
Galway Bay Complex SAC	000268	S1355	*Lutra lutra*	Freshwater	0.143	0.485	0.714	6.258	0.342	5.544	Yes
Lough Corrib SAC	000297	S1092	*Austropotamobius pallipes*	Freshwater	0.143	0.443	0.714	6.428	0.3	5.714	Site Specific
Monivea Bog SAC	002352	H7110	Active raised bogs	Bogs	0.143	0.487	0.286	5.249	0.344	4.963	n/a
Rahasane Turlough SAC	000322	n/a	No information on this site.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cregganna Marsh SPA	004142	A395	*Anser albifrons* flavirostris (Greenland/ Ireland/UK)	Freshwater	0.143	4.958	0.143	5.041	4.816	4.898	No
Inner Galway Bay SPA	004031	A002	*Gavia arctica* (Western Siberia/ Europe)	Freshwater	0.143	0.485	0.714	6.258	0.342	5.544	Yes
Rahasane Turlough SPA	004089	A050	*Anas penelope* (Western Siberia/ North-western/North-eastern Europe)	Freshwater	0.143	4.972	0.143	5.041	4.829	4.898	No

7.2.1.2.3 Ecology Significance Criteria

Annual mean NO_X, NH_3 and SO_2 concentrations and nitrogen and acid deposition are compared to the relevant critical levels and loads in line with IAQM (IAQM, 2020), UKEA (UKEA, 2025) and EPA (EPA, 2024) guidance. As per this guidance, where the (PC) of a pollutant emitted from a facility is less than 1% of the relevant critical level and critical load the further assessment is not required and the effect on ecology can be considered not significant.

7.2.2 Construction Phase

7.2.2.1 Construction Dust Assessment

The Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2024) outlines an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. The IAQM methodology has been applied to the construction phase of this development in order to predict the likely risk of dust impacts in the absence of mitigation measures and to determine the level of site-specific mitigation required. The use of UK guidance is recommended by Transport Infrastructure Ireland in their guidance document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2025).

The major dust generating activities are divided into four types within the IAQM guidance (2024) to reflect their different potential impacts.

These are:

- Demolition;
- Earthworks;
- Construction; and
- Trackout (transport of dust and dirt from the construction site onto the public road network).

The magnitude of each of the four categories is divided into Large, Medium or Small scale depending on the nature of the activities involved. The criteria for determining the category for the works involved are outlined in Table 7.5, these are based on the IAQM guidance (2024). The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities. This allows the level of site-specific mitigation to be determined.

Table 7.5 – IAQM Criteria to Determine Dust Emissions Magnitude

Dust Emission Magnitude		
Small	**Medium**	**Large**
Demolition		
▪ total building volume <12,000 m^3 ▪ construction material with low potential for dust release (e.g. metal cladding or timber) ▪ demolition activities <6 m above ground ▪ demolition during wetter months	▪ total building volume 12,000 - 75,000 m^3 ▪ potentially dusty construction material ▪ demolition activities 6 – 12 m above ground level	▪ total building volume >75,000 m^3 ▪ potentially dusty construction material (e.g. concrete) ▪ on-site crushing and screening ▪ demolition activities >12 m above ground level
Earthworks		
▪ total site area <18,000 m^2 ▪ soil type with large grain size (e.g. sand) ▪ <5 heavy earth moving vehicles active at any one time ▪ formation of bunds <3 m in height ▪ earthworks during wetter months	▪ total site area 18,000 m^2 - 110,000 m^2 ▪ moderately dusty soil type (e.g. silt) ▪ 5 – 10 heavy earth moving vehicles active at any one time ▪ formation of bunds 3 – 6 m in height	▪ total site area >110,000 m^2 ▪ potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) ▪ >10 heavy earth moving vehicles active at any one time ▪ formation of bunds >6 m in height
Construction		
▪ total building volume <12,000 m^3 ▪ construction material with low potential for dust release (e.g. metal cladding or timber)	▪ total building volume 12,000 - 75,000 m^3 ▪ potentially dusty construction material (e.g. concrete) ▪ on-site concrete batching	▪ total building volume >75,000 m^3 ▪ on-site concrete batching ▪ sandblasting
Trackout (truck movements)		
▪ <20 HDV (>3.5 t) outward movements in any one day ▪ surface material with low potential for dust release ▪ unpaved road length <50 m	▪ 20 – 50 HDV (>3.5 t) outward movements in any one day ▪ moderately dusty surface material (e.g. high clay content) ▪ unpaved road length 50 – 100 m	▪ >50 HDV (>3.5 t) outward movements in any one day ▪ potentially dusty surface material (e.g. high clay content) ▪ unpaved road length >100 m

Once the dust emission magnitude has been determined the next step, according to the IAQM guidance (2024), is to establish the level of risk by combining the magnitude with the overall sensitivity of the area to dust soiling, human health and ecological effects. The level of risk associated with each activity is determined using the criteria in Table 7.6.

Table 7.6 – IAQM Criteria to Determine Risk of Dust Impacts

Sensitivity of Area	Dust Emission Magnitude		
	Large	**Medium**	**Small**
Demolition			
High	High risk	Medium risk	Medium risk
Medium	High risk	Medium risk	Low risk
Low	Medium risk	Low risk	Negligible
Earthworks			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Construction			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Trackout			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible

7.2.2.2 Construction Phase Traffic Assessment

Construction phase traffic also has the potential to impact air quality. The TII guidance *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2025), states that road links meeting one or more of the following criteria can be defined as being 'affected' by a Proposed Project and should be included in the local air quality assessment. While the guidance is specific to infrastructure projects, the approach can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more;
- A change in road alignment by 5m or greater.

AtkinsRéalis have prepared a Traffic and Transportation Impact Assessment for the Proposed Project presented in Chapter 10 Traffic and Transportation of this EIAR. As per Chapter 10, it has been determined by AtkinsRéalis that the construction stage traffic will not increase by 1,000 AADT, or 200 HDV AADT, or that the project will not result in speed changes or changes in road alignment. Therefore, the traffic does not meet the above scoping criteria. A detailed air quality assessment of construction stage traffic emissions has been scoped out from any further assessment as there is no potential for significant impacts to air quality with respect with human or ecological receptors.

7.2.3 Operational Phase

7.2.3.1 Operational Phase Traffic Assessment

Operational phase traffic has the potential to impact local air quality as a result of increased vehicle movements associated with the Proposed Project. The TII scoping criteria detailed in Section 7.2.2.2 were used to determine if any road links are affected by the Proposed Project and require inclusion in a detailed air dispersion modelling assessment. AtkinsRéalis have prepared a Traffic and Transportation Impact Assessment for the Proposed Project presented in Chapter 10 Traffic and Transportation of this EIAR. The Proposed Project will not result in the operational phase traffic increasing by more than 1,000 AADT or 200 HDV AADT. In addition, there are no proposed changes to the traffic speeds or road alignment. Therefore, no road links impacted by the Proposed Project satisfy the screening criteria (Section 7.2.2.2). A quantitative assessment of the impact of traffic emissions on ambient air quality is not necessary as there is no potential for significant impacts to local air quality.

7.2.3.2 Air Dispersion Modelling

The United States Environmental Protection Agency (USEPA) approved AERMOD dispersion model has been used to predict the ground level concentrations (GLC) of pollutants emitted from the principal emission sources on-site. The modelling assessment was undertaken using the AERMOD dispersion model (Version 24124) which has been developed by the U.S. Environmental Protection Agency (USEPA) (USEPA, 2024) and following guidance issued by the EPA (EPA, 2020).

The model is a steady-state Gaussian plume model used to assess pollutant concentrations associated with industrial sources and has replaced ISCST3 (USEPA, 1995) as the regulatory model by the USEPA for modelling emissions from industrial sources in both flat and rolling terrain (USEPA, 1998; USEPA, 2000; USEPA, 2005). The model has more advanced algorithms and gives better agreement with monitoring data in extensive validation studies (USEPA, 1998; USEPA, 1999; Paine 1997a; Paine 1997b; Schulman, 2000). An overview of the AERMOD dispersion model is outlined in Appendix 7-1, Volume 3 of the EIAR .

The air dispersion modelling input data consisted of information on the physical environment (including building dimensions and terrain features), design details from all emission points on-site and five years of appropriate hourly meteorological data. Using this input data the model predicted ambient ground level concentrations beyond the site boundary for each hour of the modelled meteorological years. The model post-processed the data to identify the location of and maximum ground level concentration. This maximum concentration was then added to the background concentration to give the maximum predicted environmental concentration (PEC). The PEC was then compared with the relevant ambient air quality standard to assess the significance of the releases from the site.

The modelling aims to achieve compliance with the guidance outlined within the EPA document *AG4 Guidance for Air Dispersion Modelling* (EPA, 2020) for the maximum permissible process contribution:

"When modelling a facility, the uncertainty in the model should be considered. If the facility is operated continually at close to the maximum licenced mass emission rate (i.e. maximum concentration and maximum volume flow) the process contribution (PC) should be less than 75% of the ambient air quality standard and less than this where background levels account for a significant fraction of the ambient air quality standard."

This approach allows for inherent uncertainty in air dispersion modelling to be taken into account in order to avoid a risk of exceeding the air quality standards. The modelling assessment has aimed to achieve a process contribution that is less than 75% of the ambient air quality standard under the Proposed Project scenario modelled (see Section 7.2.3.2.7 Process Emissions for details on modelling scenarios).

Throughout this study a precautionary approach was taken. This will most likely lead to an over-estimation of the levels that will arise in practice. The precautionary assumptions are outlined below:

- Maximum predicted concentrations were reported in this study, even if no residential receptors were near the location of this maximum;
- Conservative background concentrations were used in the assessment;
- The effects of building downwash, due to on-site buildings, has been included in the model; and
- The main emission point (turbine) was assumed to operate as per the conditions described in Section 7.2.3.2.7.

The modelling incorporated the following features:

- All on-site buildings and significant process structures were mapped into the computer to create a three dimensional visualisation of the site and its emission points. Buildings and process structures can influence the passage of airflow over the emission stacks and draw plumes down towards the ground (termed building downwash). A stack itself can influence airflow in the same way as buildings by causing low pressure regions behind them (termed stack tip downwash). Both building and stack tip downwash were incorporated into the modelling.
- Detailed terrain has been mapped into the model using SRTM data with 30m resolution. All terrain features have been mapped in detail into the model using the terrain pre-processor AERMAP (USEPA, 2017).
- Hourly-sequenced meteorological information has been used in the model. Meteorological data sourced from Met Éireann (Met Éireann, 2025) over a five year period (Athenry 2020 – 2024) was used in the model (see Figure 7-2 and Appendix 7-1, Volume 3 of the EIAR).
- The source and emissions data, including stack dimensions, gas volumes and emission temperatures have been incorporated into the model.

7.2.3.2.1 NO_X to NO_2 Conversion

The Plume Volume Molar Ratio Method (PVMRM) was used to model NO_2 concentrations. The PVMRM is a regulatory option in AERMOD which assumes that the amount of NO converted to NO_2 is proportional to the ambient ozone concentration (Hanrahan, 1999a; Hanrahan 1999b). The PVMRM uses both plume size and O_3 concentration to derive the amount of O_3 available for the reaction between NO and O_3. NO_X moles are determined by emission rate and travel time through the plume segment. The concentration is usually limited by the amount of ambient O_3 that is entrained in the plume. Thus, the ratio of the moles of O_3 to the moles of NO_X gives the ratio of NO_2/NO_X that is formed after the NO_X leaves the stack. The equation used in the algorithm to derive the ratio of NO_2/NO_X gas combustion is:

NO_2/NO_X = (moles O3/ moles NO_X) + 0.30[Note: 0.10 for low sulphur diesel (secondary fuel)]

An initial NO_2/NO_X ratio of 0.3 was used for the gas turbine operating on natural gas and a ratio of 0.1 for the low sulphur diesel (secondary fuel) model was assumed for the purposes of this assessment.

A background ozone concentration of 55 µg/m^3 was used in the modelling assessment, based on a review of background ozone data for Zone D sites over the period 2019 – 2023 (EPA, 2024).

7.2.3.2.2 Methodology for Modelling of Emergency Operations

Regarding emergency operations, USEPA Guidance recommends an average hourly emission rate should be used rather than the maximum hourly rate (USEPA, 2011). As a result, the maximum hourly emission rates from the gas turbine or back-up generators were reduced by *500 no. hours / 8760 annual hours* and the emissions were modelled over a period of one full year.

A second methodology has been published by the UK Environment Agency. The relevant guidance documents are entitled *Diesel Generator Short-Term NO_2 Impact Assessment* (UKEA, 2016) and *Emissions from specified generators - Guidance on dispersion modelling for oxides of nitrogen assessment from specified generators* (UKEA, 2019). The methodology is based on considering the statistical likelihood of an exceedance of the NO_2 hourly limit value (18 exceedances are allowable per year before the air standard is deemed to have been exceeded, as per S.I. 739 of 2022 and 2008/50/EC). The assessment assumes a hypergeometric distribution to assess the likelihood of exceedance hours coinciding with the emergency operational hours of the generators. The cumulative hypergeometric distribution of 19 and more hours per year is computed and the probability of an exceedance determined. The guidance suggests that the 98th percentile confidence level should be used to indicate if an exceedance is likely. The guidance suggests that the assessment should be conducted at the nearest residential receptor or at locations where people are likely to be exposed and that there should be no running time restrictions on these generators when providing power on site during an emergency. While this methodology was developed for backup low sulphur diesel generators, it can also be applied to the short-term emergency operation of other combustion plant, such as dual fuel engines or turbines.

Both the methodology advised in the USEPA guidance as well as the approach described in the UK EA guidance have been applied for the scenario modelled in this study to ensure a robust assessment of predicted air quality impacts from the facility. This follows the guidance outlined in Appendix K of the EPA AG4 guidance (EPA, 2020).

7.2.3.2.3 Terrain

The AERMOD air dispersion model has a terrain pre-processor AERMAP (USEPA, 2017) which was used to map the physical environment in detail over the receptor grid. The digital terrain input data used in the AERMAP pre-processor was obtained from SRTM. This data was run to obtain for each receptor point the terrain height and the terrain height scale. The terrain height scale is used in AERMOD to calculate the critical dividing streamline height, H_{crit}, for each receptor. The terrain height scale is derived from the Digital Elevation Model (DEM) files in AERMAP by computing the relief height of the DEM point relative to the height of the receptor and determining the slope. If the slope is less than 10%, the program goes to the next DEM point. If the slope is 10% or greater, the controlling hill height is updated if it is higher than the stored hill height.

In areas of complex terrain, AERMOD models the impact of terrain using the concept of the dividing streamline (H_c). As outlined in the AERMOD model formulation (USEPA, 2022) a plume embedded in the flow below H_c tends to remain horizontal; it might go around the hill or impact on it. A plume above H_c will ride over the hill. Associated with this is a tendency for the plume to be depressed toward the terrain surface, for the flow to speed up, and for vertical turbulent intensities to increase.

AERMOD model formulation states that the model “captures the effect of flow above and below the dividing streamline by weighting the plume concentration associated with two possible extreme states of the boundary layer (horizontal plume and terrain-following). The relative weighting of the two states depends on: 1) the degree of atmospheric stability; 2) the wind speed; and 3) the plume height relative to terrain. In stable conditions, the horizontal plume "dominates" and is given greater weight while in neutral and unstable conditions, the plume traveling over the terrain is more heavily weighted” (USEPA, 2005).

7.2.3.2.4 Geophysical Considerations

AERMOD simulates the dispersion process using planetary boundary layer (PBL) scaling theory (USEPA, 2022). PBL depth and the dispersion of pollutants within this layer are influenced by specific surface characteristics such as surface roughness, albedo and the availability of surface moisture. Surface roughness is a measure of the aerodynamic roughness of the surface and is related to the height of the roughness element. Albedo is a measure of the reflectivity of the surface whilst the Bowen ratio is a measure of the availability of surface moisture.

AERMOD incorporates a meteorological pre-processor AERMET (USEPA, 2018) to enable the calculation of the appropriate parameters. The AERMET meteorological pre-processor requires the input of surface characteristics, including surface roughness (z_0), Bowen Ratio and albedo by sector and season, as well as hourly observations of wind speed, wind direction, cloud cover, and temperature. The values of albedo, Bowen Ratio and surface roughness depend on land-use type (e.g., urban, cultivated land etc) and vary with seasons and wind direction. The assessment of appropriate land-use type was carried out to a distance of 10 km from the meteorological station for Bowen Ratio and albedo and to a distance of 1 km for surface roughness in line with USEPA recommendations (USEPA, 2008; 2018) as outlined in Appendix 7-2, Volume 3 of the EIAR .

In relation to AERMOD, detailed guidance for calculating the relevant surface parameters has been published (USEPA, 2008). The most pertinent features are:

- The surface characteristics should be those of the meteorological site rather than the installation;
- Surface roughness should use a default 1 km radius upwind of the meteorological tower and should be based on an inverse-distance weighted geometric mean. If land use varies around the site, the land use should be sub-divided by sectors with a minimum sector size of 30º;
- Bowen ratio and albedo should be based on a 10 km grid. The Bowen ratio should be based on an un-weighted geometric mean. The albedo should be based on a simple un-weighted arithmetic mean.

AERMOD has an associated pre-processor, AERSURFACE (USEPA, 2008) which has representative values for these parameters depending on land use type. The AERSURFACE pre-processor currently only accepts NLCD92 land use data which covers the USA. Thus, manual input of surface parameters is necessary when modelling in Ireland. Ordnance survey discovery maps (1:50,000) and digital maps such as those provided by the EPA, National Parks and Wildlife Service (NPWS) and Google Earth® are useful in determining the relevant land use in the region of the meteorological station. The Alaska Department of Environmental Conservation has issued a guidance note for the manual calculation of geometric mean for surface roughness and Bowen ratio for use in AERMET (ADEC, 2008). This approach has been applied to the Proposed Project site with full details provided in Appendix 7-2, Volume 3 of the EIAR.

7.2.3.2.5 Building Downwash

When modelling emissions from an industrial installation, stacks which are relatively short can be subjected to additional turbulence due to the presence of nearby buildings. Buildings are considered nearby if they are within a distance which is five times the lesser of the building height or maximum projected building width (but not greater than 800 m) (USEPA, 1985).

The USEPA has defined the “Good Engineering Practice” (GEP) stack height as the building height plus 1.5 times the lesser of the building height or maximum projected building width. It is generally considered unlikely that building downwash will occur when stacks are at or greater than GEP (USEPA, 1985).

When stacks are less than this height, building downwash will tend to occur. As the wind approaches a building it is forced upwards and around the building leading to the formation of turbulent eddies. In the lee of the building these eddies will lead to downward mixing (reduced plume centreline and reduced plume rise) and the creation of a cavity zone (near wake) where re-circulation of the air can occur. Plumes released from short stacks may be entrained in this airflow leading to higher ground level concentrations than in the absence of the building.

The Plume Rise Model Enhancements (PRIME) (Paine & Lew, 1997a; 1997b) plume rise and building downwash algorithms, which calculates the impact of buildings on plume rise and dispersion, have been incorporated into AERMOD. The building input processor BPIP-PRIME produces the parameters which are required in order to run PRIME. The model takes into account the position of each stack relative to each relevant building and the projected shape of each building for 36 wind directions (at 10º intervals). The model determines the change in plume centreline location with downwind distance based on the slope of the mean streamlines

and coupled to a numerical plume rise model (Paine & Lew, 1997a).

Given that the stack is less than 1.5 times the lesser of the building height or maximum projected building width, building downwash will need to be taken into account and the PRIME algorithm run prior to modelling with AERMOD. Shown in Figure 7-1 is an example of the buildings (in blue) which influence the building downwash for stack A2-1. The dominant building for each relevant stack will vary as a function of wind direction and relative building heights.

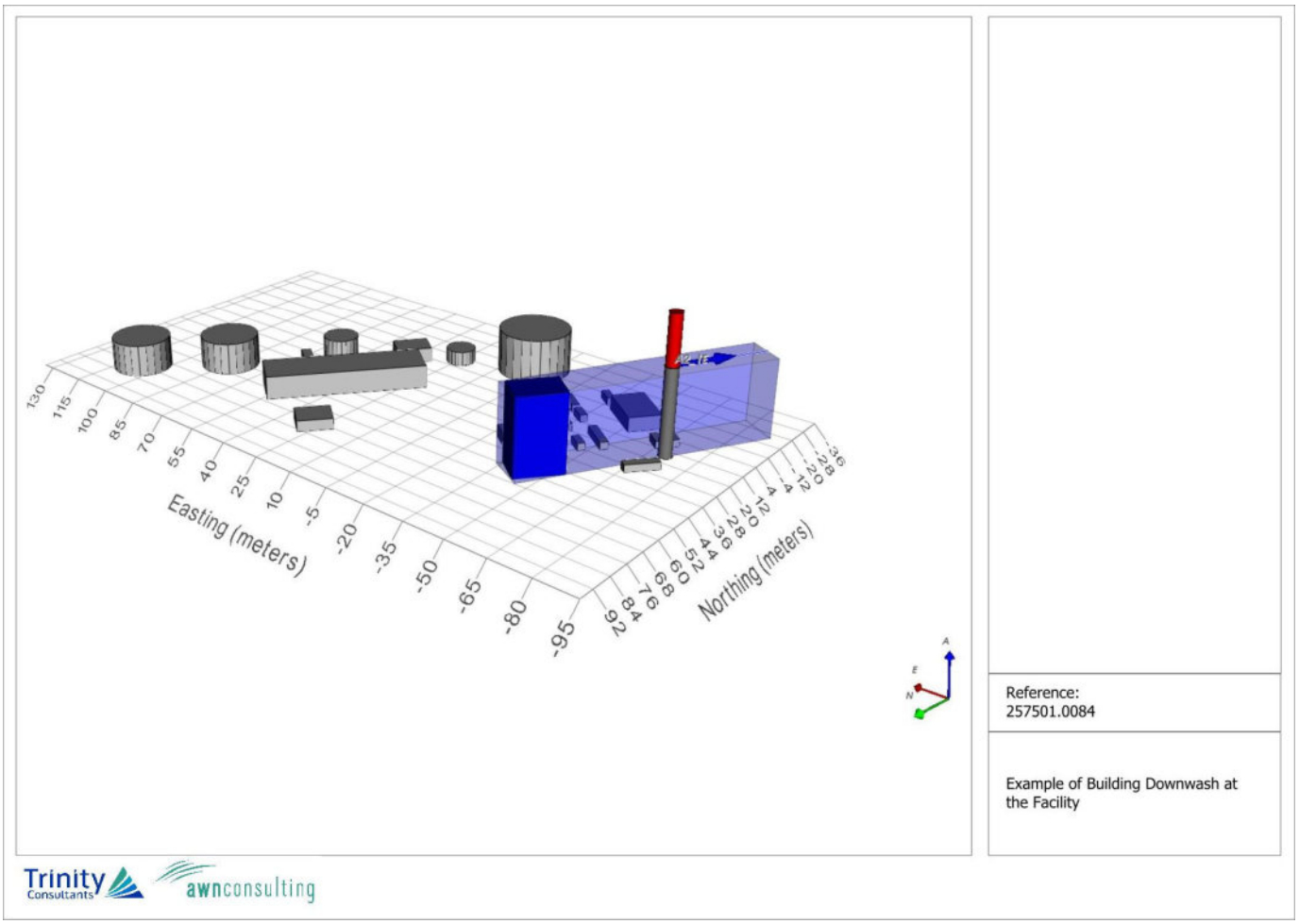


Figure 7-1 – Example of building downwash for Selected Emission Point A2-1

7.2.3.2.6 Ecology – Nitrogen and Acid Deposition

In order to consider the effects of nitrogen and acid deposition owing to emissions from the facility on the designated habitat sites, the maximum annual mean NO_2 and SO_2 predicted environmental concentrations must be converted firstly into a dry deposition flux using the equation below which is taken from UK Environment Agency publication *AGTAG06 – Technical Guidance On Detailed Modelling Approach For An Appropriate Assessment For Emissions To Air* (UKEA, 2014):

Dry deposition flux ($\mu g/m^2/s$) = ground-level concentration ($\mu g/m^3$) x deposition velocity (m/s)

The deposition velocities for NO_2 and SO_2 are outlined in AQTAG06 (UKEA, 2014) and shown below in the dry deposition flux is then multiplied by conversion factors shown in Table 7-7 (taken from AQTAG06 (UKEA, 2014)) to convert it to a nitrogen (N) and sulphur (S) deposition flux (kg/ha/yr), and to an acid deposition flux (keq/ha/yr).

Table 7.7 Background concentrations for NO_2, SO_2, nitrogen and acid deposition at the modelled designated habitat were derived from the 1 km grid square concentrations provided on the Air Pollution Information System (APIS) website (APIS, 2025), in line with UKEA (UKEA, 2014) and UK DEFRA (UK DEFRA, 2022) guidance, and are given in Section 7.3.2.6. The background concentrations are added directly to the modelled NO_2, NH_3, SO_2, nitrogen and acid deposition process contributions to give a total predicted environmental concentration.

Table 7.7 - Dry Deposition Fluxes for NO_2 and SO_2

Chemical Species	Habitat Type	Recommended Deposition Velocity (m/s)	Nitrogen Deposition Conversion factor µg/m²/s to kg/ha/yr	Acid Deposition Conversion factor µg/m²/s to keq/ha/yr
NO_2	Grassland	0.0015	95.9	6.84
SO_2	Grassland	0.012	157.7	9.84

7.2.3.2.7 Process Emissions

The Proposed Project will include 1 no. turbine with 1 no. stack (within which is 1 no. flue), which will be built to a height of 30 m above ground level to provide for adequate dispersion of pollutants. There are no other combustion plant with emissions to air with the potential for significant effect on air quality.

This represents the Proposed Operations (i.e. the operational phase of the proposed Peaker Plant) modelling scenario, which consists of the following types of emissions (i.e. these are all incorporated into the same model):

Proposed Operations:

- **Continuous operations**
  - For precautionary modelling purposes, it has been assumed that the (dual-fuel) turbine will operate continuously (24 hours per day, 365 days per year) in natural gas mode to provide power under normal conditions. This precautionary assumption has been made to determine the impact on air quality under a maximum emissions scenario. Emissions that are compliant with the relevant air quality standards in this scenario, will also be compliant when the turbine is operated in natural gas mode for less than these conservative hours (i.e. 100 hours per year on average in reality).
- **Testing & Maintenance**
  - For the purposes of this modelling assessment the turbine has been precautionarily modelled for testing purposes as operating in low sulphur diesel (secondary fuel) mode (assumed diesel for precautionary modelling purposes) at 100% load for one hour each week. All testing is assumed to occur between 8am – 5pm Monday to Friday only, as a reasonable assumption.
- **Emergency Operations**
  - There is potential for the dual fuel turbine to operate in liquid fuel mode (assumed low sulphur diesel for precautionary modelling purposes) in an emergency scenario should there be an interruption to the gas supply to the site. In this case the dual fuel turbine will operate in low sulphur diesel (secondary fuel) mode until the gas is restored, but no more than 500 hours per year. The methodology for modelling these emissions is described in detail in Section 7.2.3.2.2.

The model input information is detailed in Table 7.8, and has been based on information sourced from the turbine manufacturer as well as the following legislative requirements for emissions. Depending on the technology that is used, the turbine will have a total output capacity of either 325MW or 334MW. Turbine emission parameters sourced from the turbine manufacturer are based on a maximum power output of 385MW. The emissions parameters used in the dispersion modelling are therefore the maximum parameters expected for the turbine and a maximum emissions scenario has been assessed.

The Industrial Emissions Directive (IED) (Directive 2010/75/EU) was adopted on 7 January 2013 and is the key European Directive which covers the regulation of the majority of processes in the EU. As part of the IED Article 15, paragraph 2, requires Emissions Limit Values (ELVs) are based on best available techniques (BAT) and the relevant sector Reference Document of Best Available Techniques (BREF documents).

The most relevant BAT sector document for the activities at the installation is the Commissions Implementing Decision (EU) 2021/2326 of 30 November 2021 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants. The BAT for LCP applies to plants with a rated thermal input of 50 MW_{th} or more, and is therefore applicable to the turbine.

The turbine has potential to operate in excess of 500 hours per annum using natural gas as an OCGT and thus the emissions will need to comply with the ELVs outlined in BAT 44 and Table 24 of the LCP BAT. Daily average and yearly average ELVs are pre proposed for NO_X and CO as follows:

- NO_X: 50 mg/Nm^3 (daily average) and 35 mg/Nm^3 (yearly average); and
- CO: 100 mg/Nm^3 (daily average) and 40 mg/Nm^3 (yearly average).

The emissions concentrations for NO_X and CO utilised for dispersion modelling have been derived from the daily average ELVs, as a conservative basis for determining air quality impacts. The daily average ELVs are higher than the yearly average ELVs and are therefore a conservative basis for determining air quality impacts. The dispersion model results presented in Section 7.4.2.1.1, based on the daily average ELVs, are the maximum ambient concentrations expected as a result of the facility. In reality, compliance with the yearly average ELVs will result in lower emissions and lower ambient concentrations than those presented in Section 7.4.2.1.1.

The air impact assessment has been based on the emissions from standard diesel fuel for the turbine in low sulphur diesel (secondary fuel) mode, as this approach conservatively assesses the environmental impact, ensuring that the highest potential emissions levels are considered.

The emissions from combustion plant (such as emergency generators) when operating on hydrotreated vegetable oil (HVO) fuel are no higher than those produced when using standard diesel fuel. While HVO has been shown to significantly reduce CO_2 emissions, its impact on other pollutants – NO_X, SO_X, PM, and CO – is guaranteed by equipment suppliers to be comparable to or less than that of standard diesel fuel.

By using the emissions associated with low sulphur diesel fuel in this precautionary scenario, the assessment ensures that when operating on HVO (likely to be lower or equivalent emissions) impacts are also appropriately accounted for.

Table 7.8 Summary of Process Emissions Information for Proposed Project

Parameter			A2-1 (Turbine)
X, Y Coordinates (Irish Grid)			146534, 228082
Stack Height above ground level (m)			30
Stack Diameter (m)			7
Stack Exit Temperature (degC)			582.8
Volume Flow Rate (Nm^3/hr)			2,200,000
Stack Exit Velocity (m/s actual)			34.8
NO_X	Normal operations	Concentration (mg/m^3)	35 (yearly limit) / 50 (daily limit)
		Modelled Emission Rate (g/s)	21.389 (based on 50 mg/m^3)
	Testing & Maintenance	Concentration (mg/m^3)	250
		Modelled Emission Rate (g/s)	152.778
	Emergency operation	Concentration (mg/m^3)	250
		Modelled Emission Rate (g/s)	8.720
CO	Normal operations	Concentration (mg/m^3)	40 (yearly limit) / 100 (daily limit)
		Modelled Emission Rate (g/s)	24.444 (based on 100 mg/m^3)
	Testing & Maintenance	Concentration (mg/m^3)	100
		Modelled Emission Rate (g/s)	61.111
	Emergency operation	Concentration (mg/m^3)	100
		Modelled Emission Rate (g/s)	3.488
SO_2	Normal operations	Concentration (mg/m^3)	n/a
		Modelled Emission Rate (g/s)	n/a
	Testing & Maintenance	Concentration (mg/m^3)	66
		Modelled Emission Rate (g/s)	40.333
	Emergency operation	Concentration (mg/m^3)	66
		Modelled Emission Rate (g/s)	2.302

Note: Emissions referenced to 273.15 K, 101.3 Pa, 15% O_2, dry gas

7.2.4 Decommissioning Phase

The greatest potential impact on air quality during the decommissioning phase is from dust emissions from the demolition and removal of buildings and materials and road traffic emissions. These are expected to be of a similar or lesser magnitude to those identified during the construction phase (but generally of a shorter duration) and have been assessed as per the construction phase methodology outlined in Section 7.2.2.

Decommissioning phase traffic has the potential to impact local air quality as a result of increased vehicle movements associated with the Proposed Project. The TII Guidance scoping criteria detailed in Section 7.2.2.2 were used to determine if any road links are affected by the Proposed Project and require inclusion in a detailed air dispersion modelling assessment. The Proposed Project will not result in the decommissioning phase traffic increasing by more than 1,000 AADT or 200 HDV AADT. In addition, there are no proposed changes to the traffic speeds or road alignment. Therefore, no road links impacted by the Proposed Project satisfy the screening

criteria (Section 7.2.2.2). A quantitative assessment of the impact of traffic emissions on ambient air quality is not necessary as there is no potential for significant impacts to local air quality with respect with human or ecological receptors.

7.3 Receiving Environment

7.3.1 Meteorological Data

A key factor in assessing temporal and spatial variations in air quality are the prevailing meteorological conditions. Depending on wind speed and direction, individual receptors may experience very significant variations in pollutant levels under the same source strength (i.e. traffic levels) (WHO, 2021). Wind is of key importance in dispersing air pollutants and for ground level sources, such as traffic emissions, pollutant concentrations are generally inversely related to wind speed. Thus, concentrations of pollutants derived from traffic sources will generally be greatest under very calm conditions and low wind speeds when the movement of air is restricted. In relation to PM_{10}, the situation is more complex due to the range of sources of this pollutant. Smaller particles (less than $PM_{2.5}$) from traffic sources will be dispersed more rapidly at higher wind speeds. However, fugitive emissions of coarse particles ($PM_{2.5}$ - PM_{10}) will actually increase at higher wind speeds. Thus, measured levels of PM_{10} will be a non-linear function of wind speed.

The nearest representative weather station collating detailed weather records is Athenry meteorological station, which is located approximately 1.6 km south-east of the site. Athenry met data has been examined to identify the prevailing wind direction and average wind speeds over a five-year period (see Figure 7-2). For data collated during five representative years (2020 – 2024), the predominant wind direction is westerly to south-westerly (Met Éireann, 2025).

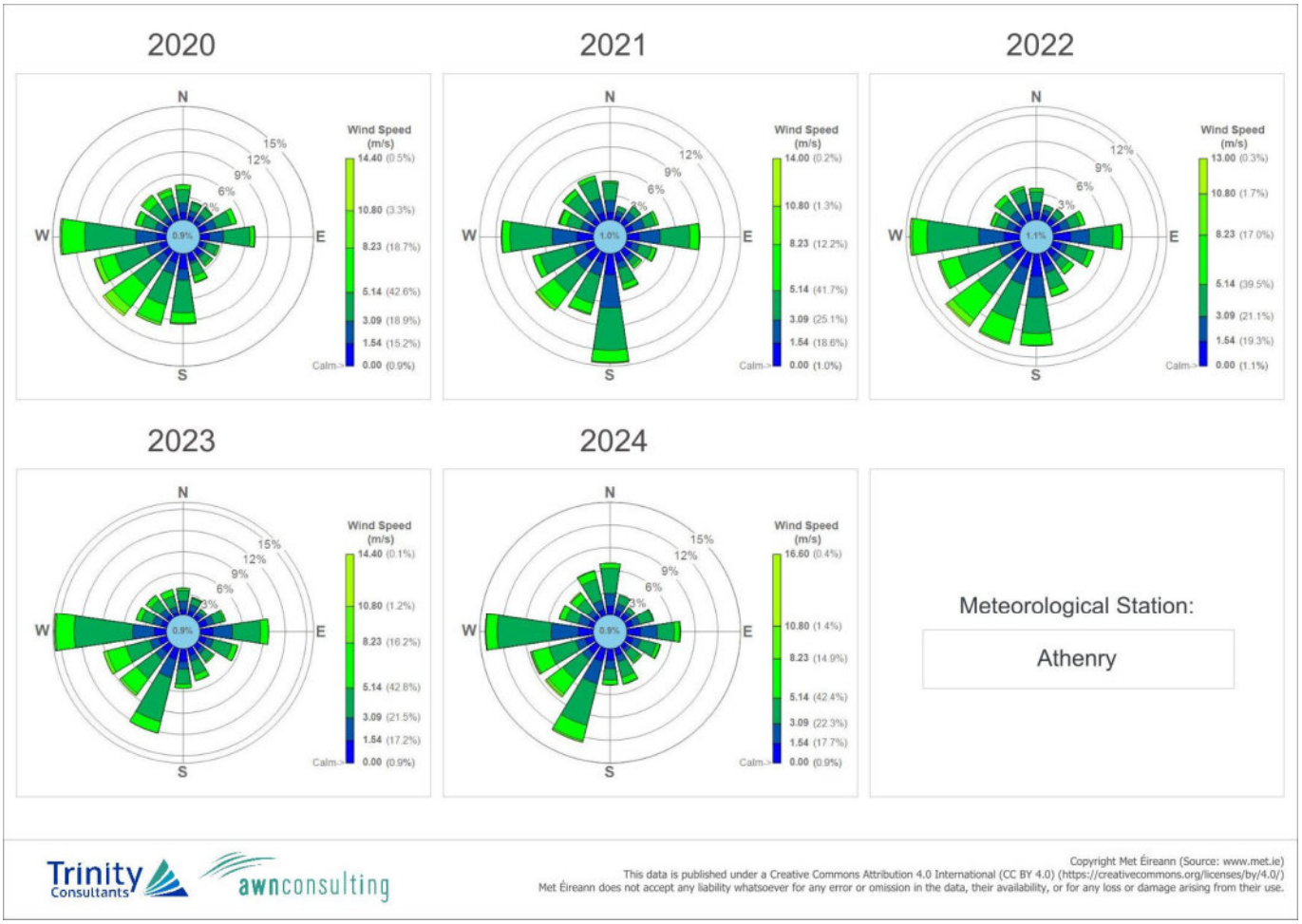


Figure 7-2 – Wind Roses for Athenry Meteorological Station

7.3.2 Baseline Air Quality

Air quality monitoring programs have been undertaken in recent years by the EPA. The most recent annual report on air quality in Ireland is "*Air Quality in Ireland 2024*" (EPA, 2025). The EPA website details the range and scope of monitoring undertaken throughout Ireland and provides both monitoring data and the results of previous air quality assessments.

As part of the implementation of the Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022) four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA, 2025). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone D.

A background concentration is added to the modelled process contribution to account for emission sources not included in the dispersion model. The background concentration accounts for all emission sources in the vicinity of the Proposed Project (e.g. natural sources, industry, traffic, home heating etc.). The long-term monitoring data available from the EPA (EPA, 2025) has been used to determine background concentrations for the key pollutants in the region of the Proposed Project.

In terms of air monitoring and assessment, the Proposed Project site is within Zone D (EPA, 2025) and this has been taken into account when estimating the background concentrations in the area. The Proposed Project site is located in a rural area and is predominantly surrounded by agricultural land. Rural background monitoring

sites are therefore considered most representative of the Proposed Project site. However, due to the proximity of the Proposed Project to the M6-M18 interchange, background concentrations from Zone D suburban traffic locations (the monitoring sites heavily influenced by traffic emissions in Zone D) have also factored into the estimation of an appropriate background concentration representative of the Proposed Project.

7.3.2.1 Nitrogen Dioxide (NO_2)

Long-term NO_2 monitoring was carried out at the representative Zone D rural background locations of Emo Court and Kilkitt, and the suburban traffic locations of Birr and Carrick-on-Shannon for the period 2020 – 2024 (see Table 7.9) (EPA, 2025). Long term average concentrations are significantly below the annual average limit of 40 µg/m^3. Average results range from 2 – 13 µg/m^3 for the selected background locations. Additionally, there were no exceedances of the hourly limit value of 200 µg/m^3. The 5-year average annual mean NO_2 concentration for the selected Zone D locations is 7 µg/m^3.

Based on the above information an estimate of the current background NO_2 concentration for the region of the Proposed Project is 7 µg/m^3.

Table 7.9 Baseline Air Quality - Nitrogen Dioxide (NO_2)

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Emo Court	Annual Mean NO_2 (µg/m^3)	3	4	3	2	3
	1-hr Mean NO_2 values >200 µg/m^3	0	0	0	0	0
Kilkitt	Annual Mean NO_2 (µg/m^3)	2	2	2	2	2
	1-hr Mean NO_2 values >200 µg/m^3	0	0	0	0	0
Birr	Annual Mean NO_2 (µg/m^3)	9	13	12	11	11
	1-hr Mean NO_2 values >200 µg/m^3	0	0	0	0	0
Carrick-on-Shannon	Annual Mean NO_2 (µg/m^3)	17	11	12	10	12
	1-hr Mean NO_2 values >200 µg/m^3	0	0	0	0	0

7.3.2.2 Particulate Matter (PM_{10})

Long-term NO_2 monitoring was carried out at the representative Zone D rural background locations of Claremorris and Kilkitt, and the suburban traffic locations of Birr, Carrick-on-Shannon and Longford for the period 2020 – 2024. Annual average PM_{10} concentrations across the sites ranged from 7 – 16 µg/m^3 over the 2020 – 2024 period (see Table 7.10). There was at most 7 exceedance of the daily limit of 50 µg/m^3 in 2024 (35 exceedances are permitted per year) (EPA, 2025). The 5-year average annual mean PM_{10} concentration for the Zone D locations is 10 µg/m^3.

Based on the EPA data, an estimate of the current background PM_{10} concentration in the region of the Proposed Project is 10 µg/m^3.

Table 7.10 Baseline Air Quality - PM_{10}

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Kilkitt	Annual Mean PM_{10} (µg/m^3)	8	8	9	7	7
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	0	0
Claremorris	Annual Mean PM_{10} (µg/m^3)	10	10	8	8	8
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	0	0

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Birr	Annual Mean PM_{10} (µg/m^3)	10	12	14	13	13
	24-hr Mean > 50 µg/m^3 (days)	0	2	3	1	0
	Annual Mean PM_{10} (µg/m^3)	10	9	10	8	10
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	0	0
Longford	Annual Mean PM_{10} (µg/m^3)	n/a	14	16	13	16
	24-hr Mean > 50 µg/m^3 (days)	n/a	1	10	2	7

7.3.2.3 Carbon Monoxide (CO)

In terms of CO, monitoring has been conducted at the suburban traffic Zone D site of Birr over the period 2020 – 2024. There are no other suitably representative CO monitoring stations within Zone D. Monitored concentrations are significantly below the ambient limit value of 10 mg/m^3. Maximum 8-hour concentrations at the Birr site ranged from 1.2 mg/m^3 – 3.4 mg/m^3 over the period 2020 – 2024 (EPA, 2025). The 5-year average maximum 8-hour CO concentration for the Zone D location is 2 mg/m^3.

Based on these results a background 8-hour CO concentration of 2 mg/m^3 has been used in the modelling assessment. This estimated background concentration has been added directly to the modelled 8-hour maximum result to produce the predicted environmental concentration in terms of CO.

7.3.2.4 Sulphur Dioxide (SO_2)

The Zone B monitoring station at Kilkitt is considered representative of the site location.

Continuous SO_2 monitoring carried out at the Zone D rural background location of Kilkitt and suburban traffic location of Carrick-on-Shannon showed annual mean concentrations of 2 µg/m^3 in 2024 (see Table 7.10). The 5-year average data for this site for the period 2020 – 2024 was used to estimate the current annual mean background SO_2 concentration in the region of the facility. Over the period 2020 – 2024 annual mean SO_2 concentrations at the selected site ranged from 1 – 6 µg/m^3 with an overall 5-year average of 2 µg/m^3.

Based on these results, a reasonably conservative estimate of the annual mean background SO_2 concentration in the region of the facility is 2 µg/m^3.

When calculating the short-term peak results, concentrations due to emissions from stacks cannot be combined by directly adding the annual background level to the modelling results. Guidance from the UK DEFRA (UK DEFRA, 2022) and the EPA (EPA, 2020) advises that for SO_2 an estimate of the maximum combined pollutant concentrations can be obtained as shown below:

***SO_2** - The 99.2th%ile of total 24-hour SO_2 is equal to the maximum of either A or B below:*

a) *99.2th%ile of 24-hour mean background SO_2 + (2 x annual mean process contribution SO_2)*

b) *99.2th%ile 24-hour mean process contribution SO_2 + (2 x annual mean background contribution SO_2)*

***SO_2** - The 99.7th%ile of total 1-hour SO_2 is equal to the maximum of either A or B below:*

a) *99.7th%ile hourly background SO_2 + (2 x annual mean process contribution SO_2)*

b) *99.7th%ile hourly process contribution SO_2 + (2 x annual mean background contribution SO_2)*

A 99.7th percentile 1-hour background concentration of 7 µg/m^3 was used in the assessment, based on the overall 5-year average concentrations for the monitoring location (Table 7.11) over the period 2020 – 2024.

A 99.2nd percentile 24-hour background concentration of 6 µg/m^3 was used in the assessment, based on the overall 5-year average concentrations for the monitoring location (Table 7.11) over the period 2020 – 2024.

Table 7.11 Baseline Air Quality – SO_2

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Kilkitt	Annual Mean PM_{10} (µg/m^3)	1	2	2	2	2
	1-hr Mean SO_2 (as 99.7th%ile) (µg/m^3)	4	-	7	4	-
	1-hr Mean SO_2 values > 350 µg/m^3	0	-	0	0	-
	24-hr Mean SO_2 (as 99.2nd%ile) (µg/m^3)	4	6	6	4	-
	24-hr Mean SO_2 values > 125 µg/m^3	0	0	0	0	-
Carrick-on-Shannon	Annual Mean PM_{10} (µg/m^3)	2	2	6	3	2
	1-hr Mean SO_2 (as 99.7th%ile) (µg/m^3)	4	-	18	16	-
	1-hr Mean SO_2 values > 350 µg/m^3	0	-	0	0	-
	24-hr Mean SO_2 (as 99.2nd%ile) (µg/m^3)	4	9	16	15	-
	24-hr Mean SO_2 values > 125 µg/m^3	0	0	0	0	-

7.3.2.5 Dust Deposition

Dust is present naturally in the air from a number of sources including weathering of minerals, pick-up across open land and dust generated from fires. Monitoring of dust deposition is not undertaken nationally or at the Proposed Project site, and therefore background levels are not available.

However, a study by the UK ODPM (UK ODPM, 2002) gives estimates of likely dust deposition levels in specific types of environments. In open country a level of 39 mg/m^2/day is typical, rising to 59 mg/m^2/day on the outskirts of towns, and peaking at 127 mg/m^2/day for a purely industrial area. A level of 39 mg/m^2/day can be estimated as the background dust deposition level for the region of the Proposed Project due to its rural location.

7.3.2.6 Ecology

Background concentrations are required for the calculation total predicted environmental concentration (PEC), however as per Section 7.2.1.2.3, this is only necessary where a process contribution is more than 1% of the relevant critical level or load and therefore requires further assessment. As determined by the modelling results presented in Section 7.4.2.1.2, there are no process contributions greater than 1% of the relevant critical level or load, therefore no further assessment (i.e. calculation of the PEC) or background concentration is required.

7.3.3 Sensitive Receptors

7.3.3.1 Construction Phase

In line with the UK Institute of Air Quality Management (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2024) prior to assessing the impact of dust from a Proposed Project, the sensitivity of the area must first be assessed as outlined below, and using the IAQM criteria shown in Table 7.12. Both receptor sensitivity and proximity to proposed works areas are taken into consideration. For the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time. Commercial properties and places of work

are regarded as medium sensitivity while low sensitivity receptors are places where people are present for short periods or do not expect a high level of amenity.

In terms of receptor sensitivity to dust soiling, there are between 10 and 100 high sensitivity residential properties within 20 m of the Proposed Project planning boundary (see Figure 7-3). Based on these receptor numbers and using the IAQM criteria in, the sensitivity of the area to dust soiling impacts from the Proposed Project is **high**.

In addition to sensitivity to dust soiling, the IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to human health impacts. The criteria take into consideration the current annual mean PM_{10} concentration, receptor sensitivity based on type (residential receptors are classified as high sensitivity) and the number of receptors affected within various distance bands from the construction works. A conservative estimate of the current annual mean PM_{10} concentration in the vicinity of the Proposed Project is 10 µg/m^3. There are between 10 and 100 high sensitivity residential receptor within 20 m of the Proposed Project planning application boundary (see Figure 7-3). Based on the IAQM criteria outlined in Table 7.12 the sensitivity of the area to dust-related human health effects is **low**.

The IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to dust-related ecological impacts. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability of the plant, as well as other effects. The guidance states that dust impacts to vegetation can occur up to 50 m from the site, and 50 m from site access roads, up to 250 m for the site entrance. The sensitivity of the area is determined based on the distance to the source, the designation of the site, (European, National or local designation) and the potential dust sensitivity of the ecologically important species present. There are no sensitive ecological receptors that meet these criteria within the study area and therefore there is no potential for impacts to sensitive ecology from construction dust emissions and no further assessment is required.

Table 7.12 – Sensitivity of the Area to Construction Dust

Sensitivity of the Area to Dust Soiling Effects on People and Property					
Receptor Sensitivity	**Number of Receptors**	**Distance from Source (m)**			
		<20	**<50**	**<100**	**<250**
High	>100	High	High	Medium	Low
	10-100	**High**	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Sensitivity of the Area to Human Health Impacts						
Receptor Sensitivity	**Annual Mean PM_{10} Concentration**	**Number of Receptors**	**Distance from Source (m)**			
			<20	**<50**	**<100**	**<250**
High	< 24 µg/m^3	>100	Medium	Low	Low	Low
		10-100	**Low**	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	< 24 µg/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	< 24 µg/m^3	>1	Low	Low	Low	Low

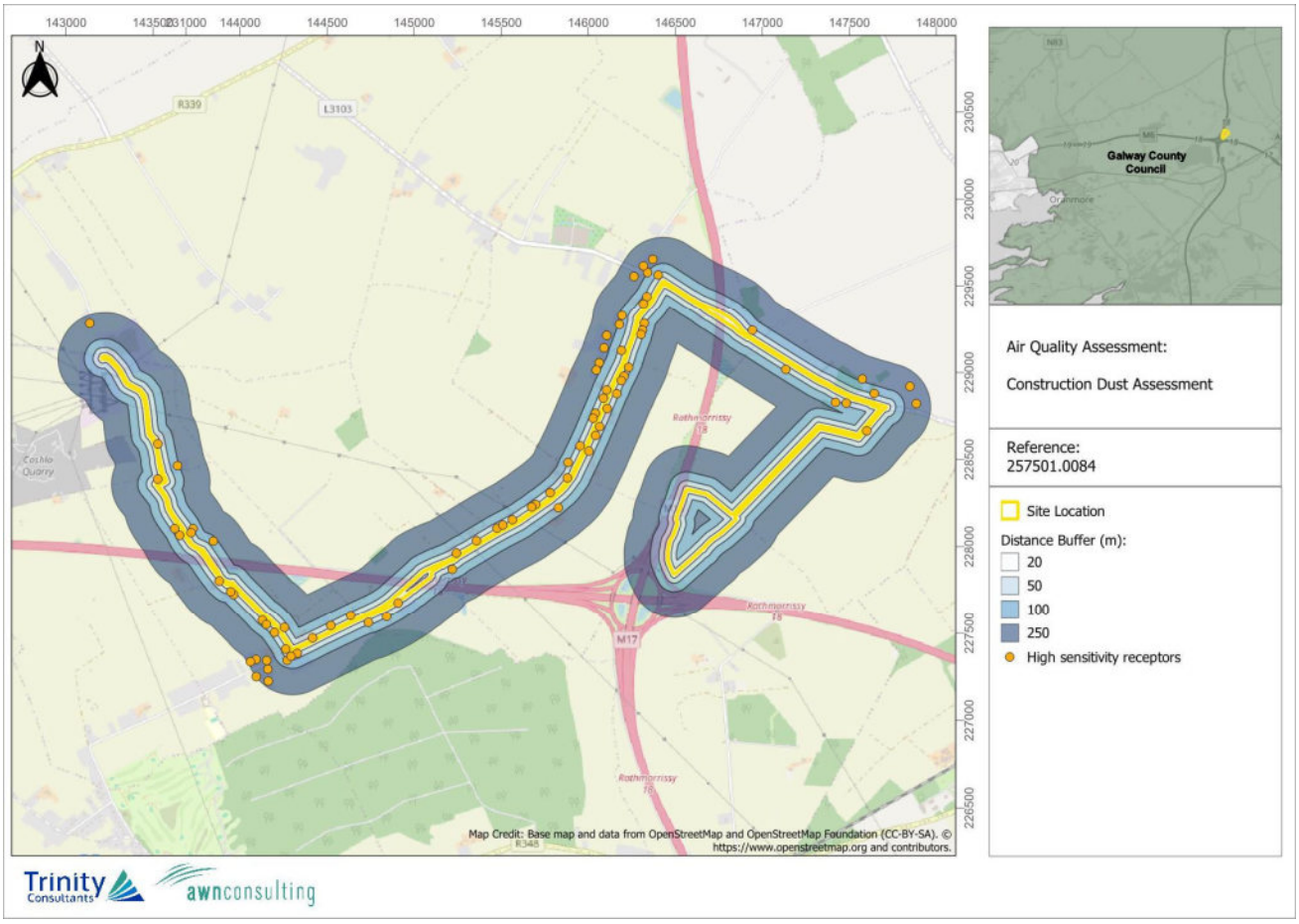


Figure 7-3 – Sensitive Receptors within Construction Dust Zone of Influence

7.3.3.2 Operational Phase

The dispersion modelling has incorporated a variety of receptors, including a gridded receptor network, site boundary receptors, and individual discrete receptors representing specific residential properties or sensitive ecological sites. Ecological sites were modelled 0 m above ground, while all other receptors were modelled at 1.5 m to represent breathing height.

Three receptor grids were created at which concentrations would be modelled. Receptors were mapped with sufficient resolution to ensure all localised “hot-spots” were identified without adding unduly to processing time. The receptor grids were based on a Cartesian grid with the site at the centre. An outer grid measured 10 x 10 km with the site at the centre and with concentrations calculated at 200 m intervals. A medium density grid measured 3 x 3 km with the site at the centre and with concentrations calculated at 50 m intervals. A smaller, denser grid measured 1 x 1 km with concentrations calculated at 25 m intervals.

Boundary receptor locations were also placed along the ownership boundary of the site at 50 m intervals giving a total of 4,072 calculation points for the model.

Human Receptors

The impact of the emission sources was also measured at nearby residential receptors (AQ) which were added to the model as discrete receptors (shown in Figure 7-4).

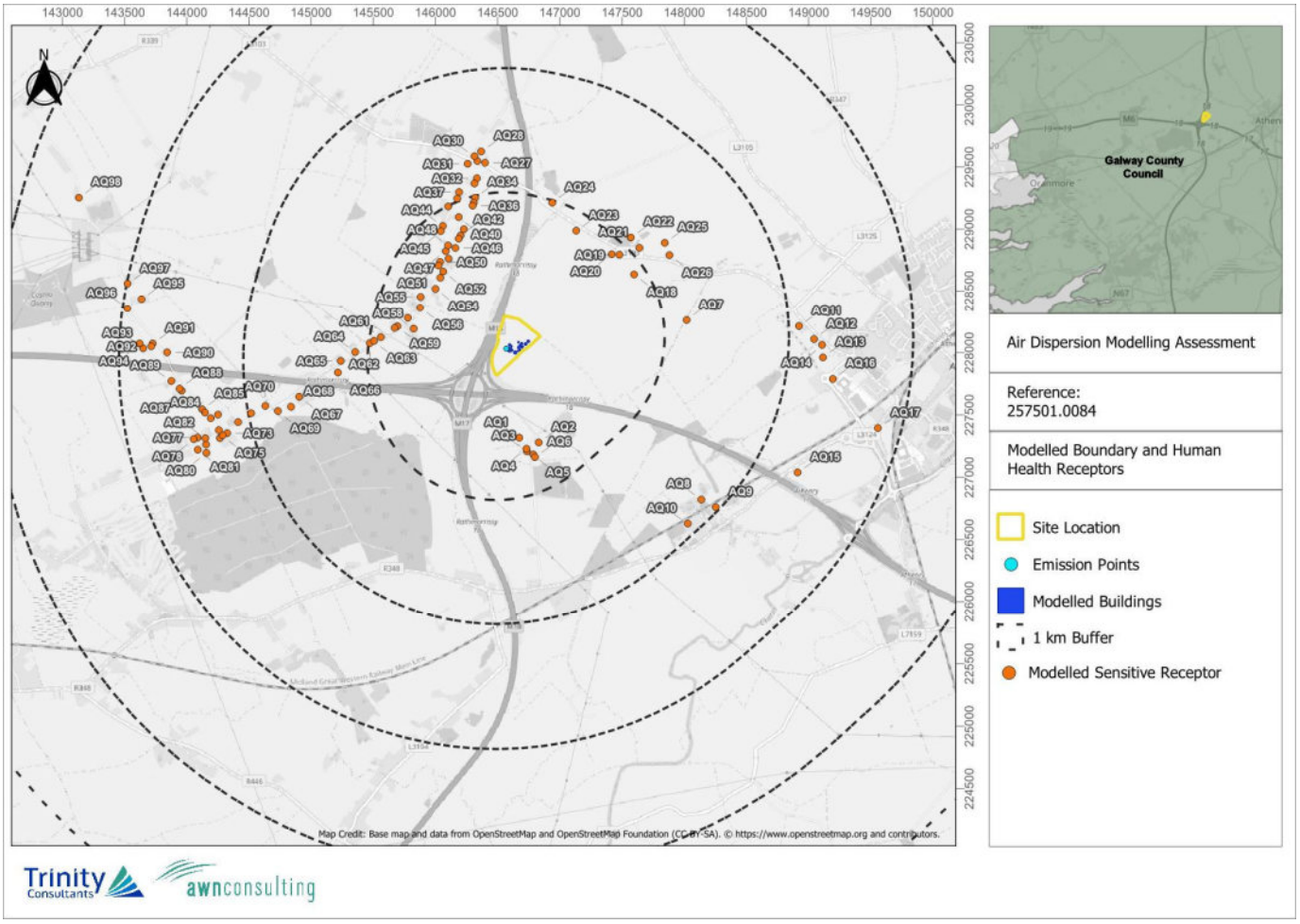


Figure 7-4 – Sensitive Human Health Receptors Included in Operational Phase Air Dispersion Modelling Assessment

Ecology Receptors

The impact of emissions of NO_X, NH_3, SO_2 and nutrient and acid deposition from the Installation on ambient ground level concentrations was assessed using AERMOD within European sites, NHAs, and pNHAs.

A geospatial search was conducted (NPWS, 2025) to identify all European sites within 10 km of the Installation that could potentially be affected by the Installation, and the nearest national sites (NHA or pNHA) within 2 km of the Installation that could potentially be affected by the Installation, based on the methodology recommended by the UK Environment Agency in their guidance *Air emissions risk assessment for your environmental permit* (UKEA, 2025). This search zone ensures that all European sites with the potential to be impacted via direct, indirect or cumulative pathways from air emissions are appropriately considered. Beyond these distances, the effects on ecology due to emissions from the Installation are expected to be not significant.

The UKEA guidance *Air emissions risk assessment for your environmental permit* (UKEA, 2025) recommends that the screening distance for air emissions on protected conservation areas be increased to 15 km where emissions from *"natural gas (or fuels with a similarly low sulphur content) fired combustion plants with more than 500 megawatt thermal input, or from larger combustion plants using more sulphurous fuels with more than 50 megawatt thermal input"*, are being assessed. The Installation does not meet these criteria, therefore the screening distances of 10 km for SPAs and SACs, and 2 km for nationally designated sites is appropriate for this assessment.

The ecology receptors included in the dispersion model are shown in Table 7.13 and Figure 7-5.

Table 7.13 - Ecology Receptors Included in Dispersion Model

Special Area of Conservation (SAC)	Special Protection Area (SPA)	Proposed Natural Heritage Area (pNHA)	Natural Heritage Area (NHA)
Galway Bay Complex SAC	Cregganna Marsh SPA	n/a	n/a
Lough Corrib SAC	Inner Galway Bay SPA		
Monivea Bog SAC	Rahasane Turlough SPA		
Rahasane Turlough SAC			

Dispersion modelling of relevant pollutant emissions from all emission points at the Installation were predicted at receptors within the ecological sites for all five years of meteorological data modelled. For modelling purposes, greatest exposure to pollutants (i.e. will experience the highest concentrations) at ecology receptors is expected at the boundaries of the designated habitats. Ecological receptors were modelled 0 m above ground.

The closest ecology receptor is the Lough Corrib SAC approx. 6.9 km north-west of the Proposed Project.

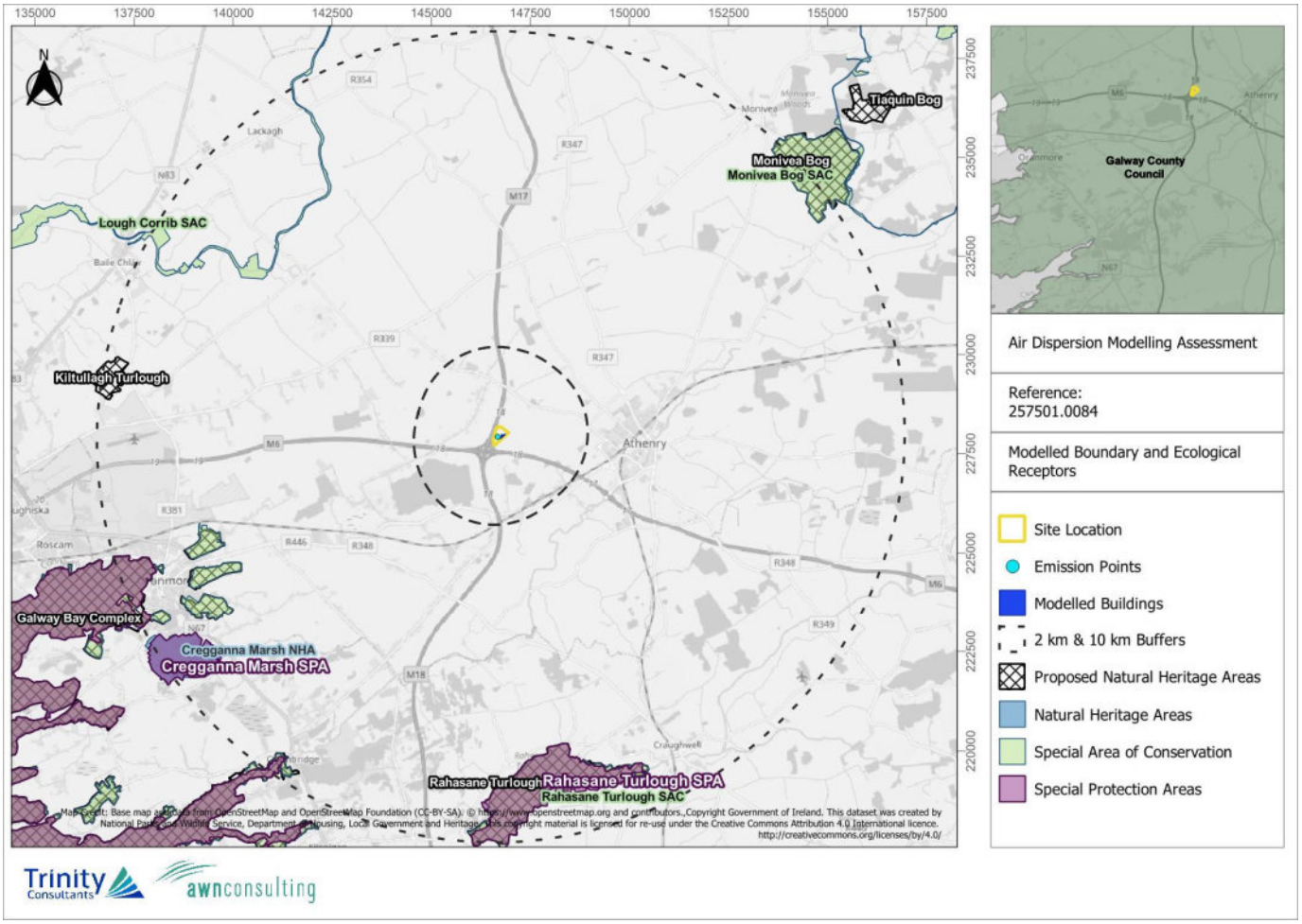


Figure 7-5 – Sensitive Ecological Receptors Included in Operational Phase Air Dispersion Modelling Assessment

7.4 Potential Impact of the Proposed Project

7.4.1 Construction Phase

7.4.1.1 Construction Dust Assessment

The greatest potential impact on air quality during the construction phase of the Proposed Project is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 250m of a construction site, the majority of the deposition occurs within the first 50 m (IAQM, 2024). The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. A review of Athenry meteorological data indicates that the prevailing wind direction is south-westerly and wind speeds are generally moderate in nature (see Section 7.3.1). In addition, dust generation is considered negligible on days where rainfall is greater than 0.2 mm. A review of historical 30 year average data for Shannon Airport meteorological station indicates that on average 223 days per year have rainfall over 0.2 mm (Met Eireann, 2024) and therefore it can be determined that 61% of the time dust generation will be reduced due to natural meteorological conditions.

To determine the level of dust mitigation required during the proposed works, the potential dust emission magnitude for each dust generating activity needs to be taken into account, in conjunction with the previously established sensitivity of the area (see Section 7.3.3.1).The major dust generating activities are divided into four types within the IAQM (2024) guidance to reflect their different potential impacts. These are: demolition, earthworks, construction and trackout (movement of heavy vehicles).

7.4.1.1.1 Determining the Potential Dust Emission Magnitude

The magnitude of the works under each category can be classified as either small, medium or large depending on the scale of the works involved. The magnitude of each activity has been determined below for the Proposed Project using the criteria in Table 7.5.

- Demolition: Existing structures on site will be demolished. The dust emission magnitude for the proposed earthwork activities can be classified as small as the total area for demolition is less than 12,000 m^2.

- Earthworks: The dust emission magnitude for the proposed earthwork activities can be classified as large as the total site area is greater than 110,000 m^2. The following activities have been considered under the Earthworks category:
  - Site preparation prior to construction (e.g. topsoil clearance and storing on site) of all Proposed Project elements
  - Excavation of material, such as cut and fill to formation levels, for construction of Peaker Plant, AGI and grid connection substation
  - Open-cut trench excavation of material for GNI146 Rathmorrissy Gas Pipeline installation.
  - Excavation of material at Horizontal Directional Drilling entry and exit pits for the Underground Cable Grid Connection Route.

- Construction: The dust emission magnitude for the proposed construction activities can be classified as medium as the total volume of buildings to be constructed (AGI, Peaker Plant and associated structures) will be between 12,000 and 75,000 m^3.

- Trackout: The dust emission magnitude for the proposed trackout can be classified as large, as there will

be more than 50 outward HGV movements per day at peak construction during the construction phase of the Proposed Project.

7.4.1.1.2 Determining the Risk of Dust Impacts

Once the dust emission magnitude has been determined the next step, according to the IAQM guidance (2024), is to establish the level of risk by combining the magnitude with the overall sensitivity of the area to dust soiling and dust-related human health effects (see Section 7.3.3.1). The level of risk associated with each activity is determined using the criteria in Table 7.6. The overall risk of dust impacts from the construction works is shown in Table 7.14 for each category.

There is at most a high risk of dust soiling impacts and a low risk of dust-related human health impacts associated with the proposed works. As a result, standard practice dust mitigation measures (Section 7.6.1) associated with high risk works will be implemented to ensure there are no significant impacts at nearby sensitive receptors. In the absence of mitigation, the likely effect of the dust impacts within the ZoI are predicted to be direct, short-term, negative and slight.

Table 7.14 - Risk of Dust Impacts used to Define Site-Specific Mitigation

Receptor	Receptor Sensitivity	Dust Emission Magnitude	Risk of Dust-Related Impacts
	Demolition		
Dust Soiling	High	Small	Medium Risk
Human Health	Low		Negligible Risk
	Earthworks		
Dust Soiling	High	Large	High Risk
Human Health	Low		Low Risk
	Construction		
Dust Soiling	High	Medium	Medium Risk
Human Health	Low		Low Risk
	Trackout		
Dust Soiling	High	Large	High Risk
Human Health	Low		Low Risk

7.4.2 Operational Phase

7.4.2.1 Operational Phase Dispersion Modelling Assessment

This section outlines the air emissions modelling scenario referred to as the Proposed Operations using the USEPA assessment methodology, as described in Section 7.2.3.2.7.

7.4.2.1.1 Human Health

NO_2

The results demonstrate that ambient ground level concentrations of NO_2, detailed in Table 7.15, are in compliance with the relevant air quality standards for all modelled years at the most impacted receptor (considers boundary, gridded, and sensitive receptors).

For the highest-concentration year, emissions from the site lead to an ambient NO_2 concentration (including background) which is 18% of the annual limit value at the most impacted receptor (location shown in Figure 7-6) and 18% of the maximum ambient 1-hour limit value (measured as a 99.8th percentile) at the most impacted receptor (location shown in Figure 7-7).

The geographical variations in ground level NO_2 predicted environmental concentrations (PEC) beyond the Installation boundary for the highest-concentration year modelled are illustrated as concentration contours in Figure 7-6 and Figure 7-7, to demonstrate the direction and extent of the emission plume. The locations of the maximum concentrations for NO_2 are close to the boundary of the site with concentrations decreasing with distance from the Proposed Project.

Table 7.15 – Proposed Operations – Dispersion Model Results for Nitrogen Dioxide (NO_2)

Pollutant / Year	Averaging Period	Most Impacted Receptor		Concentrations (µg/m^3)				PEC as % of Limit
		Type	X,Y (UTM Zone 29 N)	PC	Back-ground	PEC	Limit Value	
NO_2 / 2020	Annual Mean	Sensitive	512621, 5906303	0.1	7	7.1	40	18%
	99.8th%ile of 1-hr mean	Discrete	512607, 5906402	8.3	14	22.3	200	11%
NO_2 / 2021	Annual Mean	Boundary	512639, 5906275	0.2	7	7.2	40	18%
	99.8th%ile of 1-hr mean	Grid	512739, 5906226	22.9	14	36.9	200	18%
NO_2 / 2022	Annual Mean	Boundary	513239, 5906575	0.1	7	7.1	40	18%
	99.8th%ile of 1-hr mean	Grid	513339, 5906675	3.4	14	17.4	200	9%
NO_2 / 2023	Annual Mean	Boundary	512539, 5906375	0.1	7	7.1	40	18%
	99.8th%ile of 1-hr mean	Grid	512539, 5906376	8.0	14	22.0	200	11%
NO_2 / 2024	Annual Mean	Boundary	512439, 5906375	0.1	7	7.1	40	18%
	99.8th%ile of 1-hr mean	Grid	512339, 5906675	5.9	14	19.9	200	10%

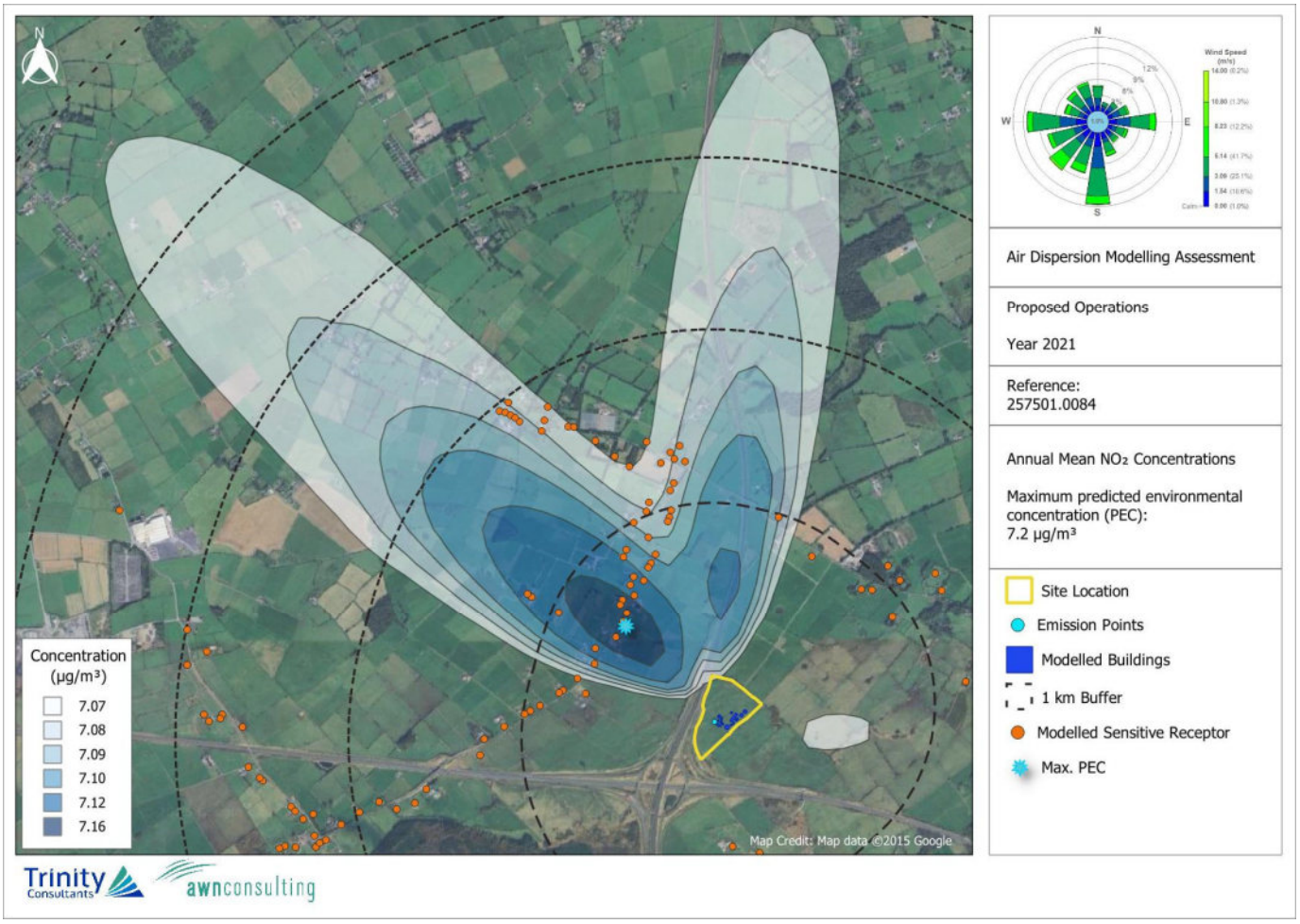


Figure 7-6 – Proposed Operations Modelling Results – Maximum Annual Mean NO_2 Concentrations

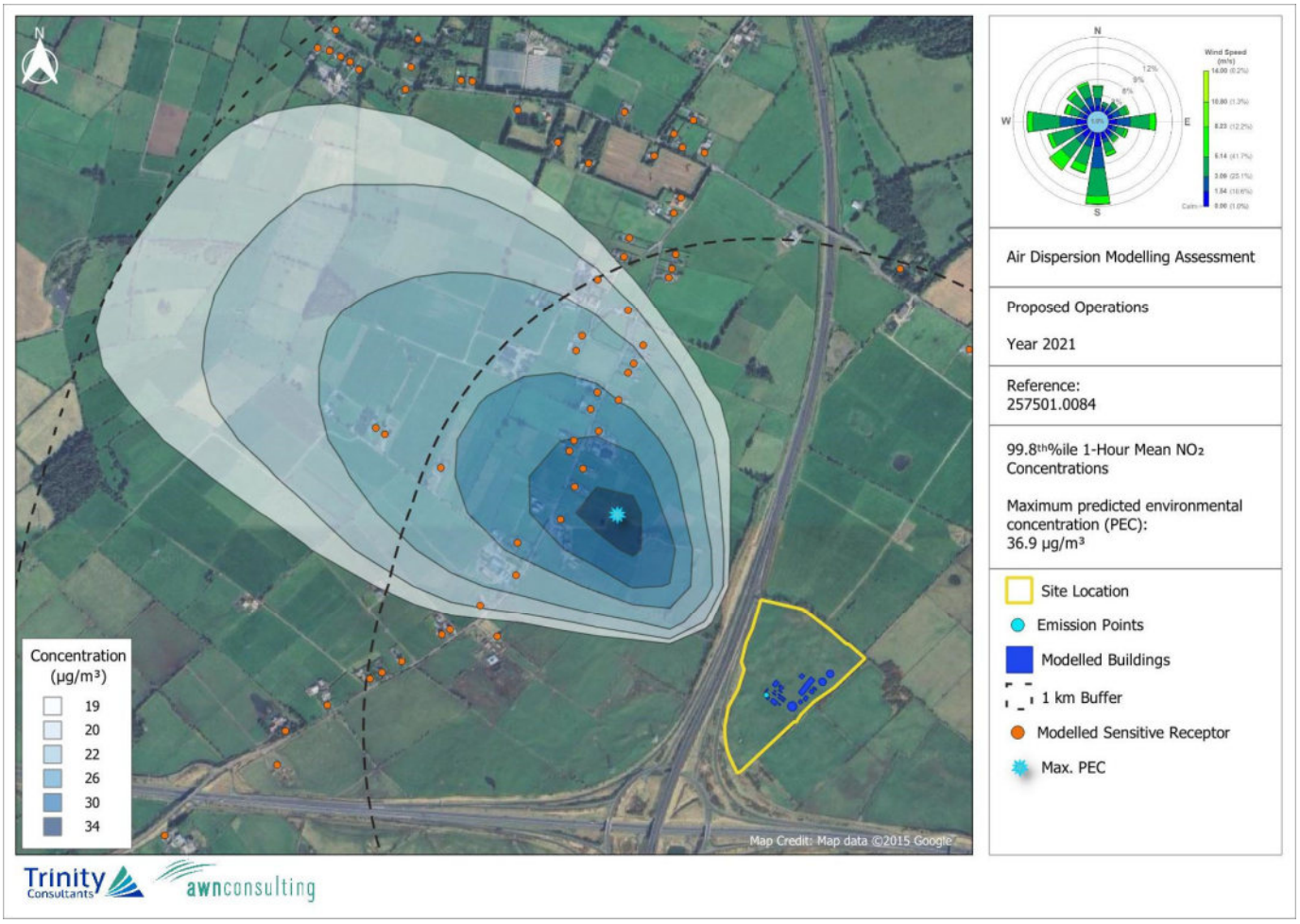


Figure 7-7 – Proposed Operations Modelling Results - Maximum 1-Hour NO_2 Concentrations (as 99.8th%ile)

NO_2 (UK Environment Agency Methodology)

Emissions from the proposed operation of the turbine in gas mode, the scheduled testing, and emergency operation of the emergency generators on low sulphur diesel (secondary fuel) were assessed using the UK Environment Agency methodology (UKEA, 2016).

The methodology, based on considering the statistical likelihood of an exceedance of the NO_2 hourly limit value assuming a hypergeometric distribution, has been undertaken at the most impacted residential receptor. The cumulative hypergeometric distribution of 19 or more hours per year was computed and the probability of an exceedance determined as outlined in Table 7.16.

The results have been compared to the 98th percentile confidence level to indicate if an exceedance is likely at various operational hours for the Proposed Operations scenario.

The results indicate that the Installation can operate for a full year without the likelihood of an exceedance of the ambient air quality standard (at a 98th percentile confidence level).

Table 7.16 – Hypergeometric Statistical Results at Most Impacted Residential Receptor – Proposed Operations

Pollutant / Year	Hours of operation (Hours) (98th%ile) Allowed Prior to Exceedance of Limit Value	UK Guidance – Probability Value = 0.02 (98th%ile)
NO_2 / 2020	8760	0.02
NO_2 / 2021	8760	
NO_2 / 2022	8760	
NO_2 / 2023	8760	
NO_2 / 2024	8760	

CO

The results indicate that ambient ground level concentrations of CO, detailed in Table 7.17, are in compliance with the relevant air quality standards for all modelled years at the most impacted receptor (considers boundary, gridded, and sensitive receptors).

For the highest-concentration year, emissions from the site lead to an ambient CO concentration (including background) which is 20% of the maximum ambient 8-hour limit value at the most impacted receptor (location shown in Figure 7-8).

The geographical variations in ground level CO predicted environmental concentrations (PEC) beyond the Installation boundary for the highest-concentration year modelled are illustrated as concentration contours in Figure 7-8, to demonstrate the direction and extent of the emission plume. The locations of the maximum concentrations for CO are close to the boundary of the site with concentrations decreasing with distance from the Installation.

Table 7.17 – Proposed Operations Modelling Results – Dispersion Model Results for Carbon Monoxide (CO)

Pollutant / Year	Averaging Period	Most Impacted Receptor		Concentrations (µg/m³)				PEC as % of Limit
		Type	X,Y (UTM Zone 29 N)	PC	Back-ground	PEC	Limit Value	
CO / 2020	Maximum Daily 8-Hour Mean	Grid	512939, 5906076	0.013	2	2.013	10	20%
CO / 2021	Maximum Daily 8-Hour Mean	Grid	512789, 5906126	0.018	2	2.018	10	20%
CO / 2022	Maximum Daily 8-Hour Mean	Grid	513239, 5905175	0.004	2	2.004	10	20%

Pollutant / Year	Averaging Period	Most Impacted Receptor		Concentrations (µg/m³)				PEC as % of Limit
		Type	X,Y (UTM Zone 29 N)	PC	Back-ground	PEC	Limit Value	
CO / 2023	Maximum Daily 8-Hour Mean	Grid	512789, 5906026	0.014	2	2.014	10	20%
CO / 2024	Maximum Daily 8-Hour Mean	Grid	512739, 5906076	0.007	2	2.007	10	20%

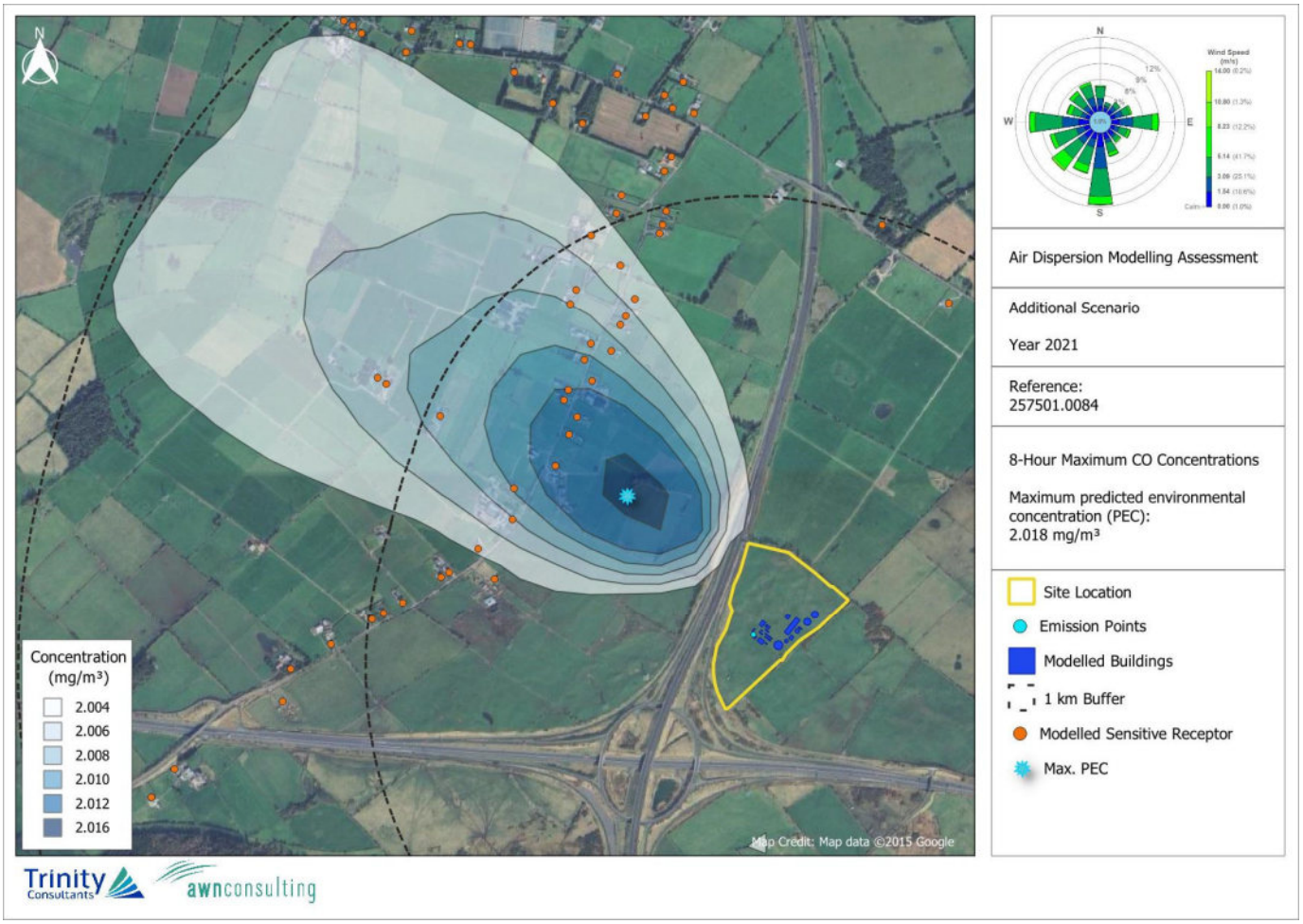


Figure 7-8 – Operational Phase Modelling Results – Maximum 8-Hour Mean CO Concentrations

SO_2

The results indicate that ambient ground level concentrations of SO_2, detailed in Table 7.18, are in compliance with the relevant air quality standards for all modelled years at the most impacted receptor (considers boundary, gridded, and sensitive receptors).

Emissions from the Proposed Project lead to an ambient SO_2 concentration (including background) which is at most 3% of the maximum 1-hour limit value (measured as a 99.7th%ile) at the most impacted receptor (location shown in Figure 7-9) and 7% of the maximum 24-hour limit value (measured as a 99.2nd%ile) at the most

impacted receptor (location shown in Figure 7-10).

Calculating the maximum 1-hour mean SO_2 (99.7th%ile) and 24-hour mean SO_2 (99.2nd%ile) PEC is not a simple addition of background concentration to process contribution but is instead calculated in line with guidance from the UK DEFRA (UK DEFRA, 2022) and the EPA (EPA, 2020), as explained in Section 7.3.2.4, which states that for SO_2 an estimate of the maximum PEC can be obtained from the methods shown below:

99.7th%ile of 1-hour mean SO_2 is equal to the maximum of either Method A or Method B below:

a) [Annual mean process contribution SO_2 (x2)] + [99.7th%ile hourly background SO_2]

b) [99.7th%ile hourly process contribution SO_2] + [annual mean background SO_2 (x2)]

99.2nd%ile of 24-hour mean SO_2 is equal to the maximum of either Method A or Method B below:

a) [Annual mean process contribution SO_2 (x2)] + [99.2nd%ile of 24-hour mean background SO_2]

b) [99.2nd%ile 24-hour mean process contribution SO_2] + [annual mean background SO_2 (x2)]

The results of this calculation process are highlighted (bold, underlined) and shown in Table 7.18 as "PEC A" and "PEC B", and determined that the maximum 1-hour mean SO_2 (99.7th%ile) PEC is based on method B ("PEC A"), while the maximum 24-hour mean SO_2 (99.2nd%ile) PEC is based on method B ("PEC A").

The geographical variations in ground level SO_2 predicted environmental concentration (PEC) beyond the Installation boundary for the highest-concentration years modelled are illustrated as concentration contours in Figure 7-9 and Figure 7-10, to demonstrate the direction and extent of the emission plume.

Table 7.18 – Proposed Operations Modelling Results – Dispersion Model Results for Sulphur Dioxide (SO_2)

Pollutant / Year	Averaging Period	Most Impacted Receptor		Concentrations (µg/m^3)					PEC as % of Limit
		Type	X,Y (UTM Zone 29 N)	PC	Back-ground	PEC A	PEC B	Limit Value	
SO_2 / 2020	Annual Mean	Boundary	512789, 5906126	0.01	2	2.01	2.01	-	-
	99.7th%ile of 1-hr mean	Grid	512789, 5906126	0.70	7	7.02	4.70	350	2%
	99.2nd%ile of 24-hr mean	Grid	512789, 5906126	0.15	6	6.02	4.15	125	5%
SO_2 / 2021	Annual Mean	Boundary	512739, 5906175	0.02	2	2.02	2.02	-	-
	99.7th%ile of 1-hr mean	Grid	512739, 5906175	1.37	7	**7.03**	5.37	350	2%
	99.2nd%ile of 24-hr mean	Grid	512739, 5906175	0.44	6	**6.03**	4.44	125	5%
SO_2 /	Annual Mean	Boundary	513239,	0.01	2	2.01	2.01	-	-

Pollutant / Year	Averaging Period	Most Impacted Receptor			Concentrations (µg/m^3)				PEC as % of Limit
		Type	X,Y (UTM Zone 29 N)	PC	Back-ground	PEC A	PEC B	Limit Value	
2022			5906575						
	99.7th%ile of 1-hr mean	Grid	513239, 5906575	0.29	7	7.02	4.29	350	2%
	99.2nd%ile of 24-hr mean	Grid	513239, 5906575	0.11	6	6.02	4.11	125	5%
SO_2 / 2023	Annual Mean	Sensitive	512621, 5906303	0.01	2	2.01	2.01	-	-
	99.7th%ile of 1-hr mean	Discrete	512621, 5906303	0.61	7	7.02	4.61	350	2%
	99.2nd%ile of 24-hr mean	Discrete	512621, 5906303	0.25	6	6.02	4.25	125	5%
SO_2 / 2024	Annual Mean	Boundary	512739, 5906126	0.01	2	2.01	2.01	-	-
	99.7th%ile of 1-hr mean	Grid	512739, 5906126	0.48	7	7.02	4.48	350	2%
	99.2nd%ile of 24-hr mean	Grid	512739, 5906126	0.17	6	6.02	4.17	125	5%

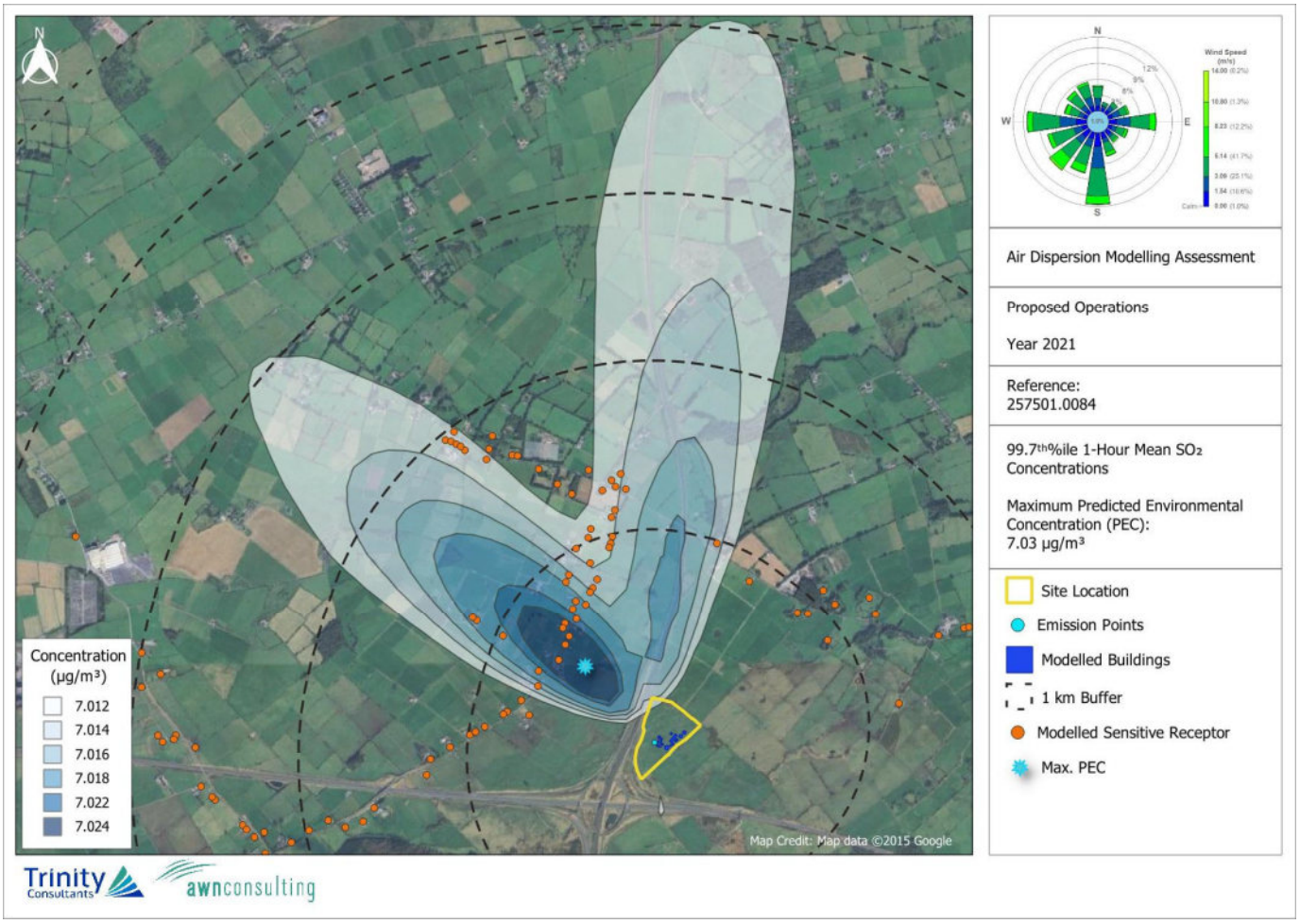


Figure 7-9 – Proposed Operations Modelling Results – Maximum 1-Hour SO_2 Concentrations (as 99.7th%ile)

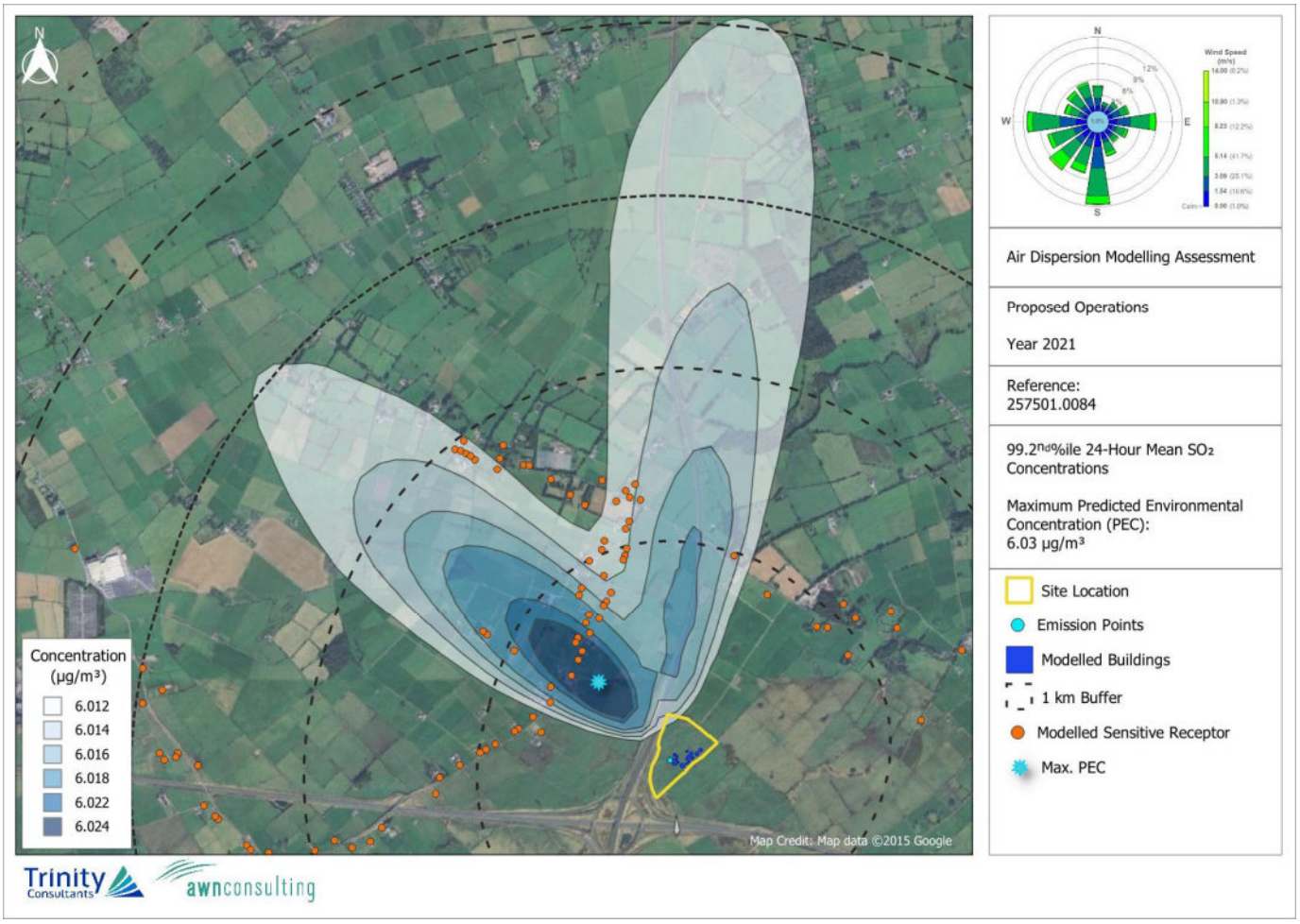


Figure 7-10 – Proposed Operations Modelling Results - Maximum 24-Hour SO_2 Concentrations (as 99.2nd%ile)

7.4.2.1.2 Ecology

NO_X

The NO_X modelling results for ecological receptors under the Proposed Operations scenario are detailed in Table 7.19.

As per Section 7.2.1.2.3, process contributions (PCs) of NO_X at ecological receptors within the model study area identified in Section 7.3.3.2 were compared to the relevant critical level (identified in Section 7.2.1.2.1).

As per the IN2 guidance, where a PC is greater than 1% of the critical level, this site has been included in further assessment where the PEC is determined by combining the background concentration with the PC.

There are no PCs greater than 1% of the critical level at any of the modelled ecological receptors, therefore no further assessment (i.e. calculation of PEC) is required as per IN2 guidance. The effect of NO_X on ecological receptors due to the Proposed Project is therefore predicted to be not significant.

Table 7.19 – Proposed Operations Modelling Results for Designated Habitats – Nitrogen Oxides (NO_X)

Ecological Receptor	NO_X Process Contributions (µg/m^3)					Critical Level (µg/m^3)	Max PC % of Critical Level	Considered for further assessment?
	2020	2021	2022	2023	2024			
Galway Bay Complex SAC	0.02	0.02	0.02	0.02	0.02	30	0.1%	No
Lough Corrib SAC	0.04	0.05	0.04	0.05	0.05	30	0.2%	No
Monivea Bog SAC	0.02	0.02	0.02	0.02	0.02	30	0.1%	No
Rahasane Turlough SAC	0.04	0.04	0.04	0.04	0.04	30	0.1%	No
Cregganna Marsh SPA	0.01	0.02	0.02	0.01	0.02	30	0.1%	No
Inner Galway Bay SPA	0.02	0.02	0.02	0.02	0.02	30	0.1%	No
Rahasane Turlough SPA	0.04	0.04	0.04	0.04	0.04	30	0.1%	No

SO_2

The SO_2 modelling results for ecological receptors under the Proposed Operations scenario are detailed in Table 7.20.

As per Section 7.2.1.2.3, process contributions (PCs) of SO_2 at ecological receptors within the model study area identified in Section 7.3.3.2 were compared to the relevant critical level (identified in Section 7.2.1.2.1).

As per the IN2 guidance, where a PC is greater than 1% of the critical level, this site has been included in further assessment where the PEC is determined by combining the background concentration with the PC.

There are no PCs greater than 1% of the critical level at any of the modelled ecological receptors, therefore no further assessment (i.e. calculation of PEC) is required as per IN2 guidance. The effect of SO_2 on designated habitats due to the Proposed Project is therefore predicted to be not significant.

Table 7.20 – Proposed Operations Modelling Results for Designated Habitats – Sulphur Dioxide (SO_2)

Ecological Receptor	SO_2 Process Contributions (µg/m^3)					Critical Level (µg/m^3)	Max PC % of Critical Level	Considered for further assessment?
	2020	2021	2022	2023	2024			
Galway Bay Complex SAC	0.001	0.002	0.003	0.002	0.002	20	0.01%	No

Ecological Receptor	SO_2 Process Contributions (µg/m³)					Critical Level (µg/m³)	Max PC % of Critical Level	Considered for further assessment?
	2020	2021	2022	2023	2024			
Lough Corrib SAC	0.004	0.004	0.004	0.004	0.004	20	0.02%	No
Monivea Bog SAC	0.002	0.002	0.002	0.002	0.002	20	0.01%	No
Rahasane Turlough SAC	0.003	0.004	0.004	0.003	0.004	20	0.02%	No
Cregganna Marsh SPA	0.001	0.002	0.002	0.001	0.001	20	0.01%	No
Inner Galway Bay SPA	0.001	0.002	0.002	0.001	0.002	20	0.01%	No
Rahasane Turlough SPA	0.003	0.004	0.004	0.003	0.004	20	0.02%	No

Nitrogen Deposition

In order to consider the effects of nitrogen deposition (as N) owing to emissions from the Proposed Project on ecological receptors, the maximum annual mean NO_2 process contribution concentrations (PC) are converted into the dry deposition fluxes and then nitrogen deposition fluxes (as described in Section 7.2.3.2.6) and shown in Table 7.21 and Table 7.22.

As per Section 7.2.1.2.3, process contributions (PCs) of nitrogen deposition at ecological receptors within the model study area identified in Section 7.3.3.2 were compared to the relevant critical load (identified in Section 7.2.1.2.2),

As per the IN2 guidance, where a PC is greater than 1% of the lowest critical load, this site has been included in further assessment where the PEC is determined by combining the background concentration with the PC.

There are no PCs greater than 1% of the critical level at any of the modelled ecological receptors, therefore no further assessment (i.e. calculation of PEC) is required as per IN2 guidance. The effect of nitrogen deposition on designated habitats due to the Proposed Project is therefore predicted to be not significant.

Table 7.21 – Proposed Operations Modelling Results for Designated Habitats – Nitrogen Deposition

Ecological Receptor	NO_2 Process Contributions (µg/m³)					NO_2 Dry Deposition (µg/m²/s)	NO_2 Nitrogen Deposition (kg/ha/yr)
	2020	2021	2022	2023	2024		
Galway Bay Complex SAC	0.02	0.02	0.02	0.02	0.02	0.00004	0.004
Lough Corrib SAC	0.04	0.05	0.04	0.05	0.05	0.00008	0.008
Monivea Bog SAC	0.02	0.02	0.02	0.02	0.02	0.00004	0.004
Rahasane Turlough	0.04	0.04	0.04	0.04	0.04	0.00006	0.006

Ecological Receptor	NO_2 Process Contributions ($\mu g/m^3$)					NO_2 Dry Deposition ($\mu g/m^2/s$)	NO_2 Nitrogen Deposition (kg/ha/yr)
	2020	2021	2022	2023	2024		
SAC							
Cregganna Marsh SPA	0.01	0.02	0.02	0.01	0.02	0.00003	0.003
Inner Galway Bay SPA	0.02	0.02	0.02	0.02	0.02	0.00004	0.003
Rahasane Turlough SPA	0.04	0.04	0.04	0.04	0.04	0.00006	0.006

Table 7.22 – Proposed Operations Modelling Results for Designated Habitats – Nitrogen Deposition (continued)

Ecological Receptor	Total PC Nitrogen Deposition kg N/ha/yr)	Assessment critical load (kg N/ha/yr)	PC % of critical load	Considered for further assessment?
Galway Bay Complex SAC	0.004	5.0	0.1%	No
Lough Corrib SAC	0.008	5.0	0.2%	No
Monivea Bog SAC	0.004	5.0	0.1%	No
Rahasane Turlough SAC	0.006	n/a	n/a	No
Cregganna Marsh SPA	0.003	5.0	0.1%	No
Inner Galway Bay SPA	0.003	5.0	0.1%	No
Rahasane Turlough SPA	0.006	5.0	0.1%	No

Acid Deposition (as N)

In order to consider the effects of acid deposition (as N) owing to emissions from the Installation on ecological habitat sites, the maximum annual mean NO_2 process contribution concentrations (PC) are converted into the dry deposition fluxes and then acid deposition fluxes (as described in Section 7.2.3.2.6), and shown in Table 7.23 and Table 7.24.

As per Section 7.2.1.2.3, process contributions (PCs) of nitrogen deposition at ecological receptors within the model study area identified in Section 7.3.3.2 were compared to the relevant critical load (identified in Section 7.2.1.2.2).

As per the IN2 guidance, where a PC is greater than 1% of the lowest critical load, this site has been included in further assessment where the PEC is determined by combining the background concentration with the PC.

There are no PCs greater than 1% of the critical level at any of the modelled ecological receptors, therefore no further assessment (i.e. calculation of PEC) is required as per IN2 guidance. The effect of acid deposition (as N) on designated habitats due to the Proposed Project is therefore predicted to be not significant.

Table 7.23 – Proposed Operations Modelling Results for Designated Habitats – Acid Deposition (as N)

Ecological Receptor	NO_2 Process Contributions (µg/m^3)					NO_2 Dry Deposition (µg/m^2/s)	NO_2 Acid Deposition (keq/ha/yr)
	2020	2021	2022	2023	2024		
Galway Bay Complex SAC	0.02	0.02	0.02	0.02	0.02	0.00004	0.0003
Lough Corrib SAC	0.04	0.05	0.04	0.05	0.05	0.00008	0.0005
Monivea Bog SAC	0.02	0.02	0.02	0.02	0.02	0.00004	0.0003
Rahasane Turlough SAC	0.04	0.04	0.04	0.04	0.04	0.00006	0.0004
Cregganna Marsh SPA	0.01	0.02	0.02	0.01	0.02	0.00003	0.0002
Inner Galway Bay SPA	0.02	0.02	0.02	0.02	0.02	0.00004	0.0002
Rahasane Turlough SPA	0.04	0.04	0.04	0.04	0.04	0.00006	0.0004

Table 7.24 – Proposed Operations Modelling Results for Designated Habitats – Acid Deposition (as N) (continued)

Ecological Receptor	PC Acid Dep. (N) (keq/ ha/yr)	Critical load (MinCL minN) for PC (keq/ ha/yr)	PC % of critical load	Considered for further assessment?
Galway Bay Complex SAC	0.0003	0.143	0.2%	No
Lough Corrib SAC	0.0005	0.143	0.4%	No
Monivea Bog SAC	0.0003	0.143	0.2%	No
Rahasane Turlough SAC	0.0004	n/a	n/a	No
Cregganna Marsh SPA	0.0002	0.143	0.2%	No
Inner Galway Bay SPA	0.0002	0.143	0.2%	No
Rahasane Turlough SPA	0.0004	0.143	0.3%	No

Acid Deposition (as S)

In order to consider the effects of acid deposition (as S) owing to emissions from the Installation on ecological habitat sites, the maximum annual mean SO_2 process contribution concentrations (PC) are converted into the dry deposition fluxes and then acid deposition fluxes (as described in Section 7.2.3.2.6), and shown in Table 7.25 and Table 7.26.

As per Section 7.2.1.2.3, process contributions (PCs) of nitrogen deposition at ecological receptors within the model study area identified in Section 7.3.3.2 were compared to the relevant critical load (identified in Section 7.2.1.2.2).

As per the IN2 guidance, where a PC is greater than 1% of the lowest critical load, this site has been included in further assessment where the PEC is determined by combining the background concentration with the PC.

There are no PCs greater than 1% of the critical level at any of the modelled ecological receptors, therefore no further assessment (i.e. calculation of PEC) is required as per IN2 guidance. The effect of acid deposition (as S) on designated habitats due to the Proposed Project is therefore predicted to be not significant.

Table 7.25 – Proposed Operations Modelling Results for Designated Habitats – Acid Deposition (as S)

Ecological Receptor	SO_2 Process Contributions (µg/m^3)					SO_2 Dry Deposition (µg/m^2/s)	SO_2 Acid Deposition (keq/ha/yr)
	2020	2021	2022	2023	2024		
Galway Bay Complex SAC	0.001	0.002	0.003	0.002	0.002	0.00003	0.0003
Lough Corrib SAC	0.004	0.004	0.004	0.004	0.004	0.00005	0.0005
Monivea Bog SAC	0.002	0.002	0.002	0.002	0.002	0.00003	0.0003
Rahasane Turlough SAC	0.003	0.004	0.004	0.003	0.004	0.00005	0.0005
Cregganna Marsh SPA	0.001	0.002	0.002	0.001	0.001	0.00003	0.0003
Inner Galway Bay SPA	0.001	0.002	0.002	0.001	0.002	0.00003	0.0003
Rahasane Turlough SPA	0.003	0.004	0.004	0.003	0.004	0.00005	0.0005

Table 7.26 – Proposed Operations Modelling Results for Designated Habitats – Acid Deposition (as S) (continued)

Ecological Receptor	PC Acid Dep. (S) (keq/ha/yr)	Critical load (MinCL maxS) (keq/ha/yr)	PC % of critical load	Considered for further assessment?
Galway Bay Complex SAC	0.0003	0.342	0.1%	No
Lough Corrib SAC	0.0005	0.300	0.2%	No
Monivea Bog SAC	0.0003	0.344	0.1%	No
Rahasane Turlough SAC	0.0005	n/a	n/a	No
Cregganna Marsh SPA	0.0003	4.816	0.01%	No
Inner Galway Bay SPA	0.0003	0.342	0.1%	No
Rahasane Turlough SPA	0.0005	4.829	0.01%	No

7.4.3 Decommissioning Phase

The greatest potential impact on air quality during the decommissioning phase is from dust emissions from the demolition and removal of buildings and materials and road traffic emissions. These are expected to be of a similar or lesser magnitude to those identified during the construction phase (but generally of a shorter duration)

and have been assessed as per the construction phase methodology outlined in Section 7.2.2. As per this methodology road traffic emissions are scoped out of this assessment

In the absence of mitigation, the likely effect of the dust impacts associated with the decommissioning phase will have a ***short-term, direct, negative*** and ***slight*** effect on air quality.

7.4.4 Summary of Pre-mitigation Effects

During the construction phase, the effect of construction dust in terms of dust soiling nuisance and human health is predicted to be direct, short-term, negative and slight, prior to mitigation.

During the operational phase, the results of the modelling assessment indicate that ambient ground level pollutant concentrations due to emissions form the Proposed Project are in compliance with the relevant air quality standards for NO_2, CO, and SO_2. The modelling assessment determined that process contributions (PC) of NO_X, SO_2, nitrogen deposition and acid deposition from the Proposed Project are less than 1% of, and do not exceed, the relevant critical levels and critical load ranges for the sensitive habitats within the European sites assessed. The effect of emissions to air from the Proposed Project during the operational phase on human health and ecology is predicted to be direct, long-term, negative and not significant.

The following table summarises the identified likely significant effects during the construction and operational phase of the Proposed Project prior to the application of mitigation measures.

Table 7.27 – Summary of Air Quality Effects Pre Mitigation

Phase	Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Construction	Impact of construction dust from construction and trackout in terms of dust soiling, and human health	Negative	Slight	Study area as per Section 7.3.3.1.	Likely	Short-term	Direct
Operational	Impact of operational phase emissions from facility on human health	Negative	Not significant	Dispersion model study area as per Section 7.3.3.2.	Likely	Long-term	Direct
Operational	Impact of operational phase emissions from facility on ecology	Negative	Not significant	Dispersion model study area as per Section 7.3.3.2.	Likely	Long-term	Direct
Decomissioning	Impact of dust from demolition and	Negative	Slight	Study area as per Section	Likely	Short-term	Direct

Phase	Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
	trackout in terms of dust soiling, and human health			7.3.3.1.			

7.5 Do Nothing Scenario

In the Do Nothing scenario, ambient air quality at the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from potential new developments in the surrounding area, changes in road traffic, etc).

No construction works will take place and the identified impacts of fugitive dust and particulate matter emissions will not occur at the subject site. The proposed Peaker Plant will not be installed and the associated emissions will not occur.

7.6 Mitigation Measures

7.6.1 Construction Phase

The Proposed Project has been assessed as having a high risk of dust soiling impacts and a low risk of dust related human health impacts during the construction phase as a result of earthworks, construction and trackout activities (Section 7.4.1). Therefore, the following dust mitigation measures will be implemented during the construction phase of the Proposed Project. These measures are appropriate for sites with a high risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DLRCC, 2022; DCC, 2018), the UK (IAQM (2024), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities.

Table 7.28 – Standard Construction Dust Management Measures

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
Communications	Construction Compound/Site Boundary and throughout (as required)	▪ An Environmental Manager (EM) will be in assigned by the appointed contractor. The EM will be responsible for co-ordinating the day-to-day management of environmental impacts during the Construction Phase. The EM will be responsible for performing inspections as deemed necessary and manage responses to environmental incidents. The name and contact details of the EM will be responsible for construction dust management and air quality issues will be displayed at the construction compound/site boundary hoarding, as well as head/regional office contact details. ▪ A complaints register will be kept by the appointed contractor

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
		detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out. ▪ Previously established community engagement with neighbouring business will continue for the remainder of the construction works.
Construction Works Area Management	Construction Compound/Site Boundary and throughout (as required)	▪ Construction compounds will be laid out so that machinery and dust causing activities such as stockpiles are located away from receptors, as far as is practicable. ▪ The appointed contractor will provide a site hoarding of 2.4m height along noise sensitive boundaries, at a minimum, at the Construction Compounds, which will assist in minimising the potential for dust impacts off-site. Construction works area fencing, barriers and scaffolding will be kept clean using wet methods. ▪ Stockpiles will be covered to prevent wind whipping. ▪ Any chutes and conveyors will be enclosed and skips will be covered. ▪ Drop heights from any conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised. Fine water sprays will be used on such equipment where visible dust plumes are generated. ▪ Cutting, grinding or sawing equipment will be fitted with or used in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. ▪ Equipment will be readily available in the construction works areas site to clean any dry spillages. Spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods. ▪ An adequate water supply for effective dust or particulate matter suppression and mitigation will be ensured, and non-potable water will be used where possible and appropriate. ▪ Construction works area runoff of water or mud will be managed as per the Construction Environment Management Plan (CEMP, Appendix 2-10, Volume 3 of this EIAR).
Operating Vehicles / Machinery	Construction Compound/Site Boundary and throughout (as required)	▪ Engines of all vehicles will be switched off when stationary - idling vehicles are not permitted. ▪ The use of diesel- or petrol-powered generators will be limited and mains electricity or battery powered equipment will be used where practicable. ▪ A Construction Traffic Management Plan (CTMP) has been developed as part of the CEMP to minimise use of the Local Road Network. The CTMP will be adhered to be the appointed contractor. ▪ The appointed contractor will promote the use of public transport,

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
		and cycling by personnel. Private parking at the Construction Compounds will be limited. Vehicle-sharing will be encouraged, subject to public health guidelines, where travel by private vehicle is a necessity (e.g. for transporting heavy equipment).
Demolition Activities	Areas where demolition is required	▪ Works will be carried out by a competent demolition contractor under the supervision of the PSDP and PSCS in accordance with the Safety, Health and Welfare at Work (Construction) Regulations. Demolition will be conducted using hand and mechanical methods appropriate to the scale of the structures. ▪ During the demolition process, any cutting, grinding or sawing equipment will be fitted or used in conjunction with a suitable dust suppression technique such as water sprays or local extraction.
Earthworks Activities	Areas where earthworks are required	▪ Materials with the potential to produce dust, such as excavated material, will be removed from the construction works area as soon as possible, unless being re-used within the construction works area. Management of extracted material is detailed in the Construction and Demolition Resource and Waste Management Plan (CEMP, Appendix 2-10, Volume 3 of this EIAR). ▪ Areas exposed by earthworks will be re-vegetated to stabilise surfaces as soon as practicable. Hessian, mulches or trackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. Cover will only be removed in small areas during work and not all at once. ▪ During dry and windy periods and when there is a likelihood of dust nuisance (defined under “Monitoring” measures below), water-based dust suppression (e.g. bowser) will operate to ensure soil moisture content is high enough to increase the stability of the soil and thus suppress dust.
Construction Activities	Areas where construction is required	▪ Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out, unless this is required for a particular process. ▪ Smaller supplies of fine power materials bags will be sealed after use and stored appropriately to prevent dust escaping.
Measures specific to trackout (transport of dust and dirt from the construction works areas onto the public road network)	Construction Compound/Site Boundary and throughout (as required)	▪ A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles. ▪ Vehicles transporting loose materials (e.g. spoil or sand) entering and leaving the Proposed Project works areas and construction compounds will be covered with tarpaulin to prevent escape of materials during transport. Before entrance onto public roads, trucks will be checked to ensure the tarpaulins are properly in place. ▪ Where construction work area or construction compound conditions result in large amounts of mud building up on truck wheels, wheel washing will be carried out for trucks before they use the public road network. ▪ Water-assisted dust sweeper(s) will be used at the access points

Mitigation Type	Location	Description of Mitigation or Monitoring Measures
		to a construction compound and the immediate adjoining local road, to remove, as necessary, any material tracked out of the compound. ▪ Any on-site haul routes will be inspected for integrity and necessary repairs to the surface will be carried out as soon as reasonably practicable.
Monitoring	Construction Compound/Site Boundary and throughout (as required)	▪ To determine if any short-term dust impacts will occur, a minimum of daily visual inspections for dust soiling of receptors (including roads, and surfaces such as street furniture, cars and windowsills) adjoining the construction works areas will be undertaken. Inspection results will be recorded in the site inspection log. Cleaning will be provided if necessary, such as in the event of a dust complaint resulting from the Proposed Project construction works. ▪ The potential for dust generation increases when rainfall is less than 0.2 mm/day and at wind speeds of greater than 10 m/s. To determine if these conditions are likely to affect the site, the weather forecast will be consulted daily, specifically the hourly forecasts for wind speeds as well as 12 hour rainfall radar showing anticipated amounts of precipitation in mm. ▪ The frequency of site inspections by the Environmental Manager responsible for dust management will be increased to a minimum of twice daily during the above conditions. The effectiveness of dust control methods will be monitored via visual inspections and work that would generate dust (e.g. moving materials from stockpiles, or transferring loose dry materials from trucks) will be limited in so far as is practicable during these weather conditions. ▪ Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the construction phase of the Proposed Project will be carried out to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m^2/day during the monitoring period of 30 days (+/- 2 days).

7.6.2 Operational Phase

No site-specific mitigation measures are proposed for the operational phase as impacts are predicted to be not significant.

7.6.3 Decommissioning Phase

As the dust emissions associated with the demolition and removal of buildings and materials during the decommissioning phase are expected to be of a similar or lesser magnitude to those identified during the construction phase, the mitigation measures applicable to construction phase dust emissions (Section 7.6.1) are also considered suitable for those during the decommissioning phase and will be implemented in full throughout the decommissioning phase.

The Peaker Plant will be regulated by the EPA under an Industrial Emissions licence, which will require the Licensee to prepare and maintain an Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP). The final site closure plan will be subject to approval from the EPA once all closure, restoration and aftercare requirements are nearing completion. The site cannot be surrendered and formally closed until the EPA is satisfied that all closure, restoration and aftercare requirements have been met, in accordance with the Industrial Emissions licence.

7.7 Residual Effects

7.7.1 Construction Phase

To minimise dust emissions during construction, a series of mitigation measures have been prepared as outlined in Section 7.6.1. Provided the dust minimisation measures are adhered to, the predicted residual air quality impacts during the construction phase are ***short-term, direct, negative, localised*** and ***not significant***.

Best practice mitigation measures are proposed for the construction phase of the Proposed Project, which will focus on the proactive control of dust and other air pollutants, to minimise generation of emissions at source. The mitigation measures that will be put in place during construction will ensure that the impact complies with all EU ambient air quality legislative limit values (set out in Directive (EU) 2024/2881 and the Air Quality Standards Regulations 2022), which are based on the protection of human health (Table 7-1). Therefore, the predicted residual, dust-related, human health impact of the construction phase of the Proposed Project is ***short-term, direct, negative, localised*** and ***not significant***.

7.7.2 Operational Phase

Detailed air dispersion modelling of emissions from the Proposed Project determined that pollutant concentrations will be in compliance with the relevant limit values set out in Table 7-1. Therefore, emissions from the Proposed Project will have a ***direct, long-term, negative*** and ***not significant*** impact on air quality.

7.7.3 Decommissioning Phase

Dust impacts during the decommissioning and remediation phase are expected to be of similar type and similar or lesser in magnitude to those anticipated during the construction phase, but generally of a shorter duration. The same mitigation measures implemented during the construction phase will be applied during the decommissioning works and are also considered appropriate for the decommissioning demolition works. It can therefore be determined that the residual effect during the decommissioning phase on air quality will be ***short-term, direct, negative*** and ***not significant***.

7.7.4 Summary of Post-mitigation Effects

The following table summarises the identified likely significant residual effects during the construction, operational and decommissioning phases of the Proposed Project following the application of mitigation measures.

Table 7.29 – Summary of Air Quality Effects Post Mitigation

Phase	Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Construction	Impact of construction dust from construction and trackout in terms of dust soiling, and human health	Negative	Not significant	Study area as per Section 7.3.3.1.	Likely	Short-term	Direct
Operational	Impact of operational phase emissions from facility on human health	Negative	Not significant	Dispersion model study area as per Section 7.3.3.2.	Likely	Long-term	Direct
Operational	Impact of operational phase emissions from facility on ecology	Negative	Not significant	Dispersion model study area as per Section 7.3.3.2.	Likely	Long-term	Direct
Decomissioning	Impact of dust from demolition and trackout in terms of dust soiling, and human health	Negative	Not significant	Study area as per Section 7.3.3.1.	Likely	Short-term	Direct

7.8 Monitoring Requirements

7.8.1 Construction Phase

Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the construction phase of the Proposed Project will be carried out to ensure mitigation measures are working satisfactorily. This will be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m^2/day during the monitoring period of 30 days (+/- 2 days).

7.8.2 Operational Phase

The Proposed Project will be subject to an Industrial Emissions Licence, which will be required for the facility to operate and is issued and regulated by the EPA. As part of an Industrial Emissions Licence, air emissions from the stack will be monitored continuously any time the plant is in operation. This monitoring will be undertaken using regulated and independently verified permanent monitoring equipment, which is subject to regular maintenance and calibration routines in line with statutory requirements. The relevant EU monitoring requirements for the Peaker Plant are given in BAT 4 of the *Commission Implementing Decision (EU) 2021/2326 of 30 November 2021 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants*.

The Licensee will provide these results to the EPA under the conditions of an Industrial Emissions Licence, and they will also be available to the public on the EPA's website. The EPA will make regular unannounced inspections to the facility at their discretion and undertake monitoring of their own to verify the accuracy of the monitoring data being reported by the Licensee.

7.8.3 Decommissioning Phase

In terms of decommissioning activities, monitoring will be carried out in line with the implementation of the Closure, Restoration and Aftercare Management Plan (CRAMP), in line with EPA Industrial Emissions Licence requirements. Monitoring will remain in place for the duration of the decommissioning phase as required by the EPA. The site cannot be surrendered and formally closed until the EPA is satisfied that all closure, restoration and aftercare requirements have been met, in accordance with an Industrial Emissions Licence.

7.9 Difficulties encountered during preparation of this chapter

There were no difficulties encountered when compiling this assessment.

8. Climate

8.1 Introduction

This chapter assesses the likely climate impacts associated with the Proposed Project located in Pollnagroagh / Rathmorrissy, Athenry, Co. Galway. A full description of the project is available in Chapter 2 Project Description.

The climate assessment is divided into two distinct sections – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA).

- Greenhouse Gas Emissions Assessment (GHGA) – Quantifies the GHG emissions from a project over its lifetime. The assessment compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude.
- Climate Change Risk Assessment (CCRA) – Identifies the impact of a changing climate on a project and receiving environment. The assessment considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

8.2 Characteristics of the Proposed Development

The purpose of this section is to provide an overview of the key relevant details of the construction, operational and decommissioning phase of the proposed development. The information presented in this section is informed by the project design, but it is not a complete description of the Proposed Project. Therefore, it should be read in conjunction with the full development package, and Chapter 2 Project Description. Chapter 2 provides a detailed overview of the lifecycle of the project, including reference to the architectural and civil engineering, drawings, plans, reports, and other relevant document in order to define the proposed development.

8.2.1 Construction Phase

During the construction phase, engine emissions from site vehicles and machinery have the potential to impact climate through the release of carbon dioxide (CO_2) and to a lesser extent, other greenhouse gases (GHGs). Embodied carbon of materials used in the construction of the Proposed Project, along with site activities will impact climate. Impacts to climate are assessed against Ireland's obligations under the EU 2030 GHG targets and sectoral emissions ceilings.

8.2.2 Operational Phase

Engine emissions from vehicles accessing the site and energy use during operation have the potential to impact climate during the operational phase of the Proposed Project through the release of CO_2. Depending on the technology that is used, the turbine will have a total output capacity of either 325MW or 334MW, and as such both outputs have been assessed. Operational phase impacts will be long-term in duration. In addition, the vulnerability of the Proposed Project in relation to future climate change must be considered during the operational phase. The Proposed Project has been designed to minimise the impact on climate where possible in reference to measures within the Climate Action Plan 2025 (Government of Ireland, 2025a).

8.2.3 Decommissioning Phase

During the decommissioning phase, engine emissions from site vehicles and machinery have the potential to impact climate through the release of CO_2 and to a lesser extent, other GHGs. GHG emissions associated with waste disposal of removed materials, along with site activities will impact climate.

8.3 Study Assessment and Methodology

8.3.1 Relevant Guidance, Legislation and Policy

8.3.1.1 Guidance

The principal guidance and best practice documents used to inform the assessment of potential impacts on climate are summarised below. In addition to specific climate guidance documents, the following guidelines were considered and consulted in the preparation of this chapter:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the Environmental Protection Agency (EPA) Guidelines) (EPA, 2022); and
- Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission, 2017).

The assessment has made reference to national guidelines where available, in addition to international standards and guidelines relating to the assessment of climate impacts. These are summarised below:

- Transport Infrastructure Ireland (TII) PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document (TII, 2022a);
- Transport Infrastructure Ireland (TII) GE-ENV-01106: TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document (TII, 2024a);
- Institute of Sustainability & Environmental Professionals (ISEP) (formerly known as IEMA) Environmental Impact Assessment Guide to: Assessing GHG Emissions and Evaluating their Significance (hereafter referred to as the ISEP GHG guidance) (ISEP, 2022);
- ISEP Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (hereafter referred to as the ISEP Climate Change guidance) (ISEP, 2020a);
- ISEP GHG Management Hierarchy (hereafter referred to as the ISEP GHG Management Hierarchy) (ISEP, 2020b);
- ISEP Principles Series: Climate Change Mitigation & EIA (ISEP, 2010);
- Publicly Available Specification (PAS) 2080:2016 on Carbon Management in Infrastructure (BSI, 2016); and
- Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021a).

8.3.1.2 Legislation

8.3.1.2.1 International Legislation & Policy

The Paris Agreement (UNFCCC, 2015), which entered into force in 2016, is an important milestone in terms of international climate change agreements and includes an aim of limiting global temperature increases to no more than 2°C (degrees Celsius) above pre-industrial levels with efforts to limit this rise to 1.5°C. Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the

achievement of these long-term goals. NDCs comprise the efforts and actions by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement requires each country to prepare the NDCs that it intends to achieve, updating and enhancing the NDCs every 5 years. Countries are required to implement mitigation measures, with the aim of achieving the objectives of such contributions. Each of the EU Member States submit their own NDCs, which contribute to the overall EU NDC.

The European Green Deal, published by the European Commission in December 2019, provides an action plan which aims for the EU to be climate neutral by 2050. The EU Green Deal highlights that further decarbonisation of the energy sector is critical to reach climate objectives in 2030 and 2050. The European Green Deal has increased the GHG emissions reduction 2030 target to at least 55% in comparison to 1990 levels.

On 14 July 2021, the European Commission adopted a series of legislative proposals setting out how it intends to achieve climate neutrality in the EU by 2050, including the intermediate target of at least a 55% net reduction in greenhouse gas emissions by 2030. The package of proposals is known as the 'Fit for 55' package.

The package includes revisions to the legislation put forward as part of the Climate and Energy Framework 2021-2030, including the EU Emissions Trading System (ETS), Effort Sharing Regulation, transport and land use legislation, setting out in real terms the ways in which the Commission intends to reach EU climate targets under the European Green Deal.

The EU ETS was launched in 2005 as the world's first international company- level 'cap-and trade' system for reducing emissions of greenhouse gases cost-effectively. The EU ETS regulates the GHG emissions of larger industrial emitters including electricity generation, cement manufacturing and heavy industry.

Under this new package of legislative proposals, the sectors of the Irish economy covered by the current ETS must reduce emissions by 42% by 2030 compared to 2005 levels by increasing annual emissions reduction to 4.2% per annum.

The non-ETS sector includes all domestic GHG emitters which do not fall under the ETS scheme and thus includes GHG emissions from transport, residential and commercial buildings and agriculture. These sectors must reduce emissions by 42% by 2030 compared to 2005 levels.

Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') writes into law the goal set out in the European Green Deal for Europe's economy and society to become climate-neutral by 2050. The law also sets the intermediate target of reducing net greenhouse gas (GHG) emissions by at least 55% by 2030, compared to 1990 levels.

The 2021 EU Strategy on Adaptation to Climate Change sets out the pathway to prepare for the unavoidable impacts of climate change. The aim is that "*by 2050, when we aim to have reached climate neutrality, we will have reinforced adaptive capacity and minimised vulnerability to climate impacts…"*

Adaptation refers to measures that can reduce the negative impact of climate change by, for example, ensuring a project is resilient to future increases in storm frequency and rainfall levels.

The EU has adopted integrated monitoring and reporting rules to ensure progress towards its 2030 climate and energy targets and its international commitments under the 2015 Paris Agreement.

Climate is also addressed specifically in Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. Recital (7) of Directive 2014/52/EU states that:

"*Over the last decade, environmental issues, such as resource efficiency and sustainability, biodiversity protection, climate change, and risks of accidents and disasters, have become more important in policy making. They should therefore also constitute important elements in assessment and decision-making processes*".

Recital (13) of Directive 2014/52/EU states that:

"*Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change*".

Additionally Annex IV requires the following to be considered within Environmental Impact Assessment:

- Paragraph 4: "*A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape*".
- Paragraph 5 (f): "*A description of the likely significant effects of the project on the environment resulting from, inter alia: the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change*".

8.3.1.2.2 National Legislation

In 2015, the Climate Action and Low Carbon Development Act 2015, (the 2015 Act) (Government of Ireland, 2015) was enacted. The purpose of the 2015 Act is to enable Ireland 'to as to reduce the extent of further global warming, pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy (in this Act referred to as the "national climate objective").'(3.(1) of No. 46 of 2015). The 2015 Act made provision for a national mitigation plan, and a national adaptation framework. In addition, the 2015 Act provided for the establishment of the Climate Change Advisory Council with the function to advise and make recommendations on the preparation of the national mitigation and adaptation plans and compliance with existing climate obligations.

The first Climate Action Plan (CAP) was published by the Irish Government in June 2019 (Government of Ireland, 2019). The Climate Action Plan 2019 outlined the current status across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and outlined the various broadscale measures required for each sector to achieve ambitious decarbonisation targets. The 2019 CAP also detailed the required governance arrangements for implementation including carbon-proofing of policies, establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas. The fifth and most recent climate action plan, CAP25, was published in April 2025 (Government of Ireland, 2025).

Following on from Ireland declaring a climate and biodiversity emergency in May 2019, and the European Parliament approving a resolution declaring a climate and environment emergency in Europe in November 2019, the Government approved the publication of the General Scheme in December 2019, followed by the publication of the Climate Action and Low Carbon Development (Amendment)

Act 2021 (hereafter referred to as the 2021 Climate Act), in March 2021, which amended the 2015 Act. The 2021 Climate Act was signed into Law on the 23rd July 2021, giving statutory effect to the core objectives stated within the CAP.

The purpose of the 2021 Climate Act (Government of Ireland, 2021) is to provide for the approval of plans "*for the purpose of pursuing the transition to a climate resilient, biodiversity rich and climate neutral economy by no later than the end of the year 2050*". The 2021 Climate Act also provides for "carbon budgets and a decarbonisation target range for certain sectors of the economy". The 2021 Climate Act defines the carbon budget as "*the total amount of greenhouse gas emissions that are permitted during the budget period*".

In relation to carbon budgets, the 2021 Climate Act states "*A carbon budget, consistent with furthering the achievement of the national climate objective, shall be proposed by the Climate Change Advisory Council, finalised by the Minister and approved by the Government for the period of 5 years commencing on the 1 January 2021 and ending on 31 December 2025 and for each subsequent period of 5 years (in this Act referred to as a 'budget period')*". The carbon budget is to be produced for 3 sequential budget periods, as shown in Table 8.1. The carbon budget can be revised where new obligations are imposed under the law of the European Union or international agreements or where there are significant developments in scientific knowledge in relation to climate change. In relation to the sectoral emissions ceiling, the Minister for Climate, Environment and Energy (the Minister for the Environment) shall prepare and submit to government the maximum amount of GHG emissions that are permitted in different sectors of the economy during a budget period and different ceilings may apply to different sectors. The sectorial emission ceilings for 2030 are published in CAP25 and are shown in Table 8.2. Electricity has a 75% reduction requirement and a 2030 emission ceiling of 3 Mt CO_2e (carbon dioxide equivalent).

Table 8.1 5-Year Carbon Budgets 2021 to 2035

Budget Period	Carbon Budget	Reduction Required
2021-2025	295 Mt CO_2e	Reduction in emissions of 4.8% per annum for the first budget period.
2026-2030	200 Mt CO_2e	Reduction in emissions of 8.3% per annum for the second budget period.
2031-2035	151 Mt CO_2e	Reduction in emissions of 3.5% per annum for the third provisional budget.

Table 8.2 – Sectoral Emissions Ceilings 2030

Sector	Baseline ($MtCO_2e$)	Carbon Budgets ($MtCO_2e$)		2030 Emissions ($MtCO_2e$)	Indicative Emissions % Reduction in Final Year of 2025 – 2030 Period (Compared to 2018)
	2018	2021-2025	2026-2030		
Electricity	10	40	20	3	75
Transport	12	54	37	6	50
Built Environment – Residential	7	29	23	4	40
Built Environment – Commercial	2	7	5	1	45
Industry	7	30	24	4	35
Agriculture	23	106	96	17.25	25
Other (F-gases, waste, petroleum refining)	2	9	8	1	50
Land Use, Land-use Change and Forestry (LULUCF)	5	Reflecting the continued volatility for LULUCF baseline emissions to 2030 and beyond, CAP24 puts in place ambitious activity targets for the sector reflecting an EU-type approach.			
Total	68				
Unallocated Savings	-	-	26	-5.25	-
Legally Binding Carbon Budgets and 2030 Emission Reduction Targets	**-**	**295**	**200**	**-**	**51**

8.3.1.3 Policy

8.3.1.3.1 Greenhouse Gas Policy

In December 2023, CAP24 was published, establishing key actions to deliver a 51% reduction in GHG emissions by 2030 (compared to 2018 levels) and achieve climate neutrality by 2050 (Government of Ireland, 2023). The updated and current CAP25, published in April 2025 (Government of Ireland, 2025), builds on the progress of the previous four iterations of the CAP, with CAP23 first publishing carbon budgets and sectoral emission ceilings, and reaffirms Ireland's climate ambition, with a focus on delivery, implementation and measurable outcomes, particularly ahead of the second carbon budget period (2026–2030). 2025 is the last year in the first 5-year carbon budget period. During the initial 5-year budget period the average annual reduction required was 4.8%, this increases to 8.3% in the second budget period (2026-2030). CAP25 retains the high-impact sectors where the biggest savings can be achieved, while emphasising public sector leadership and green procurement. These sectors include renewable energy; energy efficiency of buildings; transport; sustainable farming; sustainable business; and land-use change.

CAP25 also includes targeted actions to decarbonise industrial heat and support the transition to carbon-neutral manufacturing processes. Public sector leadership is strengthened through a new *Buying Greener: Green Public Procurement Strategy and Action Plan* (2024–2027) (Government of

Ireland, 2024a) the development of mandatory Climate Action Roadmaps, and enhanced emissions monitoring and reporting across government operations. The government has reinforced the public sector's responsibility to lead by example, particularly through climate-proofing operations and sustainable procurement initiatives. To support innovation and ensure future economic resilience, IDA Ireland continues to attract and support businesses investing in climate technologies and low-carbon solutions.

CAP25 highlights a significant 17% reduction in electricity emissions in early 2024, with wind power supplying nearly 40% of Ireland's total electricity demand and over 100,000 rooftop microgenerators connected to the grid. Investments are ongoing in grid reinforcement, offshore wind development, and interconnectors with France and the UK to enhance renewable generation capacity. According to legal and policy analysts, these developments place Ireland among the top countries globally in per capita wind generation, while continuing to expand domestic and community-based renewable energy. EirGrid, Enterprise Ireland and IDA Ireland have recently signed an MoU to collectively support offshore wind development in Ireland.

CAP25 also reinforces targets first outlined in CAP24 to reduce the embodied carbon of construction materials, with a 10% reduction by 2025 and 30% reduction by 2030 for materials produced and used in Ireland. Cement and high embodied carbon construction materials can be reduced through product substitution, reduced clinker content in cement and uptake of low-carbon construction methods, including those outlined in the Construction Industry Federation 2021 report *Modern Methods of Construction* (Construction Industry Federation, 2021). There also remains scope for the construction industry to use more timber in construction. In 2022, 24% of new construction in Ireland was built using timber frames to satisfy the demand for housing. Public bodies are now required under the Public Sector Mandate to use best practice project design to reduce embodied carbon; procure concretes with clinker replacements (lower carbon); and require that large construction projects produce a whole life cycle GHG emissions assessment. Further guidance on how the built environment can contribute to a circular, low-carbon economy is detailed in the recently published *A Roadmap for a Resource Efficient Circular Built Environment.* This supports the Circular Economy And Miscellaneous Provisions Act 2022 (No. 26 of 2022), which allows for waste material to be safely and sustainably re-used as secondary raw materials and is particularly important for the construction sector.

Furthermore, CAP25 advances sector-specific measures in green procurement, electrification of transport and heat, and just transition (with the introduction of a Just Transition Commission) to support vulnerable communities and ensure equitable decarbonisation. While transport emissions increased by 0.3%, electric vehicles and the expanded use of biofuels are highlighted as the most effective short- to medium-term strategies for emissions reductions in the sector.

CAP25 also includes a key target of "at least 2 GW" of new flexible gas plant, intended to produce a *"more flexible energy system, reducing the strain on the power system, and ensuring that we maximise our renewables potential."* The Proposed Project will provide 0.325 GW or 0.334 GW of this capacity.

In April 2023, the Government published its *Long-Term Strategy on Greenhouse Gas Emissions Reductions* (Government of Ireland, 2024b). This strategy provides a long-term plan on how Ireland will transition towards net carbon zero by 2050, achieving the interim targets set out in the Climate Action Plan.

The Galway County Council (GCC) *Local Authority Climate Action Plan 2024-2029* (GCC, 2024) outlines GCC's goals to mitigate GHG emissions and plans to prepare for and adapt to climate change. Strategic Goal 4.2 Energy and Built Environment includes the following objectives relating to low carbon and renewable energy sources:

- Objective EB1: Support the development of renewable energy sources, such as offshore wind only, solar, tidal, and biomass in suitable locations.
- Objective EB2: Ensure the integration of climate action in spatial planning to enable the County of Galway to transition to a low carbon and resilient society.

8.3.1.3.2 Climate Change Vulnerability Policy

The second *National Adaptation Framework* (NAF) (Government of Ireland, 2024c) was published in June 2024 in line with the five-year requirement of the 2015 Climate Act. The plan provides a whole of government and society approach to climate adaptation in Ireland in order to reduce Irelands vulnerability to climate change risks including extreme weather events, flooding, drought, loss of biodiversity, sea level rise and increased temperatures. Similar to the "Just Transition" when considering carbon emissions, the NAF aims for "Just Resilience" stating that:

"A climate resilient Ireland will have a reduced reliance on fossil fuel, it will have widely accessible electrified public transport and will have transitioned towards sustainable agricultural practices such as agroforestry and organic farming."

The NAF highlights that there is a projected increased frequency of droughts, coupled with higher evapotranspiration rates, which could cause reduced river flow, groundwater recharge, and reservoir refill capacity, leading to potential water supply shortages. The NAF warns that national long-term water supply projects must be planned for within budgets to ensure the adaptation required to make Ireland resilient by 2050 and beyond is funded. With respect to the water sector the 2nd NAF states that the potential adaptation measures for the transport sector, which is led by the Department of Transport, are:

- Projected extreme precipitation may increase pluvial and fluvial flooding, impacting the transport sector with service disruptions, hazardous driving conditions, and bridge scour;
- Intensified windstorms may disrupt transport hubs, causing delays and cancellations, and affecting transport networks with fallen trees and debris;
- Sea level rise and intensified storms may significantly impact transport infrastructure in low-lying coastal areas, eroding coastlines, and estuaries; and
- Heatwaves and drought may degrade transport infrastructure, affecting road surfaces and rails, and require temperature control measures in hubs.

The *National Climate Change Risk Assessment* (NCCRA) was published in June 2025 (EPA, 2025c). The NCCRA was required to be developed under Action 457 from the 2021 CAP (Government of Ireland, 2021). Action 457 seeks to "Further develop Ireland's national climate change risk assessment capacity to identify the priority physical risks of climate change to Ireland'. The NCCRA uses definitions of the risk determinants from the Intergovernmental Panel on Climate Change (IPCC) Risk Framework (IPCC, 2023):

- **Hazard** - the potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources.
- **Exposure** - the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected.
- **Vulnerability** - the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity.
- **Risk** - the potential for adverse consequences for human or ecological systems.

When considering risk, the NCCRA assess exposure and vulnerability for two future climate change scenarios or Representative Concentration Pathways (RCPs):

- RCP4.5 was selected as it represents a scenario aligned with the global temperature trajectory
- RCP8.5 was selected as it represents a high-emissions scenario and achieves the highest level of modelled temperature increases by the end of the century. Consequently, this scenario will result in the highest level of physical risk for Ireland, and therefore the greatest requirement for adaptation.

These scenarios align with a conservative approach to assess risks to Ireland and assumes global emission reduction targets are not met. This aligns with the principle of precaution as stated in the NAF (Government of Ireland, 2024c). In addition to the future climate scenarios, the NCCRA assesses the risk from the future climate during the following timeframes:

- Present (~2030)
- Medium term (~2050)
- Long term (~2100)

8.3.2 Greenhouse Gas Assessment

As per the EU guidance document *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (European Commission, 2013) the climate baseline is first established with reference to EPA data on annual GHG emissions (Section 8.4.1).

8.3.2.1 Construction Phase

The GHG assessment has been conducted following the TII PE-ENV-01104 guidance (TII, 2022a). PE-ENV-01104 (TII, 2022) recommends the calculation of the construction stage GHG emissions, including embodied carbon, using the TII Online Carbon Tool (TII, 2025). Embodied carbon refers to the sum of the carbon needed to produce a good or service. It incorporates the energy needed in the mining or processing of raw materials, the manufacturing of products and the delivery of these products to site. The TII Online Carbon Tool (TII, 2025) has been commissioned by TII to assess GHG emissions associated with road or rail projects using Ireland-specific emission factors and data. However, the tool can be used to estimate the GHG emissions from other development types such as the Proposed Project as a number of the material types and activities are somewhat similar.

The purpose of the embodied carbon assessment is to engage the design team in the consideration of embodied carbon at an early stage in the project and mitigate embodied carbon. This engagement aims to ensure carbon savings are made and to assist in aligning the project to Ireland's CAP goal of Net Carbon Zero by 2050.

The TII Online Carbon Tool (TII, 2025) has been commissioned by TII to assess GHG emissions associated with road or rail projects in Ireland. The TII Carbon Tool (TII, 2025) uses emission factors from recognised sources including the Civil Engineering Standard Method of Measurement (CESSM) Carbon and Price Book database (CESSM, 2013), which can be applied to a variety of developments, not just road or rail. The tool aligns with PAS 2080.

The TII Carbon Tool has been used to assess the GHG emissions associated with site clearance works, excavation works, construction materials, material transport, energy usage, construction worker travel and construction waste for the Peaker Plant, the above ground installation (AGI) at Rathmorrissy, the GNI146 Rathmorrissy Gas Pipeline (i.e. underground gas pipeline) and the Underground Cable Grid Connection Route. Precautionary estimates have been used in this assessment where necessary to provide an estimate of the GHGs associated with the Proposed Project.

8.3.2.2 Operational Phase

8.3.2.2.1 Traffic Emissions

Emissions from road traffic associated with the Proposed Project have the potential to emit carbon dioxide (CO_2) which will impact climate.

The TII guidance *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022b), states that road links meeting one or more of the following criteria can be defined as being 'affected' by a Proposed Project and should be included in the local air quality assessment, and also the climate assessment. While the guidance is specific to infrastructure projects the approach can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more;
- A change in road alignment by 5 m or greater.

As per Chapter 7 – Air Quality, there are no road links in the vicinity of the Proposed Project that meet the above criteria. As a result a detailed assessment of traffic related carbon dioxide (CO_2) emissions was not conducted.

8.3.2.2.2 Operational Phase Energy/Fuel Usage

The TII Carbon Tool has also been used to assess the GHG emissions associated with energy usage by the AGI, and the GHG emissions associated with the fuel combusted by the turbine to generate power. The TII Carbon Tool incorporates the most recent figure for carbon intensity of electricity generation in Ireland of 226.3 gCO_2e/kWh (SEAI, 2025), which is applicable to the AGI energy use. The tool also incorporates the carbon intensity of natural gas in Ireland of 203.8 gCO_2e/kWh (SEAI, 2025), which is applicable to the fuel consumption by the turbine for power generation.

Depending on the technology that is used, the turbine will have a total output capacity of either 325MW or 334MW. Two operational scenarios have therefore been considered for this assessment. The hours of and type of operations is the same for both scenarios, only the total output capacity varies.

The GHG emissions associated with a total of 100 hours of operation by the turbine on natural gas to provide either 325MW or 334MW depending on the turbine have been quantified, as well as 72 hours of operation by the backup generator on low sulphur diesel fuel and 18 hours per year of testing of the backup generator on low sulphur diesel fuel. This constitutes the likely operational scenario.

It is proposed that the Peaker Plant will operate until 31 December 2050. The impact of GHG emissions has been considered for this operational lifespan.

8.3.2.3 Decommissioning Phase

The TII Carbon Tool has been used to assess the GHG emissions associated with the disposal of materials removed and transport of these materials site clearance works, as well as machinery use for the decommissioning of the Peaker Plant, the above ground installation (AGI) at Rathmorrissy, the GNI146 Rathmorrissy Gas Pipeline (i.e. underground gas pipeline) and the Underground Cable Grid Connection Route.

It has been assumed for the purposes of this assessment that material quantities removed are similar to the materials installed during the construction phase. Additionally it is noted that the GHG emission factors used in this assessment are based on the currently available information in the TII Carbon Tool, and that projected emission factors are not available for the time decommissioning will occur (it is proposed that the Peaker Plant will operate until 31 December 2050). However, current emission factors are considered precautionary, as national policy dictates GHG reductions through improvements in waste management and decarbonisation of transport and industry (among other sectors) are required for compliance with the net zero by 2050 trajectory.

8.3.2.4 Significance Criteria for GHGA

The Transport Infrastructure Ireland (TII) guidance document entitled *PE-ENV-01104 Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document* (TII, 2022a) outlines a recommended approach for determining the significance of the construction, operational and decommissioning phases of a development.

The significance of GHG effects set out in PE-ENV-01104 (TII, 2022a) is based on ISEP GHG Guidance (ISEP, 2022) which is consistent with the terminology contained within Figure 3.4 of the EPA's (2022) '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'*.

The ISEP GHG Guidance (ISEP, 2022) sets out the following principles for significance:

- When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible;
- Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and
- Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered.

The criteria for determining the significance of effects are a two-stage process that involves defining the magnitude of the impacts and the sensitivity of the receptors (i.e. Ireland's National GHG targets). In relation to climate, there is no project specific assessment criteria, but the project will be assessed against the recommended TII significance determination. This takes account of any embedded or committed mitigation measures that form part of the design which should be considered.

TII (TII, 2022a) states that professional judgement must be taken into account when contextualising and assessing the significance of a project's GHG impact. In line with ISEP GHG Guidance (ISEP, 2022), TII state that the crux of assessing significance is "*not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050".*

Significance is determined using the criteria outlined in Table 8.3 (derived from Table 6.7 of PE-ENV-01104 (TII 2022a)) along with consideration of the following two factors:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

Table 8.3 – Significance Criteria for GHGA

Effects	Significance Level	Description
Significant adverse	Major adverse	The project's GHG impacts are not mitigated. The project has not complied with do-minimum standards set through regulation, nor provided reductions required by local or national policies; and No meaningful absolute contribution to Ireland's trajectory towards net zero.
	Moderate adverse	The project's GHG impacts are partially mitigated. The project has partially complied with do-minimum standards set through regulation, and have not fully complied with local or national policies; and Falls short of full contribution to Ireland's trajectory towards net zero.
Not significant	Minor adverse	The project's GHG impacts are mitigated through 'good practice' measures. The project has complied with existing and emerging policy requirements; and Fully in line to achieve Ireland's trajectory towards net zero.
	Negligible	The project's GHG impacts are mitigated beyond design standards. The project has gone well beyond existing and emerging policy requirements; and Well 'ahead of the curve' for Ireland's trajectory towards net zero.
Beneficial	Beneficial	The project's net GHG impacts are below zero and it causes a reduction in atmosphere GHG concentration. The project has gone well beyond existing and emerging policy requirements; and Well 'ahead of the curve' for Ireland's trajectory towards net zero, provides a positive climate impact.

Ireland's carbon budgets can also be used to contextualise the magnitude of GHG emissions from the Proposed Project (TII, 2022a). The approach is based on comparing the net Proposed Project GHG emissions to the relevant carbon budgets (Government of Ireland, 2025a). With the publication of the Climate Action Act in 2021 and CAP25, sectoral carbon budgets have been published for comparison with the net GHG emissions from the Proposed Project over its lifespan.

8.3.3 Climate Change Risk Assessment (CCRA)

The assessment involves determining the vulnerability of the Proposed Project to climate change. This involves an analysis of the sensitivity and exposure of the project to climate hazards which together provide a measure of vulnerability.

PE-ENV-01104 (TII, 2022a) states that the CCRA is guided by the principles set out in the overarching best practice guidance documents:

- Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021a); and
- The Institute of Environmental Management and Assessment, Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (2nd Edition) (ISEP, 2020).

The baseline environment information provided in Section 8.4, future climate change modelling and input from other experts working on the Proposed Project (i.e. hydrologists) are used to assess the likelihood of a climate risk.

First an initial screening CCRA based on the operational phase is carried out, according to the TII guidance PE-ENV-01104. This is carried out by determining the sensitivity of Proposed Project assets (i.e. receptors) and their exposure to climate change hazards.

The Proposed Project asset categories must be assigned a level of sensitivity to climate hazards. PE-ENV-01104 (TII, 2022a) provides the list of asset categories and climate hazards to be considered. The asset categories will vary for development type and need to be determined on a development by development basis.

- Asset Categories Pavements; drainage; structures; utilities; landscaping; signs, light posts, buildings, and fences.
- Climate Hazards Flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; wildfire; drought; extreme wind; lightning and hail; landslides; fog.

The sensitivity is based on a High, Medium or Low rating with a score of 1 to 3 assigned as per the criteria below.

- High Sensitivity The climate hazard will or is likely to have a major impact on the asset category. This is a sensitivity score of 3.
- Medium Sensitivity It is possible or likely the climate hazard will have a moderate impact on the asset category. This is a sensitivity score of 2.
- Low Sensitivity It is possible the climate hazard will have a low or negligible impact on the asset category. This is a sensitivity score of 1.

Once the sensitivities have been identified the exposure analysis is undertaken. The exposure analysis involves determining the level of exposure of each climate hazard at the project location irrespective of the project type. For example, flooding could be a risk if the project location is next to a river in a floodplain. Exposure is assigned a level of High, Medium or Low as per the below criteria.

- High Exposure It is almost certain or likely this climate hazard will occur at the project location, i.e. might arise once to several times per year. This is an exposure score of 3.
- Medium Exposure It is possible this climate hazard will occur at the project location, i.e. might arise a number of times in a decade. This is an exposure score of 2.
- Low Exposure It is unlikely or rare this climate hazard will occur at the project location, i.e. might arise a number of times in a generation or in a lifetime. This is an exposure score of 1.

Once the sensitivity and exposure are categorised, a vulnerability analysis is conducted by multiplying the sensitivity and exposure to calculate the vulnerability.

8.3.3.1 Significance Criteria for CCRA

The CCRA involves an initial screening assessment to determine the vulnerability of the Proposed Project to various climate hazards. The vulnerability is determined by combining the sensitivity and the exposure of the Proposed Project to various climate hazards.

Vulnerability = Sensitivity x Exposure

The vulnerability assessment takes any proposed mitigation into account. Table 8.4 details the vulnerability matrix; vulnerabilities are scored on a high, medium and low scale.

TII guidance (TII, 2022a) and the EU technical guidance (European Commission, 2021a) note that if all vulnerabilities are ranked as low in a justified manner, no detailed climate risk assessment may be needed. Therefore, the impact from climate change on the Proposed Project can be considered to be not significant.

However, where residual medium or high vulnerabilities exist the assessment may need to be progressed to a detailed climate change risk assessment and further mitigation implemented to reduce risks. An assessment of construction and decommissioning phases CCRA impacts is only required according to the TII guidance (TII, 2022a) if a detailed CCRA is required.

Table 8.4 - Vulnerability Matrix

		Exposure		
		High (3)	**Medium (2)**	**Low (1)**
Sensitivity	**High (3)**	9 - High	6 – High	3 - Medium
	Medium (2)	6 - High	4 - Medium	2 - Low
	Low (1)	3 - Medium	2 – Low	1 - Low

The screening CCRA, detailed in Section 8.5.2.2, did not identify any residual medium or high risks to the Proposed Project as a result of climate change. Therefore, a detailed CCRA for the construction, operational and decommissioning phases was scoped out.

While a CCRA for the construction and decommissioning phases was not required, best practice mitigation against climate hazards are proposed in Section 8.7.1.

8.4 Receiving Environment

Climate is defined by the IPCC (IPCC, 2023) as the average weather over a period of time, whilst climate change is a significant change to the average weather. Climate change is a natural phenomenon but in the industrial age human activities, through the release of GHGs, have impacted on the climate (EPA, 2025b). The release of anthropogenic GHGs is altering the Earth's atmosphere resulting in a 'Greenhouse Effect'. This effect is causing an increase in the atmosphere's heat trapping abilities resulting in increased average global temperatures over the past number of decades. The release of CO_2 as a result of burning fossil fuels, has been one of the leading factors in the increase of the 'Greenhouse Effect'. The most significant GHGs are CO_2, methane (CH_4) and nitrous oxide (N_2O).

For the purposes of this assessment, the definition outlined in Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast), amended by Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652 (hereafter referred to as the Renewable Energy Directive) for GHGs has been used. In Annex V, C. Methodology Point 5 of the Renewable Energy Directive the relevant

GHGs are defined as CO_2, CH_4 and N_2O. CO_2 accounted for 61.1% of total GHG emissions in Ireland in 2023 while CH_4 and N_2O accounted for 28.9% and 8.8% respectively. The main source of CH_4 and N_2O is from the agricultural sector.

GHGs have different efficiencies in retaining solar energy in the atmosphere and different lifetimes in the atmosphere. In order to compare different GHGs, emissions are calculated on the basis of their Global Warming Potential (GWPs) over a 100-year period, giving a measure of their relative heating effect in the atmosphere. The IPCC AR6 Synthesis Report: Climate Change 2021 (IPCC, 2023) sets out the global warming potential for a 100-year time period (GWP100) for CO_2 as the basic unit (GWP = 1) whereas CH_4 has a global warming potential equivalent to 29.8 units of CO_2 (for fossil sources) and N_2O has a GWP100 of 273. These values have been refined since the AR5 report.

8.4.1 Current GHG Baseline

PE-ENV-01104 (TII, 2022a) states that a baseline climate scenario should identify, consistent with the study area for the project, GHG emissions without the project for both the current and future baseline.

Ireland declared a climate and biodiversity emergency in May 2019 and in November 2019 there was European Parliament approval of a resolution declaring a climate and environment emergency in Europe. This, in addition to Ireland's current failure to meet its EU binding targets under Regulation 2018/842 (European Union, 2018) (as amended) results in changes in GHG emissions either beneficial or adverse being of more significance than previously considered prior to these declarations.

Data published in July 2025 (EPA, 2025a), indicates that Ireland exceeded, without the use of flexibilities, its 2024 annual limit set under EU's Effort Sharing Decision (ESD) (406/2009/EC) by 1.03 Mt CO_2e. However, the 2024 emissions represent the second consecutive year in which Ireland's emission were below (-4.2%) 1990 levels. ETS (Emissions Trading Scheme) emissions decreased (-1.1%) and ESR (Effort Sharing Regulation) emissions decreased (-2.2%). Ireland's target is an emission reduction of 626 kt of CO_2e by 2030 on an average baseline of 2016 to 2018.

The EPA estimate that 2024 total national GHG emissions, excluding LULUCF, have decreased by 2.0% on 2023 levels to 53.82 Mt CO_2e, with a 0.7 Mt CO_2e (-8.9%) reduction in electricity industries alone. This was driven by a 39.7% share of energy from renewables in 2024 and the complete phase-out of peat for electricity generation. Manufacturing combustion and industrial processes decreased by 4.6% to 6.0 Mt CO_2e in 2024 due to declines in fossil fuel usage. The sector with the highest emissions in 2024 was agriculture at 37.9% of the total, followed by transport at 20.8%. For 2024, total national emissions (including LULUCF) were 57.53 Mt CO_2e (EPA, 2025a) (see Table 8.5).

The current estimates of National greenhouse gas emissions (including LULUCF) in 2024 are 12.0% below 2018, well off the National Climate ambition of a 51% reduction by 2030. The data indicate that from 2021- 2024 Ireland has used 79% (186 Mt CO_2e) of the 295 Mt CO_2e Carbon Budget for the five-year period 2021-2025. This leaves 21% of the budget available for 2025, requiring a substantial 17.5% annual emissions reduction for 2025 to stay within budget.

Table 8.5 – Trends in Total National GHG Emissions 2022 – 2024

Sector [Note 1]	2022	2023	2024	Total Budget (Mt CO_2e) (2021-2025)	% Budget 2021-2025 Used	Annual Change 2023 to 2024
Electricity	9.69	7.57	6.95	40	85.25%	-8.19%
Transport	11.76	11.8	11.65	54	85.74%	-1.27%
Buildings (Residential)	5.75	5.35	5.61	29	81.31%	4.86%
Buildings (Commercial and Public)	1.45	1.39	1.49	7	82.43%	7.19%
Industry	6.62	6.31	6.01	30	86.77%	-4.75%
Agriculture	21.78	20.72	20.41	106	80.05%	-1.50%
Other [Note 2]	1.93	1.81	1.63	9	80.33%	-9.94%
LULUCF	3.98	3.89	3.89	–	–	0
Total including LULUCF	**62.99**	**58.83**	**57.64**	**295**	**82.81%**	**-2.04%**

Note 1 Reproduced from latest emissions data on the EPA website (EPA, 2025a).

Note 2 Other includes Petroleum refining, F-Gases and Waste (emissions from solid waste disposal on land, solid waste treatment (composting and anaerobic digestion), wastewater treatment, waste incineration and open burning of waste).

8.4.2 Future GHG Baseline

The future baseline with respect to the GHGA can be considered in relation to the future climate targets which the assessment results will be compared against. In line with TII (TII, 2022) and ISEP GHG guidance (ISEP, 2022) the future baseline is a trajectory towards net zero by 2050, *"whether it* [the project] *contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050"*.

The future baseline will be determined by Ireland meeting its targets set out in the CAP25, and future CAPs, alongside binding 2030 and net zero by 2050 EU targets. In order to meet the commitments under the Paris Agreement, the European Union (EU) enacted *'Regulation (EU) 2018/842 on binding annual GHG emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No. 525/2013'* (hereafter referred to as the Regulation) (European Union, 2018). The Regulation aims to deliver, collectively by the EU in the most cost-effective manner possible, reductions in GHG emissions from the Emission Trading Scheme (ETS) and non-ETS sectors amounting to 43% and 30%, respectively, by 2030 compared to 2005. The Regulation was amended in April 2023 and Ireland must now limit its greenhouse gas emissions by at least 42% by 2030. The ETS is an EU-wide scheme which regulates the GHG emissions of larger industrial emitters including electricity generation, cement manufacturing and heavy industry. The non-ETS sector includes all domestic GHG emitters which do not fall under the ETS scheme and thus includes GHG emissions from transport, residential and commercial buildings and agriculture.

In May 2025, the EPA released the report *Ireland's Greenhouse Gas Emissions Projections 2024-2055* (EPA, 2025b), which includes total projected emissions and a breakdown of projected emissions per sector under the 'With Existing Measures' and 'With Additional Measures' scenarios. The EPA projections indicate that currently implemented measures (With Existing Measures) will achieve a reduction of 10% on 2005 levels by 2030, significantly short of the 42% reduction target. If measures in the higher ambition (With Additional Measures) scenario are implemented, EPA projections show that Ireland can achieve a reduction of 22% by 2030, still short of the 42% reduction target.

8.4.3 Current CCRA Baseline

The region of the Proposed Project has a temperate, oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Shannon Airport is the nearest, representative, weather and climate monitoring station to the Proposed Project with meteorological data recorded for the 30-year period from 1991 to 2020. The historical regional weather data for Shannon Airport meteorological station is considered representative of the current climate in the region of the Proposed Project. The data for the 30-year period from 1991 to 2020 indicates that the wettest months at Shannon Airport meteorological station were November and December, and the driest month on average was April (Met Éireann, 2024b). July was the warmest month with a mean temperature of 19.5 Celsius. January was the coldest month with a mean temperature of 8.9 Celsius.

Met Éireann's 2024 Climate Statement (Met Éireann, 2025) states 2024's average shaded air temperature in Ireland is provisionally 10.72°C, which is 1.17°C above the 1961-1990 long-term average. This makes 2024 the fourth warmest year on record, 0.49 °C cooler than 2023, the warmest year on record. The majority of annual rainfall totals across the country were below their Long-Term Average 1981-2010. Six stations (Mace Head, Co. Galway, Sherkin Island, Co. Cork, Dunsany, Co. Meath, Gurteen, Co. Tipperary, Athenry, Co. Galway and Finner, Co. Donegal) had their highest mean wind for August on record (record lengths ranging between 13 and 20 years). (see Figure 8-1).

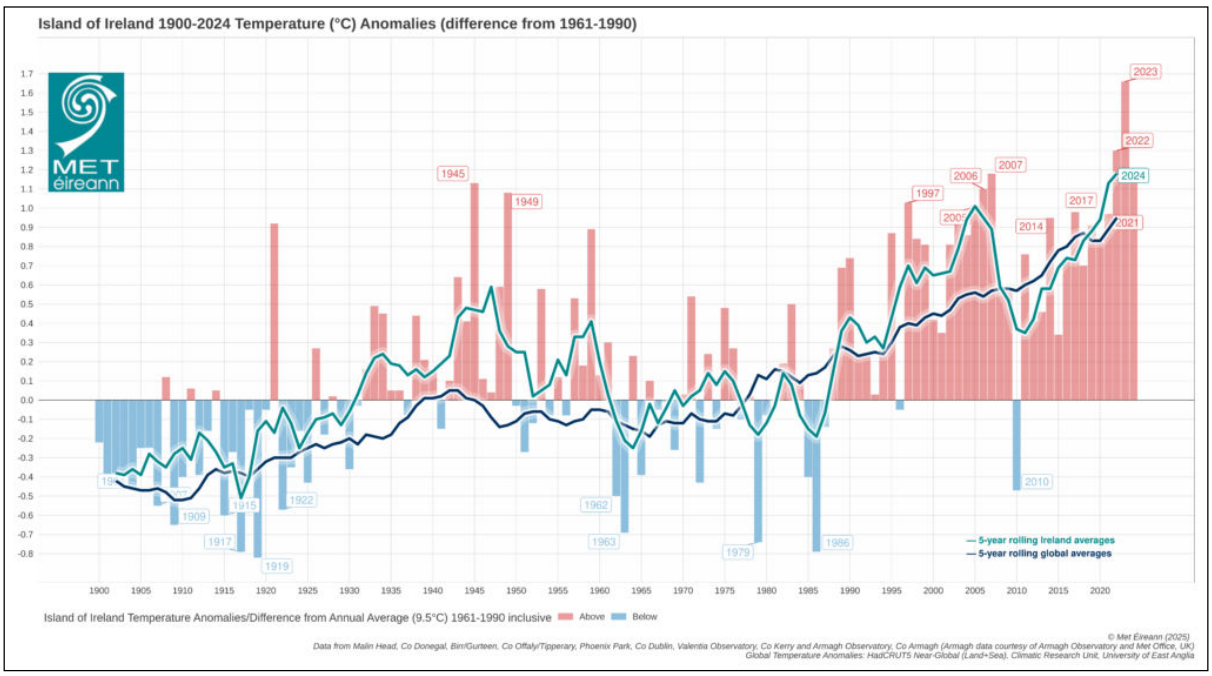


Figure 8-1 – 1900-2024 Temperature (°C) Temperature Anomalies (differences from 1961-1990)

Recent weather patterns and records of extreme weather events recorded by Met Éireann have been

reviewed. Considering the 2024 data, Met Éireann states that the latest Irish climate change projections indicate further warming in the future, including warmer winters. The record temperatures mean the likelihood of extreme weather events occurring has increased. This will result in longer dry periods and heavy rainfall events. Storm surges and coastal flooding due to sea level rise. Compound events, where coastal surges and extreme rainfall events occur simultaneously will also increase. Met Éireann has high confidence in maximum rainfall rates increasing but not in how the frequency or intensity of storms will change with climate change.

8.4.4 Future CCRA Baseline

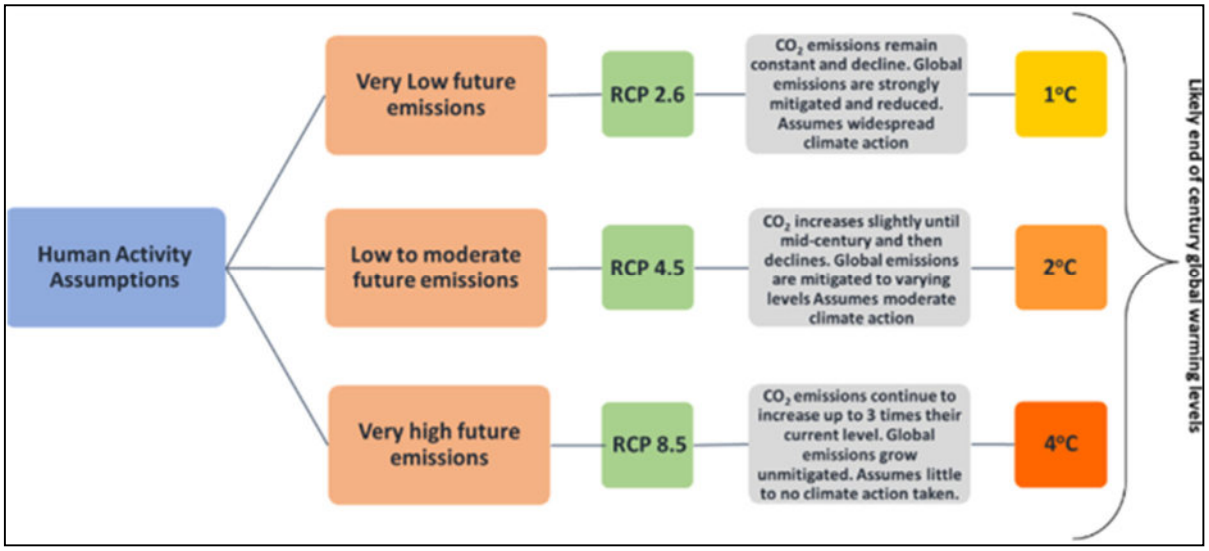
Impacts as a result of climate change will evolve with a changing future baseline, changes have the potential to include increases in global temperatures and increases in the number of rainfall days per year. Therefore, it is expected that the baseline climate will evolve over time and consideration is needed with respect to this within the design of the Proposed Project.

Ireland has seen increases in the annual rainfall in the north and west of the country, with small increases or decreases in the south and east (EPA, 2021b). The EPA have compiled a list of potential adverse impacts as a result of climate change including the following which may be of relevance to the Proposed Project (EPA, 2021b):

- More intense storms and rainfall events;
- Increased likelihood and magnitude of river and coastal flooding;
- Water shortages in summer in the east;
- Adverse impacts on water quality; and
- Changes in distribution of plant and animal species.

TII's Guidance document PE-ENV-01104 (TII, 2022a) states that for future climate change a moderate to high Representative Concentration Pathways (RCP) should be adopted. RPC4.5 is considered moderate, while RPC8.5 is considered high. Representative Concentration Pathways (RCPs) describe different 21st century pathways of GHG emissions depending on the level of climate mitigation action undertaken.

National Framework for Climate Services (NFCS) was founded in June 2022 to streamline the provision of climate services in Ireland and will be led by Met Éireann. The aim of the NFCS is to enable the co-production, delivery and use of accurate, actionable and accessible climate information and tools to support climate resilience planning and decision making. In addition to the NFCS, further work has been ongoing into climate projects in Ireland through research under the TRANSLATE project. TRANSLATE (Met Éireann, 2024a) has been led by climate researchers from University of Galway – Irish Centre for High End Computing (ICHEC), and University College Cork – SFI Research Centre for Energy, Climate and Marine (MaREI), supported by Met Éireann climatologists. TRANSLATE's outputs are produced using a selection of internationally reviewed and accepted models from both CORDEX and CMIP5. Representative Concentration Pathways (RCPs) provide a broad range of possible futures based on assumptions of human activity. The modelled scenarios include for "least" (RCP2.6), "more" (RCP4.5) or "most" (RCP8.5) climate change, see Figure 8-2.

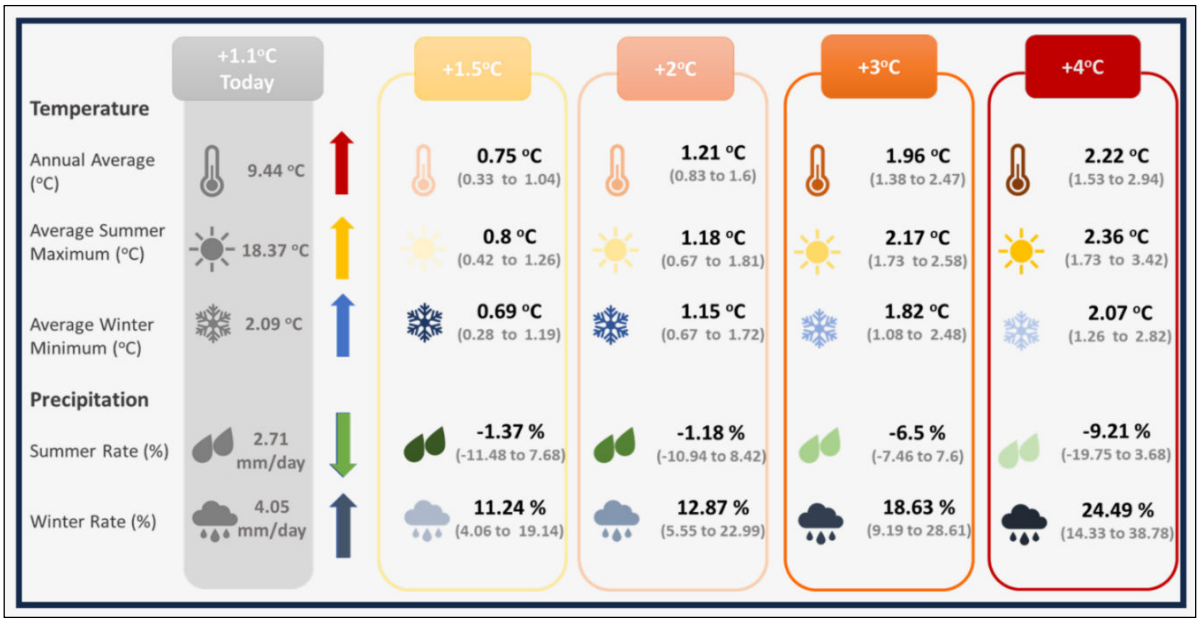


*Source: TRANSLATE project storymap (*Met Éireann, *2024a)*

Figure 8-2 – Representative Concentration Pathways associated emission levels

TRANSLATE (Met Éireann, 2024c) provides the first standardised and bias-corrected national climate projections for Ireland to aid climate risk decision making across multiple sectors (for example, transport, energy, water), by providing information on how Ireland's climate could change as global temperatures increase to 1.5˚C ,2˚C, 2.5˚C, 3˚C or 4˚C. Projections broadly agree with previous projections for Ireland. Ireland's climate is dominated by the Atlantic Meridional Overturning Circulation (AMOC), a large system of ocean currents – including the Gulf Stream – characterised by a northward flow of warm water and a southward flow of cold water. Due to the AMOC, Ireland does not suffer from the extremes of temperature experienced by other countries at a similar latitude. Recent studies have projected that the AMOC could decline by 30 – 40 % by 2100, resulting in cooler North Atlantic Sea surface temperatures (SSTs) (Met Éireann, 2024c).

Met Éireann projects that Ireland will nevertheless continue to warm, although the AMOC cooling influence may lead to reduced warming compared with continental Europe. AMOC weakening is also expected to lead to additional sea level rise around Ireland. With climate change Ireland's temperature and rainfall will undergo more and more significant changes e.g. on average summer temperature could increase by more than 2°C, summer rainfall could decrease by 9% while winter rainfall could increase by 24% (See Figure 8-3). Future projects also include a 10-fold increase in the frequency of summer nights (values > 15°C) by the end of the century, a decrease in the frequency of cold winter nights and an increase in the number of heatwaves. A heatwave in Ireland is defined as a period of 5 consecutive days where the daily maximum temperature is greater than 25°C.



*Source: TRANSLATE project storymap (*Met Éireann, *2024c)*

Figure 8-3 – Change of climate variables for Ireland for different global warming thresholds

The TRANSLATE research report (Met Éireann, 2024c) finds that night-time temperatures will warm more than day-time temperatures, with temperatures increases across all seasons but the highest in the summer (with an increase of 0.5°C to 3.5°C). Autumn is projected to have the highest increase in average minimum temperatures (with an increase of 1.1°C to 4.4°C). The variance is dependent on the scenario that is being reviewed. While these temperatures are projected across all of Ireland, they increase most in the east of the country compared to the west. With respect to rainfall, increases of 4% to 38% are projected, however this will not be spread across the year as during summer months there are projected decreases in rainfall beyond the 2°C warming scenario.

In January 2024 the EPA published *Ireland's Climate Change Assessment Synthesis Report* (EPA, 2024e) which contained four volumes:

- Volume 1: Climate Science: Ireland in a Changing World
- Volume 2: Achieving Climate Neutrality by 2050
- Volume 3: Being Prepared for Ireland's Future Climate
- Volume 4: Realising the Benefits of Transition and Transformation

This report reinforces the existing and future risks arising from climate change. Volume 1 (EPA, 2024e) states that under Early action, the temperature increase averaged across the island of Ireland relative to the recent past (1976 to 2005) would reach 0.91°C (0.44 to 1.10°C) by mid-century before falling back to 0.80°C (0.34 to 1.07°C) at the end of the century. Whereas under Late action, by the end of the century it is projected that the temperature increases could be 2.77°C (2.02 to 3.49°C). Heat extremes will become more frequent and more severe and cold extremes will become less frequent and less severe with further warming.

Precipitation was 7% higher over the period 1991 to 2020 than over the 1961 to 1990 period. The average future predicted increase in precipitation is <10% in annual mean accumulated. By 2100 projected additional rises in sea level range from 0.32 to 0.6m under early action to 0.63 to 1.01m under late action scenarios, with greater storm surges potentially effecting critical infrastructure along the coastline. Projections of changes in storminess are highly uncertain and translate into large uncertainties in future frequency and intensity of extreme waves.

Volume 3 of *Ireland's Climate Change Assessment Synthesis Report* (EPA, 2024e) discusses how water supplies will face growing pressures resulting in increased water demand and how options need to be developed, including potential new sources. The report states the key role of critical infrastructure for delivering public services, economic development and a sustainable environment. These are exposed to a range of climate extremes. Failures in critical infrastructure can cascade across other sectors and present a multi-sector risk due to climate change.

The report references the EPA's *Critical Infrastructure Vulnerability to Climate Change* report (EPA, 2021a) as the most substantial research project in Ireland to date on climate change and critical infrastructure which assesses the future performance of Ireland's critical infrastructure when climate is considered. The Critical Infrastructure Vulnerability to Climate Change report states with respect to water availability and quality, that flood risk and heatwaves have a medium vulnerability index and the underground supply network has a high vulnerability to snowstorms and cold spells. However, while the vulnerability is high, the exposure is likely to reduce due to future climate change resulting in less cold weather events. The risk assessment highlights the co-dependence of the water sector to the energy sector, and how vulnerability in the energy sector may have cascading impacts.

Volume 4 (EPA, 2024e) calls for system change, including a transformation of urban settings. Stating that meaningful urban transformation can create a better living environment while simultaneously reducing emissions.

8.5 Potential Impact of the Proposed Project

8.5.1 Greenhouse Gas Assessment

8.5.1.1 Construction Phase

The most significant proportion of GHG emissions tend to occur during the construction phase as a result of embodied carbon in construction materials and GHG emissions from construction activities (Section 8.3.2.1 and Table 8.6 for details).

The construction phase of the Proposed Project is predicted to result in 1,919 tCO_2e (96 tCO_2e annualised). The GHG assessment has highlighted the areas where the highest GHG emissions occur during the construction phase. Construction materials (backfill material, site road materials and cement) result in the majority of GHG emissions for the Proposed Project, at approximately 61% of the total construction phase GHG emissions. Fuel usage by construction plant and generators make the second highest contribution at 24%. The total construction phase emissions have also taken into account the reuse of the majority of excavated material onsite, which represents emissions savings of 363 tCO_2e.

8.5.1.2 Operational Phase

The operational phase of the Proposed Project is predicted to result in between 21,299 and 21,779 tCO_2e. The majority of GHG emissions associated with the operational phase, and the overall lifespan, of the Proposed Project, originate from the combustion of natural gas by the turbine (assumed to occur 100 hours per year for this assessment). Operational phase site energy demand and power generation accounts for approximately 99% of the total annualised emissions associated with the Proposed Project.

8.5.1.3 Decommissioning Phase

The decommissioning phase of the Proposed Project is predicted to result in 5,562 tCO_2e (278 tCO_2e annualised), 92% of which is due to transport of waste material to a disposal facility.

8.5.1.4 Total GHG Emissions Over Project Lifespan

Figure 8-4 and Table 8.6 show the GHG emissions for the Proposed Project per life-cycle stage based on the output from the TII Carbon Tool.

The total annualised GHG emissions for the Proposed Project is predicted to be between 21,673 and 22,153 tonnes CO_2e.

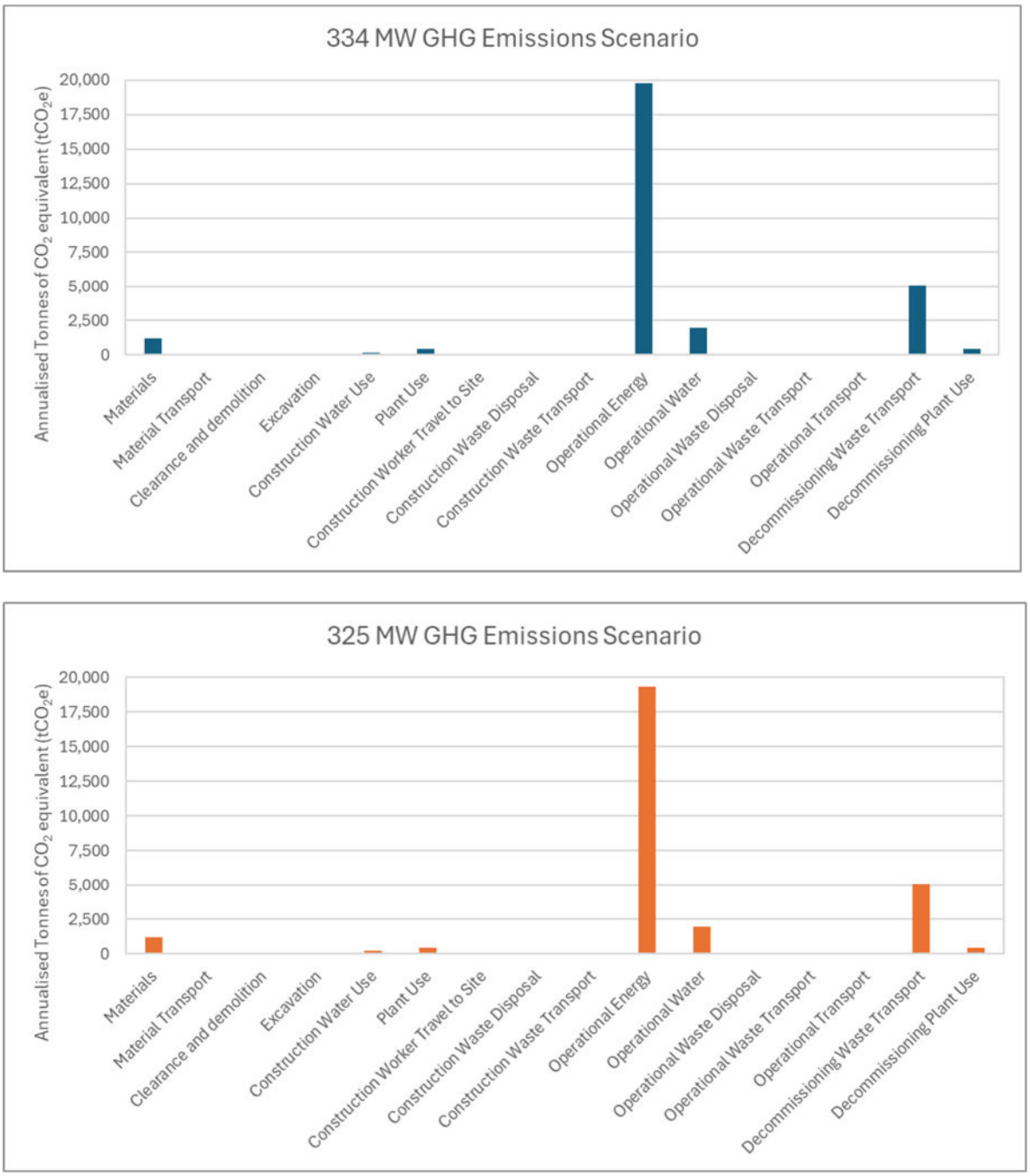


Figure 8-4 – Greenhouse Gas Emissions by Activity

Table 8.6 GHG Assessment Results

GHG Assessment Category	Elements Considered	Predicted GHG Emissions (tCO_2e)		Relevant Sector for Carbon Budget Comparison
		325 MW Scenario	334 MW Scenario	
Construction Phase				
Materials	Aggregates and other fill material, plastic pipework and cabling, concrete, road pavement materials (e.g. asphalt), steel, geotextiles, timber	1,175	1,175	Industry
Material Transport	HGV and LGV trips	2	2	Transport
Clearance and demolition	Site preparation and clearance	4.3	4.3	Industry
Excavation	Rock, topsoil and other excavation	26	26	Industry
Construction Water Use	Water used during construction	187	187	Industry
Plant Use	Fuel usage by plant operation (low sulphur diesel generators)	453	453	Electricity
Construction Worker Travel to Site	Car trips	70	70	Transport
Construction Waste Disposal	Mixed construction and demolition waste	2	2	Waste
Construction Waste Transport	Transport of waste offsite. Waste will be taken from the site by HGV. Distance to destination waste management facility estimated at 17 -32 km (per trip) from the site.	1	1	Transport
Operational Phase				
Operational Energy	Electricity demand by site buildings (per year) and natural gas use (100 hrs per year) by turbine and backup generator (72 hrs per year), and low sulphur diesel use by testing of backup generator (18 hrs per year)	19,320	19,800	Electricity
Operational Water	Operational water use (per year)	1,959	1,959	Industry
Operational Waste Disposal	Disposal of waste (per year)	0.3	0.3	Waste

GHG Assessment Category	Elements Considered	Predicted GHG Emissions (tCO_2e)		Relevant Sector for Carbon Budget Comparison
		325 MW Scenario	334 MW Scenario	
Operational Waste Transport	HGV trips, assuming 32 km travel distance per trip (per year)	0.1	0.1	Transport
Operational Transport	Vehicle movements (other than waste disposal HGV) (per year)	19	19	Transport
Decommissioning Phase				
Decommissioning Plant Use	Fuel usage by plant operation	453	453	
Decommissioning Waste Transport	HGV trips, assuming 30 km travel distance per trip.	5,109	5,109	
Totals				
		325 MW Scenario	**334 MW Scenario**	
Total Construction Phase		1,919 tCO_2e (96 tCO_2e annualised over lifespan)	1,919 tCO_2e (96 tCO_2e annualised over lifespan)	
Total Operational Phase		21,299 tCO_2e (annually)	21,779 tCO_2e (annually)	
Total Decommissioning Phase		5,562 tCO_2e (278 tCO_2e annualised over lifespan)	5,562 tCO_2e (278 tCO_2e annualised over lifespan)	
Total GHG Emissions		21,673 tCO_2e (construction + operation, annualised)	22,153 tCO_2e (construction + operation, annualised)	

The GHG emissions from the project as a total cannot be compared against one specific sector 2030 carbon budget. The emissions are broken down into different assessment categories and these must be compared separately to the relevant sectoral emissions budget. The predicted GHG emissions (as shown in Table 8.6) have been averaged over the full lifespan of the Proposed Project to give the predicted annual emissions to allow for direct comparison with national annual emissions and targets.

In Table 8.7, GHG emissions have been compared against the carbon budget for the industry, transport and waste sectors in 2030 (Government of Ireland, 2025), against Ireland's total GHG emissions in 2024, against Ireland's EU 2030 target of a 42% reduction in non-ETS sector emissions based on 2005 levels (27.7 Mt CO_2e) (set out in Regulation EU 2018/842 of the European Parliament and of the Council) and against Ireland's EU 2030 target of a 42% reduction in ETS sector emissions based on 2005 levels (12.9 Mt CO_2e) (Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading and amending Council Directive 96/61/EC (as amended)).

The estimated total GHG emissions, when annualised over the Proposed Project lifespan, are equivalent to 0.04% of Ireland's total GHG emissions in 2024. The total annualised energy use and generation emissions are between 0.1% and 0.2% of Ireland's ETS 2030 emissions target and 1% of the Electricity sector budget. Total annualised industry-related emissions are 0.002% of Ireland's non-

ETS 2030 emissions target and 0.004% of the 2030 Industry budget. The estimated annualised GHG emissions associated with transport-related activities are 0.005% of the 2030 Transport budget, while annualised waste GHG emissions are 0.001% of the Waste budget.

Table 8.7 Estimated GHG Emissions Relative to Sectoral Budgets and GHG Baseline

Target/Sectoral Budget (tCO_2e)		Proposed Development	Annualised Development GHG Emissions (tCO_2e)		% of Relevant Target/ Budget	
			325 MW	334 MW	325 MW	334 MW
Ireland's 2024 Total GHG Emissions (existing baseline)	58,896,000	Total GHG Emissions	23,218	21,874	0.04%	0.04%
Non-ETS 2030 Target	27,721,670	Total GHG Emissions (non electricity)	478	478	0.002%	0.002%
ETS 2030 Target	12,953,240	Total GHG Emissions (electricity)	19,365	19,845	0.1%	0.2%
2030 Sectoral Budget (Industry Sector)	4,000,000	Total Industry Emissions	168	168	0.004%	0.004%
2030 Sectoral Budget (Transport Sector)	6,000,000	Total Transport Emissions	301	301	0.005%	0.005%
2030 Sectoral Budget (Electricity Sector)	3,000,000	Total Electricity Emissions	19,365	19,845	1%	1%
2030 Sectoral Budget (Waste Sector)	1,000,000	Total Waste Emissions	10	10	0.001%	0.001%

With the implementation of the *Pathway to a Net Zero Carbon Network* (GNI, 2024) and the *National Biomethane Strategy* (Government of Ireland, 2024d), it is likely that emissions from the operational phase will reduce as the proportion of biomethane in the national gas grid increases. However due to uncertainties in carbon intensity of biomethane production, the reduction in GHG emissions from the operational phase of the proposed development has not been quantified. A discussion of the future emissions reductions due to the *Pathway to a Net Zero Carbon Network* and the *National Biomethane Strategy* has been included in Section 8.11 for context.

8.5.1.5 GHGA Significance of Effects

The TII guidance states that the following two factors should be considered when determining significance:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

The level of mitigation described in Section 8.7 has been taken into account when determining the significance of the Proposed Project's GHG emissions. The Proposed Project is fully in line with national climate policy, as CAP25 specifically gives a key target of installing "at least 2 GW" of new flexible gas plant, intended to produce a *"more flexible energy system, reducing the strain on the power system, and ensuring that we maximise our renewables potential."* The Proposed Project will provide 0.325 GW or 0.334 GW of this capacity. According to the TII significance criteria described in Section 8.3.2.3 and Table 8-3, the significance of the GHG emissions during the construction, operational and decommissioning phases is minor adverse. The Proposed Project has mitigated GHG impacts and is fully in line with Ireland's national climate policy and its trajectory towards net zero.

In accordance with the EPA guidelines (EPA, 2022), the above significance equates to a significance of effect of GHG emissions during the construction, operational and decommissioning phases which is ***direct, long-term, negative*** and ***slight***, which is overall ***not significant***.

8.5.2 Climate Change Risk Assessment

8.5.2.1 Construction and Decommissioning Phases

A detailed CCRA of the construction and decommissioning phases has been scoped out, as discussed in Section 8.3.3, which states that where there are no residual medium or high risk vulnerabilities to climate change hazards. Therefore, a detailed CCRA is not required (TII, 2022a). However, consideration has been given to the Proposed Project's vulnerability to the following climate change hazards with best practice mitigation measures proposed in Section 8.7.1:

- Flood Risk due to increased precipitation, and intense periods of rainfall. This includes fluvial and pluvial flooding;
- Increased temperatures potentially causing drought, wildfires and prolonged periods of hot weather;
- Reduced temperatures resulting in ice or snow; and
- Major Storm Damage including wind damage.

8.5.2.2 Operational Phase

The sensitivity and exposure of the project to various climate hazards must first be determined to then determine the vulnerability of the Proposed Project to climate change. Flooding (coastal, pluvial, fluvial), extreme heat, extreme cold, wildfire, drought, extreme wind, lightning, hail, landslides and fog have been considered as climate hazards in the context of the Proposed Project.

The sensitivity of the Proposed Project to the climate hazards is assessed irrespective of the project details the sensitivity of the Proposed Project on a scale of high (3), medium (2) and low (1). Once the sensitivity has been established the exposure of the Proposed Project to each of the climate hazards is determined, this is the likelihood of the climate hazard occurring at the project location and is also scored on a scale of high (3), medium (2) and low (1). The product of the sensitivity and exposure is then used to determine the overall vulnerability of the Proposed Project to each of the climate hazards as per Table 8.4. The results of the vulnerability assessment are detailed in Table 8.8.

Table 8.8 – Climate Change Vulnerability Assessment

Climate Hazard	Sensitivity	Exposure	Vulnerability
Flooding (Coastal, Pluvial, Fluvial)	1 (Low)	2 (Medium)	2 (Low)
Extreme Heat	1 (Low)	2 (Medium)	2 (Low)
Extreme Cold	1 (Low)	2 (Medium)	2 (Low)
Wildfire	1 (Low)	1 (Low)	1 (Low)
Drought	1 (Low)	1 (Low)	1 (Low)
Extreme Wind	1 (Low)	1 (Low)	1 (Low)
Lightning & Hail	1 (Low)	1 (Low)	1 (Low)
Landslides	1 (Low)	1 (Low)	1 (Low)
Fog	1 (Low)	1 (Low)	1 (Low)

The sensitivity and exposure of the area was determined with reference to a number of online tools and with input from the various discipline specialists on the project team. It was concluded that the Proposed Project does not have any significant vulnerabilities to the identified climate hazards as described in the below sections. All vulnerabilities are classified as low.

Flooding

Increased rainfall in future years as a result of climate change has the potential to result in flooding. A Stage 1 Flood Risk Assessment (FRA) for the Proposed Project was undertaken by AtkinsRéalis and is submitted as part of this planning application. The FRA states that the Proposed Project is located within Flood Zone C and is therefore not at risk of fluvial flooding.

As per the FRA the flood risk management strategy devised for the Proposed Project comprises of:

- The design for the storm-water drainage for the proposed site is to take into consideration all other standards for drainage design;
- Suitable Sustainable Urban Drainage systems (SUDs) are to be used within the proposed site to reduce surface water runoff from the site where feasible and designed in accordance with the relevant standards.

Additionally the FRA concludes the project is not at significant risk of pluvial or groundwater flooding, and that no historic risk of flooding was identified at the Proposed Project site.

Extreme Wind, Fog, Lightning & Hail

In relation to extreme winds, the buildings shall be designed to the appropriate standards to account for the relevant wind loadings events for RCP4.5 and RCP8.5. If required as part of the building design, lightning protection shall be provided for. Hail and fog are not predicted to significantly affect any structures due to their design.

Wildfires

In relation to wildfires, the *Think Hazard!* tool developed by the Global Facility for Disaster Reduction and Recovery (GFDRR, 2025), indicates that the wildfire hazard is classified as medium for the Galway

area. This means that there is between a 10% to 50% chance of experiencing weather that may cause disruptions and low but tangible risk of life and property loss in any given year. Future climate modelling indicates that there could be an increase in the weather conditions which are favourable to fire conditions, these include increases in temperature and prolonged dry periods. However, due to the project location in a predominantly agricultural area, adjacent to two motorways, the risk of wildfire is significantly lessened and it can be concluded that the Proposed Project is of low vulnerability to wildfires.

Landslides

The Geological Society of Ireland (GSI) landslide susceptibility mapping database (GSI, 2025) was reviewed to determine the risk from landslides at the Proposed Project. There have not been any historical landslide events in the vicinity of the Proposed Project and the area is of low susceptibility to future landslides. Therefore, landslides are not a risk for the Proposed Project site. Full details of the effects which the Proposed Project will have on land, soils and geology are provided in Chapter 11 Land, Soils and Geology of the EIAR.

Extreme Temperatures (Heat & Cold) & Drought

In relation to extreme temperatures, both extreme heat and extreme cold, these have the potential to impact the building materials and some related infrastructure. However, building materials will be selected which meet the relevant design standards and which are account for extreme temperatures. Therefore, extreme temperatures are not considered a significant risk.

Summary

Overall, the Proposed Project has at most low vulnerabilities to the identified climate hazards. Therefore, no detailed risk assessment is required.

8.5.2.3 CCRA Significance of Effects

With design mitigation in place, there are no significant risks to the Proposed Project as a result of climate change. In accordance with the EPA Guidelines (EPA, 2022), the significance of effect of the impacts to the Proposed Project as a result of climate change are ***direct, long-term, negative*** and ***imperceptible***, which is overall ***not significant*** in EIA terms.

8.6 Do Nothing Scenario

In the Do Nothing scenario, the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from potential new developments in the surrounding area, changes in road traffic, etc).

As the site is zoned for development, it is likely that in the absence of the Proposed Project a development of a similar nature would occur in the future. Therefore, similar greenhouse gas emissions associated with the construction and operation phases are likely to occur regardless of the specific Proposed Project, and potentially also similar decommissioning phase greenhouse gas emissions depending on the nature of the project. Climate change is being driven by broader, long-term global trends in greenhouse gas concentrations, which will continue irrespective of any localised development.

The Proposed Project fulfils a key target of the CAP25 of “at least 2 GW” of new flexible gas plant, intended to produce a *“more flexible energy system, reducing the strain on the power system, and*

ensuring that we maximise our renewables potential." The Proposed Project will provide 0.325 GW or 0.334 GW of this capacity. In the Do Nothing, where the Proposed Project does not go ahead, this capacity is not provided and Ireland's ability to meet this CAP25 target as well as its trajectory to net zero by 2050 is impeded.

8.7 Mitigation Measures

8.7.1 Construction Phase

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. During the construction phase the following best practice measures will be implemented on site to minimise GHG emissions and reduce impacts to climate:

- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. A construction waste management plan will be implemented to minimise construction waste sent to landfills. Recycling of materials will be promoted to and reduce the environmental footprint of the site. The majority of excavated material will be reused on site, which represents emissions savings of approx. 363 tCO_2e.
- Sourcing materials locally will be prioritised. This will help to reduce transport related CO_2 emissions and helps support local suppliers, further promoting economic sustainability.
- Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible.

In terms of impact on the Proposed Project due to climate change, during construction the Contractor will prepare site risk assessments and method statements prior to commencement of works which will assess the risk of extreme rainfall/flooding, extreme wind/storms, temperature extremes, fog, lighting and hail to the construction works areas, which will set out how the works will be carried out to avoid or minimise any of the risks identified in the risk assessment. Temperatures can affect the performance of some materials, and this will require consideration during construction. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures.

8.7.2 Operational Phase

There are no specific measures proposed to mitigate the GHG emissions of the operational phase of the proposed project.

In terms of climate change vulnerability, a number of measures have been adopted as part of the project design, primarily in terms of reducing risk to the project from climate change hazards. These have been discussed in detail previously in Section 8.5.2.2, and summarised as follows:

- The design for the storm-water drainage for the proposed site is to take into consideration all other standards for drainage design;
- Suitable Sustainable Urban Drainage systems (SUDs) are to be used within the proposed site to reduce surface water runoff from the site where feasible and designed in accordance with the relevant standards; and

- High quality, durable building materials will be selected for the Proposed Project to reduce their sensitivity to extreme temperatures.

8.7.3 Decommissioning Phase

Transport of waste materials, plant use for material removal and disposal of materials themselves will be the primary sources of climate impacts during the decommissioning phase. During the decommissioning phase the following best practice measures will be implemented on site to minimise GHG emissions and reduce impacts to climate:

- Building and structural materials will be removed from site by licenced contractors for potential re-use in as much as the legislation allows and viable commercial options exist.
- Concrete foundations and roads will be broken by mechanical means and removed off-site by licenced contractors for potential re-use in as much as the legislation allows and viable commercial options exist.
- At the end of life of the plant, unused fuel, fluids and chemicals will be removed from site and sold for re-use or repurposed within the operator's other facilities. If no viable re-use option exists, the fluids will be removed by a licenced waste contractor for processing in a suitable treatment plant.
- Process equipment will be removed and repurposed with the operator's other facilities if possible or will be sold to the used equipment market where such demand exists. If there is no viable re-use option the equipment components will be removed to licenced recycling facilities and recycled as much as is possible.
- The Peaker Plant will also be regulated by the EPA under an Industrial Emissions licence, and in accordance with this Licence the Licensee will prepare and maintain an Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP).

In terms of impact on the Proposed Project due to climate change, during decommissioning the Contractor will prepare site risk assessments and method statements prior to commencement of works which will assess the risk of extreme rainfall/flooding, extreme wind/storms, temperature extremes, fog, lighting and hail to the construction works areas, which will set out how the works will be carried out to avoid or minimise any of the risks identified in the risk assessment.

8.8 Residual Effects

The impact to climate as a result of a Proposed Project must be assessed as a whole for all phases. The Proposed Project will result in some impacts to climate through the release of GHGs. TII reference the ISEP GHG Guidance which states that the crux of assessing significance is "*not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050*". The Proposed Project has proposed some best practice mitigation measures and is committing to reducing climate impacts where feasible. The Proposed Project is fully in line with national climate policy, as CAP25 specifically gives a key target of installing "at least 2 GW" of new flexible gas plant, intended to produce a *"more flexible energy system, reducing the strain on the power system, and ensuring that we maximise our renewables potential."* The Proposed Project will provide 0.325 GW or 0.334 GW of this capacity. As per the assessment criteria in Table 8-3 the residual effect of the Proposed Project in relation to GHG emissions is considered ***direct, long-term, negative*** and ***slight***, which is overall ***not significant*** in EIA terms.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the

Proposed Project as a result of climate change. The residual effect of climate change on the Proposed Project is considered ***direct, long-term, negative*** and ***imperceptible***, which is overall ***not significant*** in EIA terms

8.9 Monitoring Requirements

There are no monitoring requirements in relation to climate.

8.10 Difficulties Encountered During Preparation of This Chapter

There were no difficulties encountered when completing the climate assessment.

8.11 Note on Potential for Future Emissions Reductions (for information)

The majority of the GHG emissions associated with the Proposed Project originate from the combustion of natural gas by the turbine during the operational phase.

While natural gas is the most likely fuel for the turbine at the time of this assessment, the turbine will also be capable of using biomethane as a fuel source in the future. Accordingly, these fuels are discussed below. However it should be noted that the Air Quality impact assessment (Chapter 7), Climate impact assessment (Chapter 8) and EIAR have not relied on the following text, which is provided for information purposes only.

Biomethane meets the same technical standards as natural gas, and as such is fully compatible with existing gas infrastructure and installations. Biomethane is considered a zero GHG emissions fuel (once it is produced according to the Renewable Energy Directive's life cycle sustainability criteria) and its availability on the market is due to increase in the future, driven by Gas Networks Ireland's (GNI) strategy for decarbonisation *Pathway to a Net Zero Carbon Network* (GNI, 2024) and the *National Biomethane Strategy* (Government of Ireland, 2024d). GNI's strategy is to fully decarbonise its gas network by 2045, phasing out natural gas entirely and delivering biomethane and hydrogen in its stead.

The *National Biomethane Strategy* (Government of Ireland, 2024d) is Ireland's first major policy statement on biomethane and is an important milestone in the development of an indigenous sector. The strategy sets out twenty-five actions to be delivered in the coming years to enable the development of the sector and to achieve the government's target of 5.7 Terawatt hours (TWh) of indigenously produced biomethane by 2030. The publication of this strategy was coupled with the launch of grant aid towards development of the sector which is expected to drive expansion of the anaerobic digestion sector towards achieving the 2030 target. This target represents approx. 12% of projected networked gas.

Additionally GNI's *Biomethane Energy Report* (GNI, 2023) indicates that currently Ireland has a prospective 14.8 TWh of annual biomethane production with over 75% of potential projects within 'economic' direct connection to the gas network. GNI conclude that "*a biomethane sector with the momentum and conditions to reach 5.7 TWh annual production by 2030 would reasonably be expected to approach realisation of its currently identified potential by 2040*". It is therefore likely that the Proposed Project will be fuelled by significantly more biomethane than natural gas within its proposed

lifespan. Biomethane can be classified as “a zero-carbon rated fuel” if it satisfies the Renewable Energy Directive’s life cycle sustainability criteria, and will therefore directly contribute to meeting Ireland’s decarbonisation targets. It is therefore expected that the use of biomethane by the Proposed Project within its proposed lifespan will result in near-zero emissions from the operation of the turbines.

The turbine will also be capable of operating on 30% to 40% (by volume) of hydrogen gas. The GHG emissions associated with the operation of the gas turbine assessed in Section 8.5.1 would therefore by reduced by 30-40% in this future scenario. Studies by GNI (GNI, 2022) and the Agency for the Cooperation of Energy Regulators (ACER, 2021) conclude that repurposing its existing gas pipeline network to transport hydrogen instead is feasible and that the cost of repurposing existing gas pipelines to transport hydrogen is a fraction of the cost of building new dedicated hydrogen pipelines. In terms of hydrogen production, Ireland’s preferred option for indigenous green hydrogen production is electrolysis, whereby electricity splits water into hydrogen and oxygen, a process which can be powered by renewable energy sources, like wind or solar. In anticipation of the emergence of both indigenous green hydrogen and hydrogen via the UK, GNI is engaged in an extensive programme of work to enable the phased introduction of hydrogen into the gas network and its blending with natural gas via both interconnection and direct connection.

Substantial progress on the decarbonisation of the national gas network via biomethane and hydrogen replacement of natural gas is considered highly likely during the lifespan of the Proposed Project, and it is therefore expected that the use of natural gas and the associated GHG emissions will reduce throughout the operational phase relative to the project’s opening year.

9. Noise and Vibration

9.1 Introduction

This EIAR Chapter presents an assessment of the likely significant environmental effects of the construction, operation (including maintenance) and decommissioning of the Proposed Project with respect to noise and vibration. The assessment of direct and cumulative noise and vibration impacts on the surrounding environment have been considered as part of the assessment.

Mitigation measures are included, where relevant, to ensure the Proposed Project is constructed and operated in an environmentally sustainable manner and there will be minimal impact on the receiving environment.

9.2 Project Background

The constituent elements of the project can be broadly categorised under four key elements:

- Cashla Peaker Plant (Section 2.2.1.)
- An Above Ground Installation (AGI) (Section 2.2.2)
- A Gas Networks Ireland (GNI) Underground Gas Transmission Pipeline (Section 2.2.3)
- 220 kV On-Site Substation And Underground Cable Grid Connection Route (Section 2.2.4)

The overall purpose of the project is to provide additional electricity generating capacity, ensuring security of supply during periods when electricity demand is higher than average and cannot be met by existing renewable energy technologies on the system. It is proposed that the Peaker Plant will operate until 31 December 2050. A detailed description is presented in Chapter 2 of this EIAR.

This plant will operate as a 'peaking plant' with low annual use, running only during periods of high demand and lower renewable generation availability. The power plant will be manned with a dedicated team with responsibility for carrying out routine maintenance, attending meetings, accepting deliveries and security services.

9.3 Site Description and Location

The Proposed Project site is located in the townland of Rathmorrissy, in Athenry, Co. Galway. The nearest urban settlement is the town of Athenry. The Peaker Plant is located ca. 2km west of Athenry. The Proposed Project site measures 19.17 hectares. The Site is agricultural in nature and generally surrounded by agricultural lands, with the M18 motorway bounding the west of the Site, and agricultural lands to the north, east and south of the Site, with the M6 motorway slightly further south. The site will be accessed off the L3103 ca. 900m north of the site through agricultural lands. Sporadic rural houses and agricultural properties are located within the vicinity of the proposed access point off the L3103. The underground cable (UGC) route, connecting the Site to the existing Cashla Sub-station is proposed along the northern access route to the Site, before turning west along the L3103 roadway to cross the M17 via. Horizontal Directional Drilling (HDD) techniques, and turning south along an unnamed local road, which it follows as far as the Cashla Sub-station. 2no. crossings of the M6 are required along the local road, for which HDD techniques will be employed.

9.4 Study Area

The Study Area for the noise and vibration impact assessment was defined by the area where there is potential for noise and vibration impacts at Noise Sensitive Locations (NSLs) associated with the Proposed Project during the construction, operational and decommissioning phases.

For the operational phase the Study Area will cover, as a minimum, the area where the Proposed Project has the potential to cause a cumulative noise level exceeding 35 dB L_{Aeq}. The boundary of Proposed Project map is provided in Figure 9-1.

Figure 9-1 – Boundary of the Proposed Project

During the construction and decommissioning phases, noise could occur at any location within the Site of the proposed Peaker Plant and the AGI installation. In addition, the study area for the construction phase includes the route of the underground pipeline and cable route in addition to roads where construction traffic will travel.

Noise Sensitive Locations (NSLs) in proximity to specific construction sites and those situated along underground cable routes have the most potential to experience noise and vibration impacts. Taking account of the typical works associated with the construction and decommission phases, the Study Area is based on the nearest NSLs to the working areas, these distances are confirmed in the relevant sections and are typically representative of the closest identified NSL or at defined set back distances from proposed activity.

The Study Area assessment of construction traffic noise aligns with the route assessed in Chapter 9, Section 9.8 Potential Impact of the Proposed Project.

9.5 Study Assessment and Methodology

9.5.1 Methodology

This impact assessment has been undertaken using the following methodology:

- Baseline noise monitoring has been carried out at locations (i.e. NSLs) representative of the nearest noise-sensitive locations to the Proposed Project and sensitive receptors in order to characterise the existing noise environment;
- A review of the applicable standards and guidelines has been conducted in order to set a range of acceptable noise and vibration criteria for the construction, operation and decommission phases of the Proposed Project;
- Predictive calculations have been performed during construction phase of the project at the nearest sensitive locations to the proposed Peaker Plant and AGI and underground cable construction;
- The proposed Underground Cable Grid Connection does not generate operational noise or vibration and is therefore scoped out of this assessment;
- Predictive calculations have been performed to assess the potential impacts associated with the operation of the development at the most sensitive locations surrounding the project;
- A schedule of mitigation measures has been proposed to reduce, where necessary, the identified potential outward impacts relating to noise and vibration from the Proposed Project.
- The potential cumulative impacts of the Proposed Project and surrounding permitted or planned developments has been assessed for noise and vibration impacts.

Appendix 9-1, Volume 3 of the EIAR presents a glossary of the acoustic terminology used throughout this Chapter. In the first instance, some basic fundamentals of acoustics are reviewed. This is to provide a broader understanding of the technical discussion in this Chapter. Section 9.5.2 provides a brief overview of the fundamentals of acoustics and the basis for the preparation of this noise and vibration assessment.

During the operational stage, the Peaker Plant will fire primarily on natural gas to generate power. Natural gas is piped to the Site through an existing underground pipe and there will be no operational vehicle movements associated with the facility in this respect. The plant also has the functionality to fire on locally stored backup fuel (low sulphur diesel (secondary fuel)). Operation using secondary fuel is only expected to occur during an emergency scenario (such as loss of natural gas transmission pipeline pressure when there is a high demand for power) and during compliance tests.

9.5.2 Fundamentals of Acoustics

A sound wave travelling through the air is a regular disturbance of the atmospheric pressure. These pressure fluctuations are detected by the human ear, producing the sensation of hearing. In order to take account of the vast range of sound pressure levels that can be detected by the ear, it is convenient to measure sound in terms of a logarithmic ratio of sound pressures. These values are expressed as Sound Pressure Levels (SPL) in decibels (dB).

The audible range of sounds expressed in terms of Sound Pressure Levels is 0 dB (for the threshold of hearing) to 120 dB (for the threshold of pain). In general, a subjective impression of doubling of loudness corresponds to a tenfold increase in sound energy which conveniently equates to a 10 dB increase in SPL. It should be noted that a doubling in sound energy (such as may be caused by a doubling of traffic flows) increases the SPL by 3 dB.

The frequency of sound is the rate at which a sound wave oscillates, and is expressed in Hertz (Hz). The sensitivity of the human ear to different frequencies in the audible range is not uniform. For example, hearing sensitivity decreases markedly as frequency falls below 250 Hz. In order to rank the SPL of various noise sources, the measured level has to be adjusted to give comparatively more weight to the frequencies that are readily detected by the human ear. Several weighting mechanisms have been proposed but the ‘A-weighting’ system has been found to provide one of the best correlations with

perceived loudness. SPL's measured using 'A-weighting' are expressed in terms of dB(A). An indication of the level of some common sounds on the dB(A) scale is presented in Figure 9-2.

The 'A' subscript denotes that the sound levels have been A-weighted. The established prediction and measurement techniques for this parameter are well developed and widely applied. For a more detailed introduction to the basic principles of acoustics, reference should be made to an appropriate standard text, e.g. Woods practical guide to noise control, Woods of Colchester Ltd, 1972.

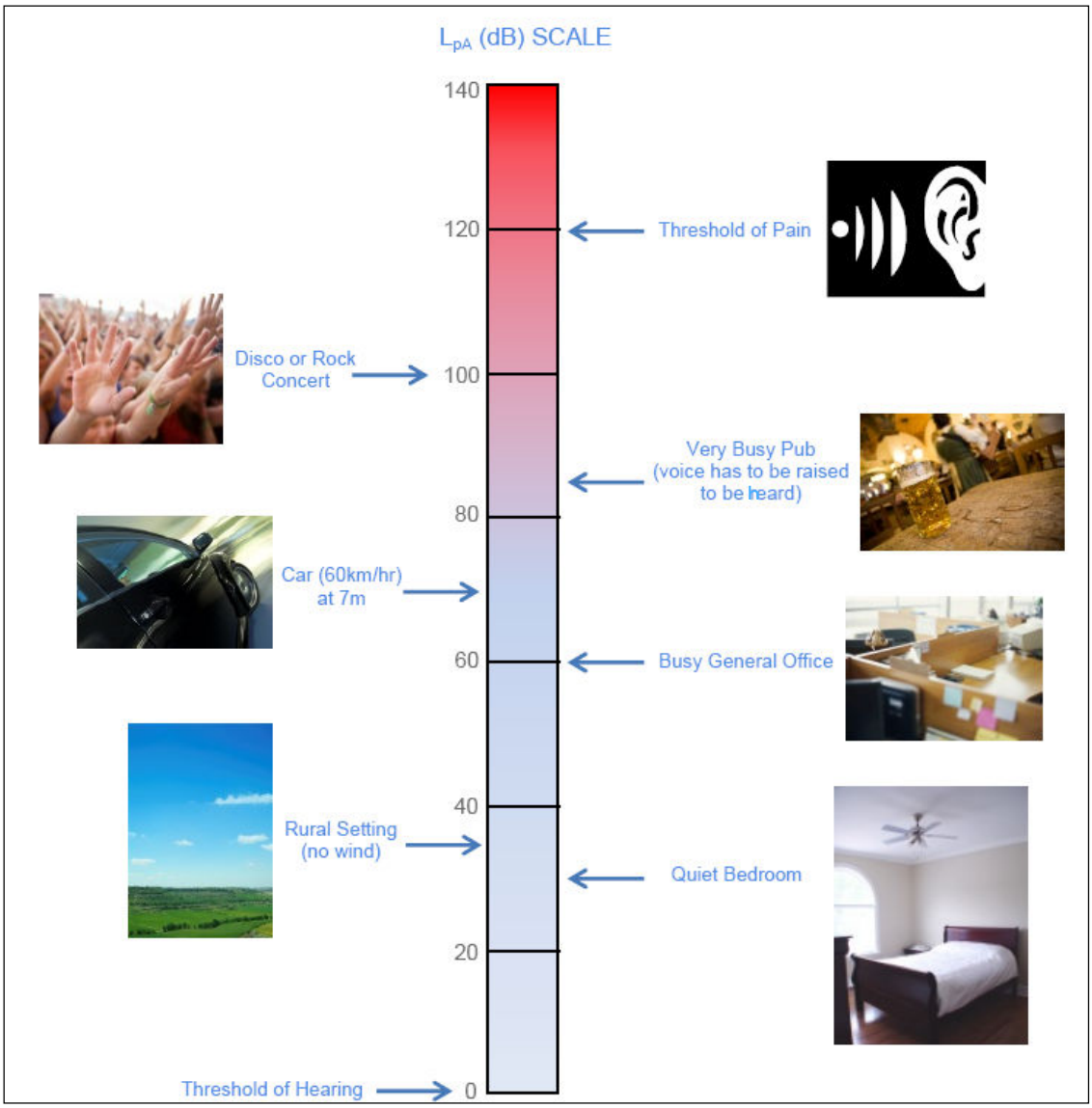


Figure 9-2 - dB(A) Scale & Indicative Noise Levels

9.5.3 Legislation, Guidelines and Standards

9.5.3.1 Legislation

The Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022), hereafter referred to as EPA EIAR Guidelines (2022) were followed in the preparation of this Chapter.

There are no statutory standards in Ireland relating to noise and vibration limit values for construction works or for environmental noise relating to the operational phase. In the absence of specific statutory Irish guidelines, the assessment has made reference to non-statutory national guidelines, where available, in addition to international standards and guidelines relating to noise and / or vibration impact for environmental sources. These are set out in the following sections (Section 9.5.3.2 to Section 9.5.3.6.49.5.3.8).

9.5.3.2 Construction Phase Relevant Guidelines

For construction noise, Local Authorities typically control construction activities by imposing limits on the hours of operation and consider noise limits at their discretion. Reference is made to the following guidelines and standards to inform the most appropriate construction noise and vibration significance thresholds and assessment methodologies:

- British Standard Institute (BSI) British Standard (BS) 5228-1:2009 +A1 2014 Code of Practice for noise and vibration control of construction and open sites - Part 1: Noise (hereafter referred to as BS 5228–1) (BSI 2014a);
- BS 5228-2:2009+A1:2014 Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration (hereafter referred to as BS 5228 – 2) (BSI 2014b);
- BS 7385: 1993 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration (hereafter referred to as BS 7385–2). (BSI 1993);
- BS 6472-1: 2008 Guide to evaluation of human exposure to vibration in buildings, Part 1 Vibration sources other than blasting (hereafter referred to as BS 6472–1) (BSI 2008);
- United Kingdom Highways England (now National Highways) (UKHE) Design Manual for Roads and Bridges (DMRB) LA 111 Sustainability and Environmental Appraisal LA 111 Noise and Vibration Revision 2 (hereafter referred to as DMRB Noise and Vibration) (UKHE 2020); and
- International Organization for Standardization (ISO) 9613-2:2024 Acoustics – Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors (hereafter referred to as ISO 9613 – 2).

9.5.3.3 Construction Noise Criteria

Construction noise sources include construction plant, machinery and construction related traffic on surrounding roads. Appropriate criteria relating to permissible construction noise levels for the Proposed Project is taken from British Standard BS 5228-1. The construction noise thresholds for the project are typically set in accordance with the 'ABC' methodology detailed below.

9.5.3.3.1 Residential and Other Noise Sensitive Locations

Table 9-1 sets out the threshold values which, when exceeded, signify a potential significant effect at the facades of residential receptors as recommended by BS5228-1:2009+A1:2014.

Table 9-1 – Example Threshold of Significant Effect at Dwellings

Table	Threshold Value in decibels (dB)		
	Category A [Note A]	Category B [Note B]	Category C [Note C]
Night-time (23:00 to 07:00hrs)	45	50	55
Evenings and weekends [Note D]	55	60	65

Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	**65**	**70**	**75**

Note A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values.
Note B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values.
Note C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values.
Note D) 19:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays.

9.5.3.3.2 Linear Construction Works

Due to the linear progressive nature of the construction works associated with the Proposed Grid Connection underground cable route, a fixed noise limit is proposed. This is deemed appropriate in that noise from associated construction activities is variable and typically occurs for a short period of time only and is at its highest when closest to the NSL. As the works progress, construction noise levels at the NSL will reduce due to the works taking place at greater distances, resulting overall in shorter periods of exposure to noise impacts.

In relation to an appropriate fixed noise limit value, BS 5228-1 paragraph E.2 states:

> *"Noise from construction and demolition sites should not exceed the level at which conversation in the nearest building would be difficult with the windows shut."*

Paragraph E.2 goes on to state:

BS 5228--1:2009+A1:2014 gives several examples of acceptable limits for construction noise, the most simplistic being based upon the exceedance of fixed noise limits. Section E.2 notes

> *"Noise levels, between say 07.00 and 19.00 hours, outside the nearest window of the occupied room closest to the site boundary should not exceed:*

- 70 decibels (dBA) in rural, suburban areas away from main road traffic and industrial noise;
- 75 decibels (dBA) in urban areas near main roads in heavy industrial areas".

Transport Infrastructure Ireland (formerly NRA) (TII) Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (TII, 2014)

The Transport Infrastructure Ireland (TII) (formerly National Roads Authority (NRA)) document 'Good Practice Guidance for the Treatment of Noise and Vibration in National Road Schemes' (NRA, 2014) proposes daytime period (Monday to Friday 0700 – 1900 hrs) construction noise limits of 70 dB $L_{Aeq,1hr}$ and 65 dB $L_{Aeq,1hr}$ for Saturdays between 0800 – 16:30hrs.

Considering the above guidance, a construction noise threshold of 70 dB $L_{Aeq,1hr}$ is proposed for linear construction activities on weekdays (i.e. Proposed Grid Connection). Noise levels above 70 dB $L_{Aeq,1hr}$ would indicate a potential significant impact depending on the duration and frequency of occurrence (Section 9.5.3.3.4 below).

9.5.3.3.3 Proposed Construction Noise Threshold (CNT) Levels

The following CNT levels are proposed for the construction stage of this development taking account of the baseline ambient noise levels measured in the Study Area (Section 9.6).

- For construction work on the main site, it is considered appropriate to adopt a CNT of 65 dB(A) for daytime periods (Monday to Friday 0700 – 1800 hrs) and Saturday mornings between 0700 – 14:30hrs as construction work will not take place in the evenings and at night.
- For linear construction works such as the underground cable route, a CNT of 70 dB(A) is adopted.

9.5.3.3.4 Significance of Construction Noise Level

In order to assist with interpretation of significance, this section includes guidance as to the likely magnitude of noise impact associated with Construction Noise Levels (CNL), relative to the CNT. This guidance is derived from the DMRB Noise and Vibration (UKHE 2020) document and adapted to include the relevant significance effects from the EPA EIAR Guidelines (2022) using professional expertise and judgment. The summary of construction noise significance ratings is provided in Table 9-2.

Table 9-2 – Construction Noise Signifiance Ratings

CNL Per Period	Classification of Impact		
	DMRB Classification of Impact	**EPA EIAR Guidelines**	**Determination**
Below or equal to baseline noise level	Negligible	Not Significant	Depending on range of CNT and baseline noise level
Above baseline and below or equal to CNT	Minor	Slight to Moderate Note 1	
Above CNT and Below or equal to CNT +5 dB	Moderate	Moderate to Significant	
Above CNT +5 dB and below or equal to CNT +15dB Note 2	Major	Significant to Very Significant	
Above +15dB		Very Significant to Profound	

Note 1: CNLs at the upper end of this range will result in higher potential impacts, therefore this range is `categorised as slight to moderate, acknowledging that values approaching the CNT are greater than slight. In accordance with DMRB, noise levels below the CNT are deemed 'Not Significant'.

Note 2: The DMRB does not distinguish beyond a 'Major' impact. For the purposes of distinguishing a Very Significant and Profound Impact, CNLs exceeding the CNT by +20dB are categorised as Profound.

In accordance with the DMRB Noise and Vibration (UKHE 2020) document, construction noise and construction traffic noise impacts shall constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding:

- Ten or more days or night in any 15 consecutive day or nights; and
- A total number of days exceeding 40 in any six consecutive months.

9.5.3.4 Construction Phase Traffic Noise Criteria

Vehicular movement to and from the construction site for the Proposed Project will make use of the existing road network as presented in Chapter 10 Traffic and Transportation, where new access road

is proposed. In order to assess the potential impact of additional traffic on the human perception of noise, the following two guidelines are applied: DMRB Noise and Vibration (UKHE 2020) and the EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022). For construction traffic, due to the short-term period over which this impact occurs, the magnitude of impacts is assessed against the 'short term' period in accordance with the DMRB document. The summary of classification of magnitude of traffic noise changes in short term is provided in Table 9-3.

Table 9-3 - Classification of Magnitude of Traffic Noise Changes in the Short Term

Change in Sound Level (dB)	Subjective Reaction	DMRB Magnitude of Impact (Short-term)	EPA Significance of Effect
Less than 1 dB	Inaudible	Negligible	Imperceptible
1 – 2.9	Barely Perceptible	Minor	Not Significant to Slight
3 – 4.9	Perceptible	Moderate	Moderate
≥ 5	Up to a doubling of loudness	Major	Significant

9.5.3.5 Construction Phase Vibration Criteria

There are two aspects to the issue of vibration that are addressed in the standards and guidelines:

- the risk of cosmetic or structural damage to buildings; and
- human perception of vibration.

In the case of the Proposed Project, vibration levels used for the purposes of evaluating building protection and human comfort are expressed in terms of Peak Particle Velocity (PPV) in mm/s. There is no published statutory Irish guidance relating to the maximum permissible vibration level. The following standards are referenced here in relation to cosmetic or structural damage to buildings:

- British Standard BS 5228-2 Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration (BSI 2014); and
- British Standard BS 7385-2 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration (BSI 1993)

9.5.3.5.1 Building Damage

Guidance relevant to acceptable vibration within buildings is contained in BS 7385-2 (1993), and BS 5228-2 (2009+A1:2014).

BS7385-2 and BS5228-2 advise that, for soundly constructed residential properties and similar light-framed structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak component particle velocity (in frequency range of predominant pulse) of 15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz and 50 mm/s at 40 Hz and above for transient vibration. Where the dynamic loading caused by continuous vibration is such as to give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values in Table B.2 of BS5228-2 may need to be reduced by up to 50%. On a precautionary basis, therefore continuous vibration limits are set as 50% of those for transient vibration across all frequency ranges.

Historically important buildings, cultural heritage sites or protected buildings and structures that are difficult to repair might require special consideration on a case by case basis, but these structures and buildings should not be assumed to be more sensitive unless they are structurally unsound.

If a building or structure is in an unstable state, then it will tend to be more vulnerable to the possibility of damage arising from vibration or any other ground borne disturbance. On a cautious basis for the purposes of assessment, the vibration limit range for protected and historical buildings are set at 50% of those for light framed buildings, depending on their structural integrity. These are summarised in Table 9-4.

Table 9-4 - Transient Vibration Thresholds for Buildings

Type of Building	**Peak component particle velocity in frequency range of predominant pulse**	
	4 Hz to 15 Hz	**15 Hz and above**
Reinforced or framed structures Industrial and heavy commercial buildings.	50 mm/s at 4 Hz and above	
Unreinforced or light framed structures. Residential or light commercial buildings.	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above
Protected and Historic Buildings	6mm/s	

Note 1: Values referred to are at the base of the building.

Note 2: At frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded.

BS 5228-2 and BS 7385-2 state that minor structural damage can occur at vibration magnitudes greater than twice those, and major structural damage can occur at vibration magnitudes greater than four times those in the relevant standards. The guide values contained relate to predominantly transient vibration which does not give rise to resonant responses in structures, and to low rise buildings.

9.5.3.5.2 Human Perception

It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. BS 5228-2 notes that vibration typically becomes perceptible at around 0.15 to 0.3 mm/s and may become disturbing or annoying at higher magnitudes. Higher levels of vibration are typically tolerated for single events or events of short-term duration, particularly during construction projects and when the origin of vibration is known.

Higher levels of vibration, however, are typically tolerated for single events or events of short duration. For example, during piling vibration levels may typically be tolerated at up to 2.5 mm/s during daytime periods.

Table 9-5 presents the significance relating to potential effects to building occupants during construction based on guidance from BS5228-2 the DMRB Noise and Vibration (UKHA, 2020) document and the associated EPA EIAR significance ratings.

Table 9-5 - Guidance on effects of human response to Peak Particle Velocity (PPV) magnitudes

PPV Range	Description of Effect	DMRB Magnitude of Impact	EPA Significance Rating
≥10 mm/s PPV	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.	Major	Very Significant
≥1 to <10 mm/s	Increasing likelihood of perceptible vibration in residential environments but can be tolerated at the lower end of the scale if prior warning and explanation has been given to residents	Moderate	Moderate to Significant
≥0.3 to <1 mm/s	Increasing likelihood of perceptible vibration in residential environments	Minor	Slight
<0.3 mm/s PPV	Vibration is unlikely to be perceptible in even the most sensitive situations for most vibration frequencies associated with construction	Negligible	Not Significant

Single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects. Construction vibration shall constitute a likely significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding:

- 10 or more days or nights in any 15 consecutive days or nights; or
- A total number of days exceeding 40 in any 6 consecutive months.

9.5.3.6 Operational Phase – Noise

The main potential source of outward noise from the Proposed Project relate to operational plant noise. There will be an element of on-site vehicular activity and traffic flows to and from the project site onto the public roads. The relevant guidance documents used to assess potential operational noise and vibration impacts on the surrounding environment are summarised below.

- BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (hereafter referred to as BS 8233) (BSI 2014c);
- BS 4142: 2014 +A1 2019 Methods for Rating and Assessing Industrial and Commercial Sound (hereafter referred to as BS 4142) (BSI 2019);
- Environmental Protection Agency (EPA): Guidance Note for Noise: Licence Application, Surveys and Assessment in Relation to Schedules Activities (NG4) (January 2016) (hereafter referred as EPA NG4 (2016)
- Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Noise Impact Assessment (2014) (hereafter referred to as IEMA Noise Assessment Guidelines)
- ISO 1996-1:2016 Acoustics - Description, measurement and assessment of environmental noise. Part 1: Basic quantities and assessment procedures (hereafter referred to as ISO 1996 – 1) (ISO 2016);
- The UK Department of Transport Calculation of Road Traffic Noise (hereafter referred to as the CRTN) (UK Department of Transport 1988).
- UK Highways Agency (UKHA) Design Manual for Roads and Bridges (DMRB) LA 111 Sustainability and Environmental Appraisal LA 111 Noise and Vibration Revision 2 (hereafter referred to as DMRB Noise and Vibration) (UKHA 2020);

- International Organization for Standardization (ISO) 9613-2:2024 Acoustics – Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors (hereafter referred to as ISO 9613 – 2).

9.5.3.6.1 EPA Guidance Note for Noise – NG4 (2016)

Site operations will be subject to an IE licence issued by the EPA and therefore the guidance in this document has been used to review appropriate limit values relating to the facilities operational phase. This approach is summarised below in accordance with guidance detailed in Section 4 of the NG4 document.

Quiet Area Screening

The Proposed Project is not considered a Quiet Area in this instance as it fails to meet all the criteria outlined in EPA's Guidance. The relevant test criteria are detailed below Table 9-6.

Table 9-6 - EPA NG4 – Quiet Area Screening

Quiet Area Test Criteria	Yes / No	Comment
Is the site at least 3 km from urban areas with a population >1,000 people	No	Facility is located within 3 km of Athenry, population >1k
Is the site at least 10 km from any urban areas with a population >5,000 people	No	Facility is located within 10 km of Oranmore, population >5k
Is the site at least 15 km from any urban areas with a population >10,000 people	No	Facility is located within 15 km of Galway, population >10k
Is the site at least 3 km from any local industry[80]	No	Facility is located within 3 km of local industries
Is the site at least 10 km from any major industry centre	No	Facility is located within 10 km of industry within Athlone and Oranmore
Is the site at least 5 km from any National Primary Route	No	Site is within 1 km of the M18 and M6 motorways
Is the site at least 7.5 km from any Motorway or Dual Carriageway	No	Site is within 1 km of the M18 and M6 motorways.
Quiet Area?	No	EPA NG4

Low Background Noise Screening

In order to establish whether the noise sensitive locations (NSL) in the Study Area would be considered an area of 'low background noise' (LBN), the noise levels measured during the environmental noise survey need to satisfy **all three** of the following criteria:

- Arithmetic Average of L_{A90} During Daytime Period ≤40 dB L_{A90}[3], and;
- Arithmetic Average of L_{A90} During Evening Period ≤35 dB L_{A90}, and;

[80] Local industry is taken to include all sources of noise that may be considered industrial in nature, for example: grain drying facilities, creameries and small factories.

[3] L_{A90} is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

- Arithmetic Average of L_{A90} During Night-time Period ≤30 dB L_{A90}.

While details of the baseline noise survey are presented in Section 9.6, Table 9-7 presents the measured ambient noise levels against NG4 screening requirement. The measurement locations are presented in Figure 9-4 - Noise Monitoring Locations

Table 9-7 - EPA NG4 – Measured Ambient Noise Levels for Low Background Noise Area Screening

Location	Period	$L_{A90,T}$ (dB)	NG4 Screening (dB L_{A90})	Satisfies All Criteria for Low Background Noise Area?
UN1	Daytime	38	≤40	No
	Evening	35	≤35	
	Night-time	33	≤30	
UN2	Daytime	44	≤40	No
	Evening	41	≤35	
	Night-time	34	≤30	
AT1	Daytime	34	≤40	No
	Evening	38	≤35	
	Night-time	34	≤30	
AT2	Daytime	38	≤40	No
	Evening	44	≤35	
	Night-time	38	≤30	

Thus, based on the results of the baseline noise survey (Section 9.6.2), the Study Area is not considered an 'area of low background noise'. Table 9-8 outlines the noise emission limit criteria detailed in the EPA NG4 document.

Table 9-8 - EPA NG4 – Operational Noise Criteria for Defined Scenarios

Scenario	Daytime Noise Criterion, dB $L_{Ar,T}$ (07:00 to 19:00hrs)	Evening Noise Criterion, dB $L_{Ar,T}$ (19:00 to 23:00hrs)	Night Noise Criterion, dB L_{Aeq} (23:00 to 07:00hrs)
Areas of Low Background Noise	45 dB	40 dB	35 dB
All Other Areas	55 dB	50 dB	45 dB

Based on a review of the measured noise levels in the Study Area, presented in Section 9.6, the NSL in the Study Area are not defined as areas of low background noise as per the EPA NG4 guidance. In this instance the following noise limits would apply under EPA NG4 Guidance:

- Daytime periods: 55 dB $L_{Ar,T}$;
- Evening periods: 50 dB $L_{Ar,T}$;
- Night-time periods: 45 dB $L_{Aeq,T}$.

9.5.3.6.2 IEMA Guidelines for Environmental Noise Impact Assessment

The 'Guidelines for Environmental Noise Impact Assessment' produced by the IEMA Noise Assessment Guidelines (2014) have been followed in order to categorise the potential effect of changes in the ambient noise levels during the operational phases of the Proposed Project.

The guidelines state that for any assessment, the potential significance should be determined by the assessor, based upon the specific evidence and likely subjective response to noise. Due to varying factors which affect human response to environmental noise (prevailing environment, noise characteristics, time periods, duration and level etc.) assigning a subjective response must take account of these factors.

The scale adopted in this assessment is shown in Table 9-9, and is based on an example scale within the IEMA guidelines. The corresponding significance of impact presented in the EPA, EIAR guidelines (2022) is also presented in Table 9-9.

Table 9-9 - Noise Impact Scale – Operational Noise Sources

Noise Level Change (dB)	Subjective Response	Impact Classification (IEMA)	EPA Classification of Effect
0	No change	None	Imperceptible
0.1 – 2.9	Barely perceptible	Minor	Not Significant
3.0 – 4.9	Noticeable	Moderate	Slight, Moderate
5.0 – 9.9	Up to a doubling or halving of loudness	Substantial	Significant to Very Significant
10+	More than a doubling or halving of loudness	Major	Profound

The significance table reflects the key benchmarks that relate to human perception of sound. A change of 3 dB(A) is generally considered to be the smallest change in environmental noise that is perceptible to the human ear. A 10 dB(A) change in noise represents a doubling or halving of the noise level. The

difference between the minimum perceptible change and the doubling or halving of the noise level is split to provide greater definition to the assessment of changes in noise level.

A significant effect is distinguished as a change in noise level of 5 dB or greater.

9.5.3.6.3 Emergency Operation

In order to provide power for shutting down of the gas turbine, a stand-by generator is proposed. This generator will only operate in a situation when there is loss of electrical transmission connection and local electrical distribution connection. This would result in the plant's emergency low sulphur diesel generator being started. The generator will be tested routinely. Routine testing will be conducted during regular weekday daytime periods only. Section 4.4.1 of the Environmental Protection Agency (EPA) document "*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities*" (NG4 - 2016) contains the following comments in relation to emergency plant items:

'In some instances, …sites will have certain items of emergency equipment (e.g. standby generators) that will only operate in urgent situations (e.g. grid power failure). Depending upon the context, it may be deemed permissible for such items of equipment to give rise to exceedances in the noise criteria/limits during limited testing and emergency operation only. If such equipment is in regular use for any purposes other than intermittent testing, it is subject to the standard limit values for the site'.

As the generator will only run if there is a loss of electrical connection to the site, or for scheduled testing during daytime periods, the noise criterion of 55 dB $L_{Aeq,T}$ on the emergency unit is proposed. The generator will be designed and mitigated in order to achieve this design goal at nearby residential NSL.

9.5.3.6.4 Recommended Criteria

Following review of relevant guidance, the following noise criteria are proposed for the Proposed Project:

- Day to Day Operation – Day-time period- (Residential NSL) – 55 dB $L_{Aeq,15min}$
- Day to Day Operation – Evening period- (Residential NSL) – 50 dB $L_{Aeq,15min}$
- Day to Day Operation – Night-time period- (Residential NSL) – 45 dB $L_{Aeq,15min}$
- Emergency Operation (Residential NSL) – 55 dB $L_{Aeq,15min}$

Note plant noise emissions will be designed such that they have no tonal and impulsive characteristics at the nearest NSL.

9.5.3.7 Operational Phase – Vibration

As the nearest sensitive receiver is at least 450m from the site (refer to Table 9-11 for details), the Proposed Project is not likely to give rise to any notable sources of vibration and will therefore not result in any perceptible levels of vibration at the closest sensitive locations off site. The impact is not significant and therefore operational vibration has been scoped out for any further assessment.

9.5.3.8 Operational Phase – Additional Traffic

In order to assist with the interpretation of the noise associated with vehicular traffic on public roads, Table 9-10 offers guidance as to the likely impact associated with any particular change in traffic noise level based on the DMRB LA 111 Noise and Vibration (UKHE 2020) and the EPA Guidelines (EPA, 2022).

Table 9-10 - Classification of magnitude of traffic noise changes in the long term

Change in Sound Level (dB)	Subjective Reaction	DMRB Magnitude of Impact (Long-term)	EPA Significance of Effect
0.0 – 0.9	Inaudible	Negligible	Imperceptible
1.0 – 2.9	Barely Perceptible	Not Significant	Not Significant
3 – 4.9	Perceptible	Minor	Slight, Moderate
5 – 9.9	Up to a doubling of loudness	Moderate	Significant
10+	Doubling of loudness and above	Major	Very Significant

9.5.4 Assessment Methods

Construction noise calculations have been conducted in accordance with BS 5228: 2009+A1:2014: *Code of practice for noise control on construction and open sites - Noise.*

Prediction calculations for operational plant sources have been conducted in accordance with ISO 9613 (2024): *Acoustics – Attenuation of sound outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors*

Changes in road traffic noise on the local road network have been considered in Section 8.8.1.2 using prediction guidance contained within *Calculation of Road Traffic Noise (CRTN)* issued by the Department of Transport in 1988.

9.6 Receiving Environment

9.6.1 Description of the Site Location

The Proposed Project is located on a greenfield site adjacent to the junction of M6 and M18 Motorways. There are isolated dwellings at the north, west and south at varying distances from the Proposed Project. Further details relating to the baseline noise environment are presented in the following sections.

9.6.1.1 Noise Sensitive Locations

In the first instance it is considered appropriate to define a NSL. In this context, it is considered prudent to adopt the definition supplied by the EPA which states the following in NG4 Appendix I:

NSL – any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

Figure 9-3 highlights the nearest NSLs to the Proposed Project while Table 9-11 presents details of each NSL.

Figure 9-3 - Noise Sensitive Locations

Table 9-11 - Details of Noise-sensitive Locations

NSL Ref	Approximate Distance to Proposed Building (m)	NSL Type
R01	650	Residential
R02	650	Residential
R03	1,200	Residential
R04	450	Rathmorrissey Lodge – Residential
R05	850	Residential

9.6.2 Baseline Noise Survey

An environmental noise survey has been conducted by AWN Consulting at the site in order to quantify the existing noise environment. The survey was conducted in accordance with ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.

9.6.2.1 Measurement Locations

Baseline noise monitoring has been completed at a number of representative locations in the vicinity of the Proposed Project and is reviewed here to inform the characterisation of the existing noise environment. Figure 9-4 shows noise monitoring locations.

Figure 9-4 - Noise Monitoring Locations

Table 9-12 - Details of Monitoring Locations

Assessment Method	Location Reference	Location Description
Attended	AT1	West of the Proposed Project
Attended	AT2	South of the Proposed Project
Unattended	UN1	North-east of the Proposed Project
Unattended	UN2	North-west of the Proposed Project

9.6.2.2 Survey Periods

Attended noise measurements were conducted at Locations AT1 – AT2 over the course of the following survey period:

- Day measurement: 12:30hrs to 14:45hrs on 12th May 2025.
- Evening and Night measurements: 21:00hrs 22 September 2025 to 2:00hrs 23 September 2025

Unattended noise measurements were conducted at Location UN1 and UN2 over the course of the following survey period:

- 15:00hrs on 12 May 2025 to 15:00hrs on the 16 May 2025.

The weather during the survey periods was dry and calm.

9.6.2.3 Instrumentation

The noise measurements were performed using RION NL-53 and RION NL-52 Sound Level Meters. Before and after the survey the measurement apparatus was check and calibrated using a Brüel & Kjær Type 4231 Sound Level Calibrator.

9.6.2.4 Procedure

Unattended measurements involved installation of a sound level meter in areas where access was agreed with the relevant landowners. Measurements were conducted at the two locations noted above. The equipment was set to log for 5 minute sample periods over a period of approximately 4 days. Attended measurements were undertaken at public areas at locations in proximity to and representative of other NSLs. Sample periods for the attended noise measurements were 15 minutes. During these surveys the results were noted onto a Survey Record Sheet immediately following each sample and all data (for both the unattended and attended surveys) was saved to the instrument memory for post analysis. Survey personnel noted the primary noise sources contributing to noise build-up.

9.6.2.5 Survey Parameters

The noise survey results are presented in terms of the following parameter:

L_{Aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

L_{A90} is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

The “A” suffix denotes the fact that the sound levels have been “A-weighted” to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to $2x10^{-5}$ Pa.

9.6.2.6 Noise Survey Results

9.6.2.6.1 Attended Measurements Results (AT1 and AT2)

The summary of measured noise levels at attended locations are provided in Table 9-13.

Table 9-13 - Measured Noise Levels at Locations AT1 to AT2

Location	Time	Period	Measured Noise Levels (dB re. 2x10-5 Pa)	
			L_{Aeq}	L_{A90}
AT1	12:31	Day	53	31
	13:25		61	36
	14:16		62	34
	Average		60	34

Location	Time	Period	Measured Noise Levels (dB re. 2x10-5 Pa)	
			L_{Aeq}	L_{A90}
	21:32	Evening	46	38
	23:33	Night	38	34
	00:34		40	34
	01:36		39	32
	Average		39	33
AT2	13:51	Day	49	38
	14:44		51	35
	Average		50	37
	22:18	Evening	51	44
	23:00	Night	49	41
	00:04		46	38
	01:06		45	37
	Average		47	39

At AT1, local road traffic was infrequent, but a dominant source when audible. Distant road traffic from the M6 and M18 also formed part of the noise environment. Cattle at a distant farm shed were audible along with birdsong. Noise levels were measured in the range 53 to 62 dB $L_{Aeq,15min}$ and 31 to 36 dB $L_{A90,15min}$ during day period with averaged 60 dB $L_{Aeq,15min}$ and 34 dB $L_{A90,15min}$. During the evening period, noise level was 46 dB $L_{Aeq,30min}$ and 38 dB $L_{A90,30min}$. During the night noise levels were in the range 38 to 40 dB $L_{Aeq,15min}$ and 32 to 34 dB $L_{A90,15min}$ and averaged 39 dB $L_{Aeq,15min}$ and 33 dB $L_{A90,15min}$.

At AT2, dominant noise source was distant traffic from the M6 and M18. Other sources included infrequent local traffic, birdsong and brief air traffic overhead. Noise levels were measured in the range 49 to 51 dB $L_{Aeq,15min}$ and 35 to 38 dB $L_{A90,15min}$ during day period with averaged 50 dB $L_{Aeq,15min}$ and 37 dB $L_{A90,15min}$. During the evening period, noise level was 51 dB $L_{Aeq,30min}$ and 44 dB $L_{A90,30min}$. During the night noise levels were in the range 45 to 49 dB $L_{Aeq,15min}$ and 37 to 41 dB $L_{A90,15min}$ and averaged 47 dB $L_{Aeq,15min}$ and 39 dB $L_{A90,15min}$.

9.6.2.6.2 Unattended Measurement Results

For unattended locations UN1 and UN2, the averaged results are displayed below. The results are presented for the day period (07:00 to 19:00hrs), the evening period (19:00 to 23:00hrs), and night period (23:00 to 07:00hrs) periods for the survey dates. The summary of measures noise levels at unattended locations are provided in Table 9-14.

Table 9-14 - Measured Noise Levels at Locations UN1 and UN2

Date	Period	Measured Noise Levels (dB re. 2x10-5 Pa)			
		UN1		UN2	
		L_{Aeq}	L_{A90}	L_{Aeq}	L_{A90}
12/05/25	Evening	44	33	45	38

Date	Period	Measured Noise Levels (dB re. 2x10-5 Pa)			
		UN1		UN2	
		L_{Aeq}	L_{A90}	L_{Aeq}	L_{A90}
	Night	44	32	45	33
13/05/25	Day	49	40	51	47
	Evening	46	36	47	42
	Night	45	32	46	35
14/05/25	Day	48	38	51	45
	Evening	45	35	50	42
	Night	45	34	48	35
15/05/25	Day	47	35	52	41
	Evening	48	36	50	42
	Night	46	33	45	35
Average	Day	48	38	51	44
	Evening	46	35	49	41
	Night	45	33	46	34

At UN1, noise levels were in the range 47 to 49 dB L_{Aeq} and 35 to 40 dB L_{A90} during the day period. During the evening period, noise levels were in the range 44 to 48 dB L_{Aeq} and 33 to 36 dB L_{A90}. During the night noise levels were in the range 44 to 46 dB L_{Aeq} and 32 to 34 dB L_{A90}. The averaged day levels are 48 dB L_{Aeq} and 38 dB L_{A90}, averaged evening levels are 46 dB L_{Aeq} and 35 dB L_{A90} and averaged night levels are 45 dB L_{Aeq} and 33 dB L_{A90}.

At UN2, noise levels were in the range 51 to 52 dB L_{Aeq} and 41 to 47 dB L_{A90} during the day period. During the evening period, noise levels were in the range 45 to 50 dB L_{Aeq} and 38 to 42 dB L_{A90}. During the night noise levels were in the range 45 to 48 dB L_{Aeq} and 33 to 35 dB L_{A90}. The averaged day levels are 51 dB L_{Aeq} and 44 dB L_{A90}, averaged evening levels are 49 dB L_{Aeq} and 41 dB L_{A90} and averaged night levels are 46 dB L_{Aeq} and 34 dB L_{A90}.

9.7 Likely Evolution of the Baseline

The baseline noise levels measured across the site will remain largely unchanged. There is potential for surrounding noise levels to change (increase or decrease) in accordance with trends within the wider area (including influences from potential new developments in the surrounding area, changes in road traffic, etc).

9.8 Potential Impact of the Proposed Project

9.8.1 Construction Phase

9.8.1.1 Construction of Main Site

The construction phase will involve site clearance, excavation, construction of the site buildings and the ancillary structures. Due to the nature of the activities undertaken on a construction site, there is potential for generation of high levels of noise to the surrounding environment. There will also be vehicular movements to and from the site that will make use of existing roads. In addition, there will be boreholes and trial pits for ground investigation works within the site and underground cable route from the site to Cashla Substation. However, the construction phase can be classed as a short-term phase.

Thresholds for significant noise from construction can be determined by referring to Table 9-1 and the baseline ambient noise levels outlined in Section 9.5.3.3. The daytime and evening time significance threshold for construction noise at the site is set at 65 dB $L_{Aeq,T}$ and 55 dB $L_{Aeq,T}$ respectively. Night-time thresholds are not included as construction work will not take place at night.

BS 5228-1 contains noise level data for various construction machinery. The noise levels relating to site clearance, ground excavation and mobile plant items (Breakers, dozers, tracked excavators and wheeled loaders) reach a maximum of 83 dB $L_{Aeq,T}$ at a distance of 10 m. For this assessment, a worst-case scenario is assumed of 3 no. such items with a sound pressure level (SPL) of 83 dB at 10 m all operating simultaneously along the closest works boundary. This would result in a total noise level of 88 dB at 10 m and an equivalent combined sound power level of 116 dB L_{WA}. As described in Chapter 2 Project Description, piling may become necessary in the event that there is a Karst feature under the foundations footprint, a Drop Hammer (C.4.31) with sound power level of 116 dB L_{WA} will be required. The total sound power level will be increased to 119 dB L_{WA}. This worst-case scenario is the typical assumption made for projects of this size, on the basis that it is unlikely that more than 3 no. items of plant/equipment with equivalent noise levels would be operating at 100% simultaneously in such close proximity to each other.

Table 9-15 shows the potential noise levels calculated at distances representative of the closest NSLs based on the assumed sound power level and attenuation due to distance over soft ground according to BS5228-1.

Table 9-15 - Potential construction noise levels at varying distances

Description of Noise Source	Sound Power Level (dB L_{WA})	Calculated noise levels at varying distances (dB $L_{Aeq,T}$)		
		450 m	650 m	1 km
3 no. items each with SPL of 83 dB at 10 m operating simultaneously.	116	49	45	41

The calculated noise levels in Table 9-15 indicates that at the closest NSL is approximately 450 m to the site, predicted noise levels are below the construction noise threshold of 65 dB $L_{Aeq,T}$. At all other NSLs located at further distances, construction noise levels are further reduced as shown in Table 9-15. In the event construction activities are scheduled during evening working hours, the construction noise thresholds for this time period will also be complied with. Reference to Table 9-15 and the baseline noise environment indicates that potential construction noise effects are ***negative, not significant and short-term***.

9.8.1.2 Underground Cable Construction

The proposed underground cable will be constructed from the site to Cashla sub-station with route shown in Chapter 2 Project Description.

The associated construction works will occur for short durations (rolling construction method, approximately 30 – 50 m per day) at varying distances from NSLs. As the underground electrical cable route is approximately 8.1km in length, it will take an estimated 9 months to construct the full length of the route. Review of the underground electrical cable route has identified that the nearest NSLs, are at distances of the order of 10 to 30m.

Table 9-16 outlines the noise levels associated with anticipated construction noise sources along with sound pressure levels from BS 5228 – 1: 2009+A1:2014 at 10m from these works.

Table 9-16 - Construction Plant Noise Source Levels for Underground Cable Route

Item (BS 5228 Ref)	Plant Noise Level at 10m Distance (dB $L_{Aeq,T}$)
Mini Tracked Excavator with Rock Breaker (C5.2)	83
Dumper Truck (C.4.4)	76
Wheeled Loader Lorry (C.2.28)	76
Asphalt paver (+ tipper lorry) (C5.30)	75
Vibrating Rollers (C.5.20)	75
Generator (C.2.44)	77
HGV Movement (C.2.30)	79

Table 9.17 presents noise levels from the plant listed above at various distances from these works.

Table 9-17 - Anticipated Noise Levels from Construction for Underground Cable Route

Item (BS 5228 Ref)	Highest Predicted Noise Level at Stated Distance from Edge of Works (dB $L_{Aeq,1hr}$)			
	10 m	**15 m**	**30 m**	**40 m**
Mini Tracked Excavator with Rock Breaker (C5.2)	83	79	73	71
Dumper Truck (C.4.4)	76	72	66	64
Wheeled Loader Lorry (C.2.28)	76	72	66	64
Asphalt paver (+ tipper lorry) (C5.30)	75	71	65	63
Vibrating Rollers (C.5.20)	75	71	65	63
Generator (C.2.44)	77	73	67	65
HGV Movement (C.2.30)	79	75	69	67
Total Construction noise Level	87	83	77	75

It is important to note that the works for the construction of the proposed underground cable will progress along the cable route in sections of 30–50 m per day. Works will therefore be in proximity to any individual NSLs for limited amount of time, i.e. less than one day.

The predicted construction phase noise levels at the closest NSLs, at distances of 40m and greater from works, are within the construction noise criterion of 70 dB $L_{Aeq,12hr}$ set out in Section 9.5.3.3.2. At shorter distances this criterion is exceeded; this would indicate a potential significant effect. However, taking into account that the proposed underground electrical cabling works will be undertaken in a rolling construction method with 30 –50 m of road constructed and back filled each day, the works close to any individual NSL will last for less than one day, after which the works are at greater distance from the NSL and therefore construction noise levels will be lower. With reference to the time periods in Section 9.5.3.3.4, it is not considered that a significant noise effect is associated with the construction of this element of the proposed works. The overall potential impact is ***negative, not significant and temporary.***

9.8.1.3 Horizontal Directional Drilling locations

As detailed in Chapter 2 Project Description, Horizontal Direction Drilling (HDD) construction method will be used at 3 crossing points with M6 motorway and M17 motorway to install cable ducts under the motorway. Micro-tunnelling machinery will be used to construct a lined tunnel through which the transmission cable duct will pass. Chapter 2 shows the locations of the motorway crossing while Table 9-18 summarises setback distance with NSLs identified at the crossings and sites.

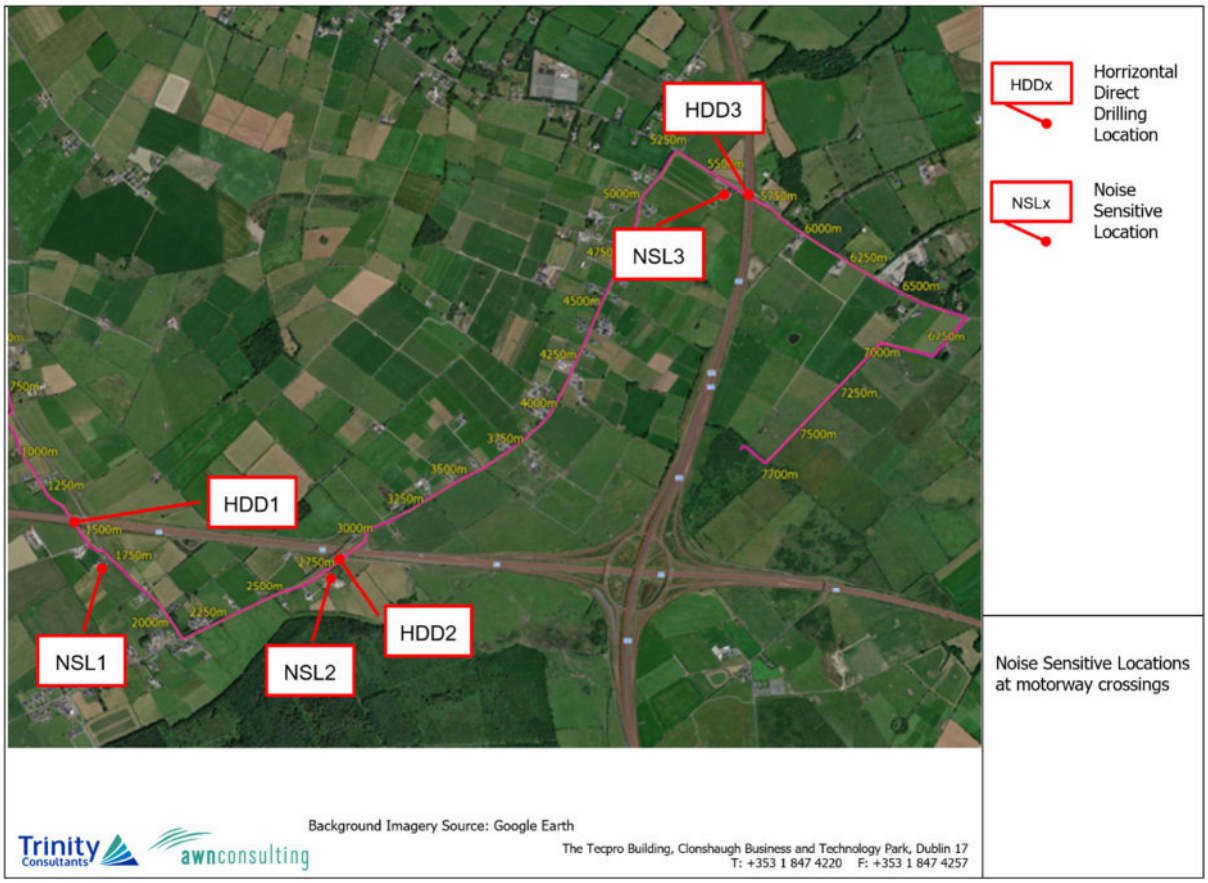


Figure 9-5 – Noise Sensitive Locations at motorway crossing points

Table 9-18 - Noise Sensitive Location setback distance at crossing points

HDD Location	Purpose	Motorway	Chainage	Noise Sensitive Location setback distance (m)
HDD1	Underground Cable	M6	Ch. 1350	90
HDD2	Underground Cable	M6	Ch. 2950	75
HDD3	Underground Cable	M17	Ch. 5670	45

Table 9-18 outlines the noise levels associated with anticipated construction noise sources assessed in this instance along with sound pressure levels from BS 5228 – 1: 2009+A1:2014 at 10m from these works.

Table 9-19 - Construction Plant for motorway crossing at reference distance of 10m

Item (BS 5228 Ref)	Plant Noise Level at 10m Distance (dB $L_{Aeq,T}$)
Wheeled Loader Lorry (C2.28)	76
Microtunelling (Vermeer D40x55 or similar)	76
Dump Truck (C.4.2)	78
HGV Movements (10 per hour)	61

Table 9-19 presents noise levels from the plant listed in Table 9-20 at various distances from these works. The calculations assume that the ground is hard between the works and the NSL, and similar to the underground transmission cable duct route, that there is a solid hoarding between the noise source and the receiver, which offers a noise reduction of 10 dB.

Table 9-20 - Anticipated Noise Levels from Construction Plant at Various Distances from the Motorway Crossings

Item (BS 5228 Ref)	Highest Predicted Noise Level at Stated Distance from Edge of Works (dB $L_{Aeq,1hr}$)		
	45 m	**75 m**	**90 m**
Wheeled Loader Lorry (C2.28)	56	51	48
Microtunelling (Vermeer D40x55 or similar)	56	51	48
Dump Truck (C.4.2)	58	53	50
HGV Movements (10 per hour)	41	36	33
Total Construction noise Level	62	57	54

The noise levels presented in Table 9-20 are within the weekday daytime construction noise limit values shown in Table 9-1. A significant effect is therefore not predicted in relation to the nearest NSL at these distances in terms of this aspect of potential construction noise. In terms of noise associated with the motorway crossing, the associated effect is stated to be ***negative, slight to moderate and temporary***.

9.8.1.4 Construction Vibration

In terms of construction vibration, it is anticipated that excavations will be made using standard excavation machinery, which do not generate appreciable levels of vibration close to the source. When there is piling work on-site, the distance between the site works and the closest NSLs is sufficiently large to ensure no perceptible vibration levels will be experienced from this activity. This is based on the anticipated levels of vibration associated with bored piling at distance of 5 m from a standard rig (<1 mm/s). Taking this into account and considering the distance that these properties are from the works (>450 m) and the attenuation of vibration levels over distance, vibration levels will be orders of magnitude below a level that would be perceptible to building occupants and will also be orders of magnitudes below those associated with building response. The associated impact is considered ***neutral, imperceptible and short-term***.

9.8.1.5 Construction Vibration due to HDD

As the proposed underground cable route is to pass beneath a structure (Ref CH063) listed in Chapter 13 Cultural Heritage, a comment is included here on reference values for vibration generated by HDD.

Studies of vibration levels have been conducted for a 450 mm diameter HDD operation in south Dublin, Ireland (Reilly et al. 2020[81]). The operation was on land and during this project vibration limits of no more than 10 mm/s were imposed during the HDD works. The HDD profile was approximately 150 m long and the drill was 9 m below the ground level. The vibration levels recorded were typically less than 1 mm/s with a maximum of 5 mm/s. These levels are considered representative of the proposed HDD construction and are well below the values in Table 9-4 for building response to light framed or heavy framed buildings and structures and also below to set for protected structures and historical buildings, hence there the impacts are ***negative, not significant and temporary to short-term***. .

9.8.1.6 Construction Traffic

Details of additional traffic flow during construction is described in Chapter 10 Traffic and Transportation. During the construction phase, construction traffic will access the site via the L3103 Road. Highest potential impacts are therefore along the L3103 Road and hence traffic information has been provided for the section of road between Knockadrum Junction and Moanbaun Junction. The information is provided in terms of Annual Average Daily Traffic (AADT) and the percentage of Heavy Good Vehicles (HGVs) for the peak construction year (2026).

The impact from the increase in traffic flows from the Proposed Project has been assessed for the year 2026 relative to the flows without the Proposed Project, as detailed in Table 9-21.

Table 9-21 - Change in Traffic Noise During Construction Phase

Road Link	Without Proposed Project	With Proposed Project	Change In Noise Level, dB(A)	Significance of Effect
	AADT (% HGV)	AADT (% HGV)		
L3103 (Knockadrum Junction to Moanbaun junction)	2036 (10%)	2236 (12%)	+0.8	Imperceptible

Changes in noise level against the predicted increase in traffic flows associated with the Proposed Project can be calculated with reference to CRTN. The estimated increase is less than 1dB along the L3103 Road.

The potential effect is ***neutral, imperceptible and short-term***.

9.8.2 Operational Phase

The primary sources of outward noise from the Proposed Project in the operational context are deemed long-term and will involve:

- operational plant noise (gas turbine, pre-heat boilers and ancillary plant);

[81] Vibrations due to horizontal directional drilling in Lucan Formation rock and Dublin Boulder Clay

- emergency site operations; and
- additional vehicular traffic on public roads.

These issues are assessed in detailed in the following sections.

9.8.2.1 Operational Plant Noise / Emergency Site Operation

In the preparation of this assessment, detailed 3D noise modelling of the Proposed Project has been undertaken by AWN to calculate the operational plant scenarios to its surrounding environment. The model was developed using information provided by the design team and modelled using DGMR *iNoise* in accordance with ISO 9613 – 2 (2024). The various input data, calculation settings and assessment assumptions are provided in Appendix 9-1, Volume 3 of the EIAR.

With the noise model setup as detailed in Appendix 9-3, Volume 3 of the EIAR, noise emission levels have been predicted at the nearest NSLs surrounding the site as illustrated in Figure 9-3 at 4 m height above ground, representing the typical height of a first-floor window of a two-story dwelling.

9.8.2.1.1 Source Noise Data

The noise modelling was undertaken using the sound power noise emissions levels which are listed in full in Appendix 9-3, Volume 3 of the EIAR. Plant items were selected in order to not exceed the stated noise levels and /or appropriate attenuation was incorporated into the design of the plant units in order to ensure that the plant noise emission levels are achieved on site.

9.8.2.1.2 Potential Noise Impact Assessment

Two scenarios have been developed to consider the noise impact of the proposed operations. During normal day to day operation, all the plant will operate, except the emergency low sulphur diesel generator. During an emergency situation when there is loss of electrical transmission connection and local electrical distribution connection, which would result in the plant's emergency low sulphur diesel generator being started. The gas turbine would not be in operation in this situation. It should be noted that such an event is an extremely rare occurrence. The two scenarios are as follows:

- Scenario A: Standard Operations;
- Scenario B: Emergency Operations;

Figure 9-3 highlights the nearest NSL where predictions have been carried out. Noise contours are also presented for the stated scenarios in order to demonstrate the noise impact of the Proposed Project over a wider area, Figure 9-6 - Scenario A –Standard Operation Calculated Noise Contours

There is only one low sulphur diesel generator at the project, and it is assumed that routine testing of the generator can be arranged to be carried out when the other plant items are not operational. Therefore, with the generator testing scenario, both noise criterion and predicted noise levels will be the same as Scenario B Emergency Operations.

The results of the two scenarios are presented and are compared to the relevant noise criteria as adopted for this assessment in Table 9-22. Note all plant will be selected such that no tonal noise emissions are evident at NSLs.

Table 9-22 - Comparison of Predicted Noise Levels vs. Adopted Noise Criteria

Location	Scenario A			Scenario B		
	Predicted dB $L_{Aeq,T}$	Criterion dB $L_{Aeq,T}$	Complies with Criterion?	Predicted dB $L_{Aeq,T}$	Criterion dB $L_{Aeq,T}$	Complies with Criterion?
R01	33	45	✓	26	55	✓
R02	35		✓	24		✓
R03	33		✓	23		✓
R04	35		✓	29		✓
R05	33		✓	20		✓

Scenario A

All locations comply with the adopted night-time criterion of 45dB $L_{Aeq,T}$ in relation to day to day operations and hence comply with the day and evening criterion of 55 and 50 dB $L_{Aeq,T}$ respectively also. Figure 9-6 presents the calculated noise contour for Scenario A.

Review of the predicted noise levels and associated noise contours confirms that the site-specific levels comply with the noise criterion adopted for this assessment at all NSLs in the vicinity of the Proposed Project.

Scenario B

Predicted noise levels at all locations are within the relevant adopted emergency operation limit of 55 dB $L_{Aeq,T}$ in the event that both electrical transmission connection and local electrical distribution connection to the site are lost. Refer to Figure 9-7 - Scenario B - Emergency Operation.

Review of the predicted noise levels and associated noise contours confirm that the site specific levels comply with the noise criterion at all NSLs in the vicinity of the Proposed Project that has been adopted for these situations following review of relevant guidance.

9.8.2.1.3 Assessment of Significance

The proposed plant may be required to operate during day, evening and nighttime and as such, compliance is assessed against background noise levels at the relevant time period. Table 9-23, Table 9-24 and Table 9-25 presents the predicted changes in noise level due to noise contributions associated with the Proposed Project at the nearest NSL to the site for day, evening and night-time periods. The background noise levels used are considered representative of the closest NSLs to the Proposed Project.

Table 9-23 - Review of Predicted Changes in Existing Noise Levels (Daytime)

Location	Scenario A –Operation Day Time				
	Predicted dB $L_{Aeq,T}$	Background Level dB $L_{A90,T}$	Cumulative Noise Level (dB(A))	Change in Noise Level (dB)	EPA Classification of Effects
R01	34	38	39	+1	Not Significant
R02	35	38	40	+2	Not Significant
R03	34	44	44	0	Imperceptible
R04	35	37	39	+2	Not Significant
R05	34	44	44	0	Imperceptible

Table 9-24 - Review of Predicted Changes in Existing Noise Levels (Evening time)

Location	Scenario A –Operation Evening Time				
	Predicted dB $L_{Aeq,T}$	Background Level dB $L_{A90,T}$	Cumulative Noise Level (dB(A))	Change in Noise Level (dB)	EPA Classification of Effects
R01	34	35	38	+3	Slight, Moderate
R02	35	35	38	+3	Slight, Moderate
R03	34	41	42	+1	Not Significant
R04	35	44	45	+1	Not Significant
R05	34	41	42	+1	Not Significant

Table 9-25 - Review of Predicted Changes in Existing Noise Levels (Night time)

Location	Scenario A –Operation Night Time				
	Predicted dB $L_{Aeq,T}$	Background Level dB $L_{A90,T}$	Cumulative Noise Level (dB(A))	Change in Noise Level (dB)	EPA Classification of Effects
R01	34	33	37	+4	Slight, Moderate
R02	35	33	37	+4	Slight, Moderate
R03	34	34	37	+3	Slight, Moderate
R04	35	39	40	+1	Not Significant
R05	34	34	37	+3	Slight, Moderate

The resultant noise effect is ***Negative***, ***Imperceptible*** to ***Slight to Moderate Impact*** and ***Long-term***.

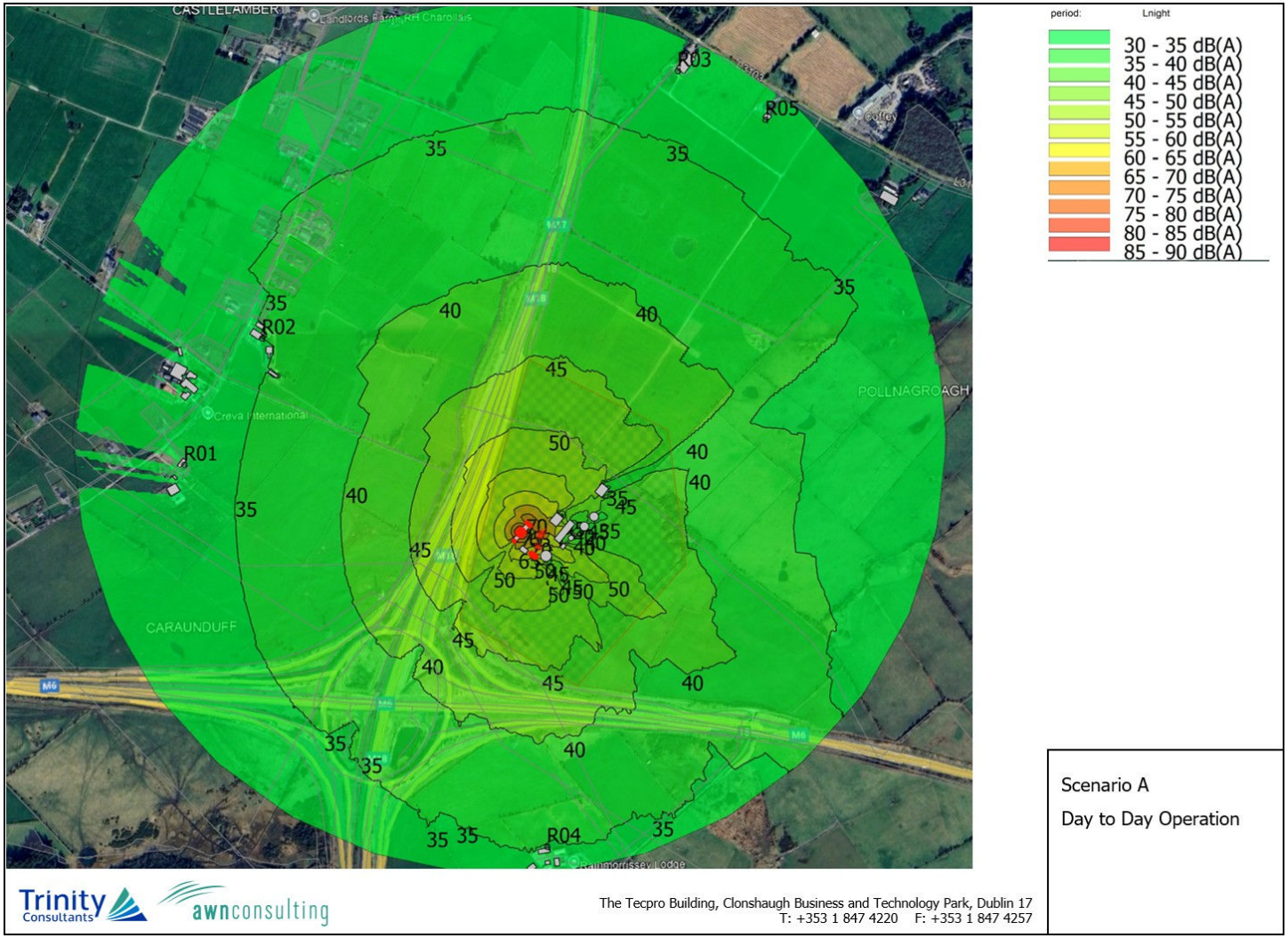


Figure 9-6 - Scenario A –Standard Operation Calculated Noise Contours

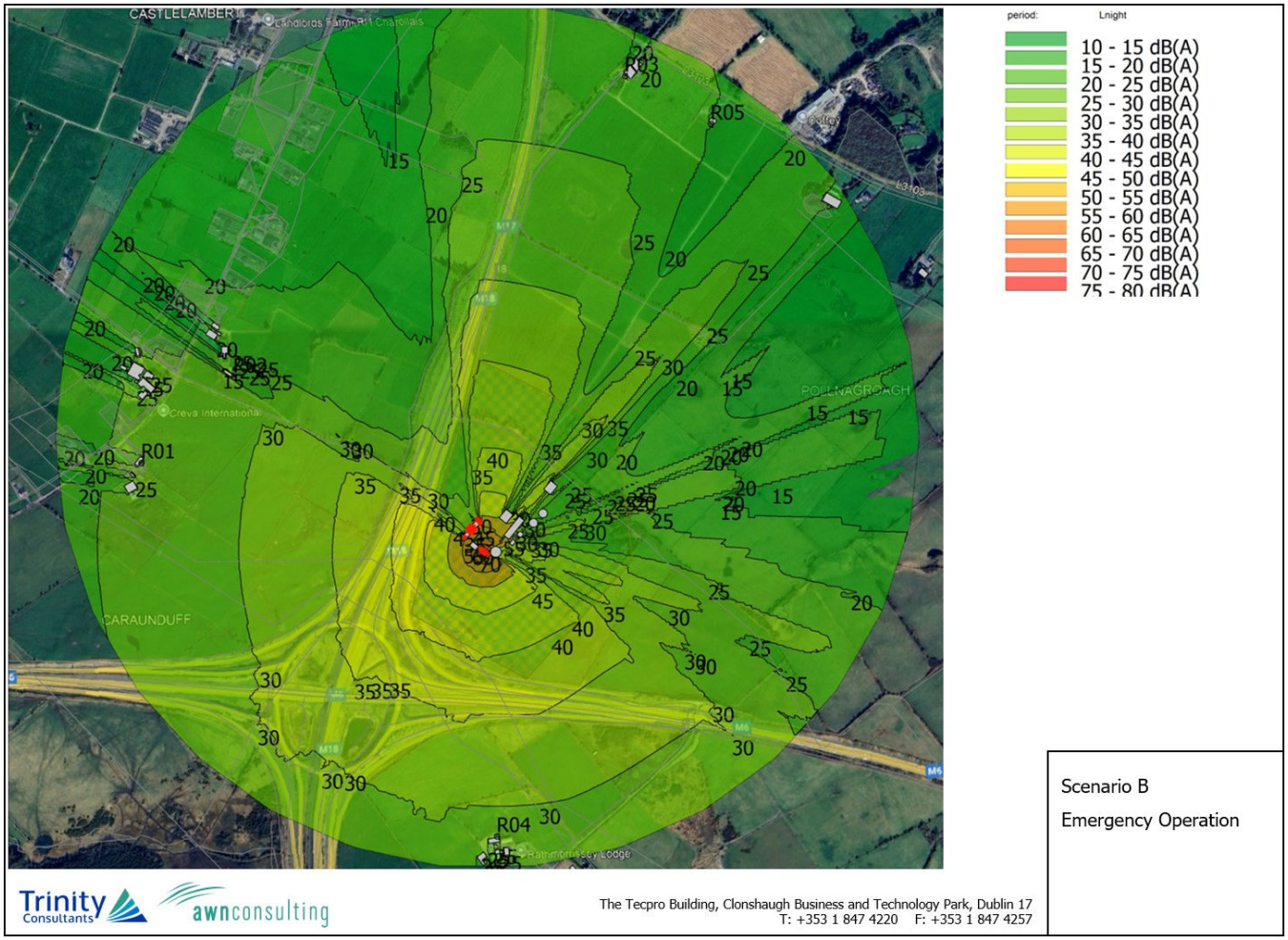


Figure 9-7 - Scenario B - Emergency Operation Calculated Noise Contours

9.8.2.2 Additional Vehicular Traffic on Public Roads

Once operational, traffic will access the site via the L3103 Road. Highest potential impacts are therefore along the L3103 Road and hence traffic information has been provided for the section of road between Knockadrum Junction and Moanbaun Junction. The information is provided in terms of AADT and the percentage of HGVs. The assessment has reviewed traffic flows for the future design year (2043), to align with Traffic and Transport assessment presented in Chapter 10 of the EIAR.

The impact from the increase in traffic flows from the Proposed Project has been assessed for the year 2043 relative to the flows without the Proposed Project, detailed in Table 9-26.

Table 9-26 - Change in Traffic Noise During Operational Phase

Road Link	Without Proposed Project AADT (% HGV)	With Proposed Project AADT (% HGV)	Change In Noise Level, dB(A)	Significance of Effect
L3103 (Knockadrum Junction to Moanbaun junction)	2,568 (12%)	2,588 (13%)	+0.1	Imperceptible

The predicted increase in traffic flows associated with the project will result in an increase less than 1dB along the L3103 Road. Reference to Table 9-3 determines the potential effect to be ***neutral, imperceptible and long-term***.

9.8.2.3 Maximum Permitted Noise Levels

As presented in Section 9.8.2.1.2 and Section 9.8.2.1.3, the likely noise levels due to the Proposed Project, at receivers, are within the noise criteria and are such that the noise effect is not significant.

The EPA's NG4 Guidance (2016) provides general guidance and limits for EPA licensed sites, which will apply to the Proposed Project. In section 4.3, the guidance provides that:

> *While BAT [Best Available Techniques] must be applied on a case by case basis, the noise attributable solely to on-site activities, expressed as a free field value at any NSL, should not generally exceed the values given below. Typical Limit Values for Noise from Licensed Sites*
>
> - *Daytime (07:00 to 19:00hrs) – 55dB $L_{Ar,T}$;*
> - *Evening (19:00 to 23:00hrs) – 50dB $L_{Ar,T}$;*
> - *Night-time (23:00 to 07:00hrs) – 45dB $L_{Aeq,T}$.*

The noise limits identified in the EPA Guidance are slightly higher than the noise levels that are predicted to arise as a result of the operation of the Proposed Project. It is standard practice for planning conditions to align with the limits set in the EPA Guidance and it is therefore anticipated that a condition requiring compliance with the above noise limits will be imposed on the permission for the Proposed Project, if granted.

Accordingly, on a precautionary basis this assessment has also considered the effects of the Proposed Project operating at the levels set in the EPA Guidance rather than at the predicted levels which are outlined in Table 9-23, Table 9-24 and Table 9-25.

The scenario where the noise levels due to the project, at NSLs, just meet the lowest proposed noise criteria in accordance with the NG4 Guidance for the noise environment type, being 45 dB L_{Aeq} at night, section 9.5.3.6.1 has therefore been assessed.

If operation of the project resulted in this noise level at the receivers, when compared to the measured night time background levels, this would be classified as a Significant to Very Significant effect at R04 and a Profound effect at R01, R02, R03 and R05.

When compared to daytime background levels, this would be classified as a Slight, Moderate effect at R03 and R05, and a Significant to Very Significant effect at R01, R02 and R04.

When compared to evening time background levels, this would be classified as a Slight, Moderate effect at R04, Significant to Very Significant effect at R03 and R05, and a Profound effect at R01 and R02.

As discussed in Chapter 2 of this EIAR, the Cashla Peaker Plant is only expected to operate for short periods on an intermittent basis. Therefore, if this scenario were to occur it would be of a short temporary duration occurring intermittently. The resultant effect is considered to be brief and intermittent which would not result in a long term effect.

It is important to note that these noise levels are not predicted to arise from the Proposed Project. They have been assessed only because they are likely to be the maximum permitted noise levels imposed in accordance with the EPA NG4 Guidance.

9.8.3 Decommissioning Phase

The activities during the decommissioning phase will be similar to those for the construction phase, albeit reduced, as the elements constructed underground are proposed to be left *in situ*.

Potential decommissioning noise effects are ***negative, not significant and short-term***.

9.9 Mitigation Measures

In order to sufficiently mitigate the likely noise impact, a schedule of noise control measures has been formulated for construction, operation and decommissioning phases associated with the Proposed Project.

9.9.1 Construction Phase

The assessment in section 9.8.1 has shown that no significant construction noise effects are expected.

A specific construction noise mitigation measure which will be implemented is the installation of a temporary noise barrier at the HDD3 location, for the duration of the HDD works.

The following comments are made in relation to construction noise mitigation:

With regard to construction activities, BS5228 Parts 1 and 2, which offer detailed guidance on the control of noise and vibration from demolition and construction activities, will be followed. Various mitigation measures will be applied during the construction of the Proposed Project. The measures that will be implemented are as follows:

All construction equipment will be:

- Correctly operated and maintained to minimize ground-borne vibration and noise.
- Located away from noise-sensitive receptors where practicable.
- Selected for low noise/vibration potential where possible.
- Switched off when not in use.

- Maintenance records for equipment will be kept on-site. Compliance with the following regulations is mandatory:
- European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001
- SI No. 632 of 2001 & SI No. 241 of 2006 (Outdoor Equipment Noise Emissions)

Measures that will be implemented to reduce impulsive noise consist of:

- Minimizing material drop heights.
- Restricting hammering and rock breaking to morning hours.
- Conducting regular noise checks near sensitive locations (e.g., schools, residences).
- Site access roads will be kept even to reduce vibration from HGVs

In respect of decommissioning of the Proposed Project, the mitigation measures set out above for the construction phase will also be implemented during the decommissioning phase..

9.9.2 Operational Phase

The dominant noise source in operational phase is the gas turbine. Its noise will be minimised by incorporating appropriately specified in-line acoustic attenuators or ‘silencers’ for inlet, exhaust and enclosure to the main body. With due consideration as part of the detailed design process, this approach will result in the site operating within the constraints of the best practice guidance noise limits that have been adopted as part of this impact assessment. For details of the noise emissions, refer to Appendix 9-3, Volume 3 of the EIAR.

The noise mitigation measures described in the following sections are incorporated or ‘designed-in’ mitigation measures, thus the effects of the measures are already reflected in the predicted noise levels provided in Section 9.8.2.1.

9.9.2.1 Enclosure

Noise from the gas turbine body is treated with appropriately designed acoustic enclosure. The acoustic enclosure will be constructed from steel panels with internal acoustic absorbing lining, panels will be properly sealed. By appropriate selection of sound absorbing material and thickness, noise breakout from the main body will be reduced from 133 dBA to 104 dBA.

9.9.2.2 Silencers

Noise reducing silencers are included to mitigate noise produced from the gas turbine.

The gas turbine air inlet and exhaust duct silencers are of passive and absorptive design with the selected attenuation sufficient to reduce the emitted noise to an acceptable level at nearby sensitive receptors. The silencers are contained within the air flow ducting and consist of fibrous material sealed in packages and enclosed between perforated metal plates. The fibrous material within the sealed packages serves to absorb sound energy from the gas turbine compressor and turbine by converting some of the sound pressure to heat.

For the gas turbine intake, it is proposed to install a silencer to reduce sound power from 154 dBA to 105 dBA. For the exhaust, a silencer is also proposed. It is estimated that sound power levels will be reduced from 162 dBA to 96 dBA. Refer to Appendix 9-3, Volume 3 of the EIAR.

9.9.2.3 Noise levels from modelling

With implementation of acoustic treatment presented above, sound power emission of the gas turbine is reduced as shown in Appendix 9-3, Volume 3 of the EIAR..As shown in Appendix 9-2, Appendix 9-3, Volume 3 of the EIAR and Table 9-22 the predicted noise levels at the identified NSLs complies with the target criteria.

9.9.2.4 Additional Vehicular Traffic on Public Roads

As presented in Chapter 10 Traffic and Transportation, traffic during the operational phase are associated with periodic maintenance, sporadic fuel supply and wastewater removal. No mitigation measures are required for noise or vibration from operational traffic serving the project.

9.9.3 Decommissioning Phase

The noise and vibration mitigation measures described in Section 9.9.1 will also be implemented during the decommissioning phase.

9.10 Residual Effects

This section summarises the likely noise and vibration impact associated with the Proposed Project, taking into account the mitigation measures.

9.10.1 Construction Phase

During the construction phase of Proposed Project there will be some impact on nearby NSLs due to noise emissions from site traffic and other activities, however the overall predicted noise levels are well within the adopted criteria due to the distance between the site works and the nearest NSLs. The application of noise and vibration limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum. The residual construction noise effects will be ***negative, slight to moderate*** and ***short term*** in nature.

9.10.2 Operational Phase

Potential noise impact from operation of the Proposed Project had been presented in Section 9.8.2, and noise mitigation measures with acoustic enclosure and silencers have been presented in Section 9.9.2, Residual noise impact are summarised in the following.

9.10.2.1 Building Services Noise / Emergency Site Operation

Proprietary noise control measures have been employed including plant selection and acoustic attenuators, to ensure that noise emissions from gas turbine and associated plants do not exceed the adopted criterion at the façade of any nearby NSLs. In addition, noise emissions will be broadband in nature and will not contain any tonal or impulsive elements. The resultant noise effect is ***negative***, ***slight impact*** and ***long-term***.

9.10.2.2 Additional Vehicular Traffic on Public Roads

In terms of the additional operational traffic on local roads that will be generated as a result of the Proposed Project, the impacts are determined to be ***neutral, imperceptible*** and ***long term.***

9.10.3 Decommissioning Phase

As mentioned in section 9.8.3, the activities during the decommissioning phase are likely to be similar to those for the construction phase.

Residual decommissioning noise effects are ***negative, not significant and short-term***.

9.11 Monitoring Requirements

9.11.1 Construction Phase

As the nearest sensitive location is at least 450 m away from the project and the calculated noise levels are sufficiently below the adopted thresholds, monitoring is not required.

9.11.2 Operational Phase

If required by the planning conditions, noise monitoring will be undertaken at periodic sample periods at the nearest NSL to the project works to confirm compliance with the operation noise criterion. Noise monitoring will be conducted in accordance with the ISO 1996-1.

9.11.3 Decommissioning Phase

Similar to the construction phase, noise and vibration monitoring is not required.

9.12 Difficulties encountered during preparation of this chapter

There were no difficulties encountered during preparation of this Chapter.

10. Traffic and Transportation

10.1 Introduction

This Chapter reviews the current receiving environment in terms of existing road traffic characteristics and quantifies the associated baseline scenario whilst undertaking an assessment of the Proposed Project to identify its likely effects on the traffic environment for the proposed project. The details of the Proposed Project are provided in Chapter 2 – Project Description.

This chapter should be read in conjunction with the following documents which provide full details on certain assessments which are summarised in this chapter:

1. Construction Traffic Management Plan (Ref: PEK3-ATR-ZZ-ZZ-RP-CE-300002 P02_CTMP) – Appendix 2-11, Volume 3 of the EIAR.
2. Cashla Peaker Plant – Abnormal Load Assessment Report (Ref: 0114485DG0025) – Appendix 2-6, Volume 3 of the EIAR.
3. Cashla Peaker Plant Pavement Analysis - Technical Note (Ref: 0114485DG0032) – Appendix 2-4, Volume 3 of the EIAR.
4. Civil Engineering Planning Report (Ref: PEK3-ATK-ZZ-ZZ-RP-CE-300001) - Appendix 2-12, Volume 3 of the EIAR.

10.2 Study Assessment and Methodology

This traffic chapter has been prepared in accordance with European Union (Environmental Impact Assessment Directive (2011/92/EU as amended by 2014/52/EU) and European Union (Planning and Development) (Environmental Impact Assessment) Regulations and in compliance with the following:

- Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' published in 2022;
- EPA Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)' published in September 2003;
- European Commission (EC) 'Environmental Impact Assessment of Projects Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU)', published in 2017;
- EC 'Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)', published in 2017;
- Department of Housing, Local Government and Heritage (DoHPLG) 'Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment' published in August 2018;
- TII Project Appraisal Guidelines – Travel Demand Projections (PE-PAG-02017, published in October 2021);
- Traffic Capacity of Urban Road, TA79/99 by DMRB, UK

The assessment methodology for the traffic and transport impact is consistent with the Transport Infrastructure Ireland's (TII) Traffic and Transport Assessments Guidelines. The methodology is summarised as follows:

- **Baseline Transportation Review**: Undertake a review of current planning policies and objectives, existing public transport services, walking and cycling network and existing and roads infrastructure;
- **Baseline Traffic Flow Review**: Undertake site visits to review current traffic conditions and to make observations on same. Identify key junctions where traffic count survey information is required;

- **Future Transport Infrastructure Review:** Undertake a review of current transport policies, plans and strategy to identify future short, medium and long term transport proposals which may have a material impact on the travel behaviour associated with the Proposed Project;
- **Project Proposals Review**: Review the Proposed Project in terms of provision for access by walking, cycling, public transport and car;
- **Transport Characteristics Review**: Undertake an assessment of the likely modal share, trip generation, assignment and distribution having regard to existing and potential future traffic patterns on the local road network;
- **Identification of Local Road Network Proposals:** Identify proposed junction works on the local road network in terms of new junctions, improvements for pedestrians, cyclists and traffic at existing junctions;
- **Assessment of Road Impact – Operational Phase**: Undertake an assessment of the key junctions during the operational base year, opening year, opening year plus five and opening year plus fifteen assessment years for both 'without project' and 'with project' scenarios in order to determine future operation and any necessary mitigation measures required; and,
- **Assessment of Road Impact – Construction Phase**: Undertake an assessment of the potential traffic generation during the construction phase and assess the percentage traffic impact likely to occur and to identify any appropriate mitigation.

10.3 Receiving Environment

A detailed description of the site location can be found in Chapter 2 of the EIAR. A summary of the receiving environment is provided below.

10.3.1 Site Location

The greenfield site in Pollnagroagh, Athenry is located approximately 18 km east of Galway City and 2 km west of Athenry. This site, with an area circa. 19.17 hectares, is positioned between the northern and eastern arms of the M6/M18 interchange. Access to the site will be provided via a newly proposed 1.15 km long access road connecting to the L3103, approximately 1 km east of the M17 motorway. The grid connection route traverses approximately 8.1km including along the L7109, L71093, L7108 and L3103 roads. The location map of Proposed Project and underground cable grid route to connect into the existing Cashla Substation are provided in Figure 10-1.

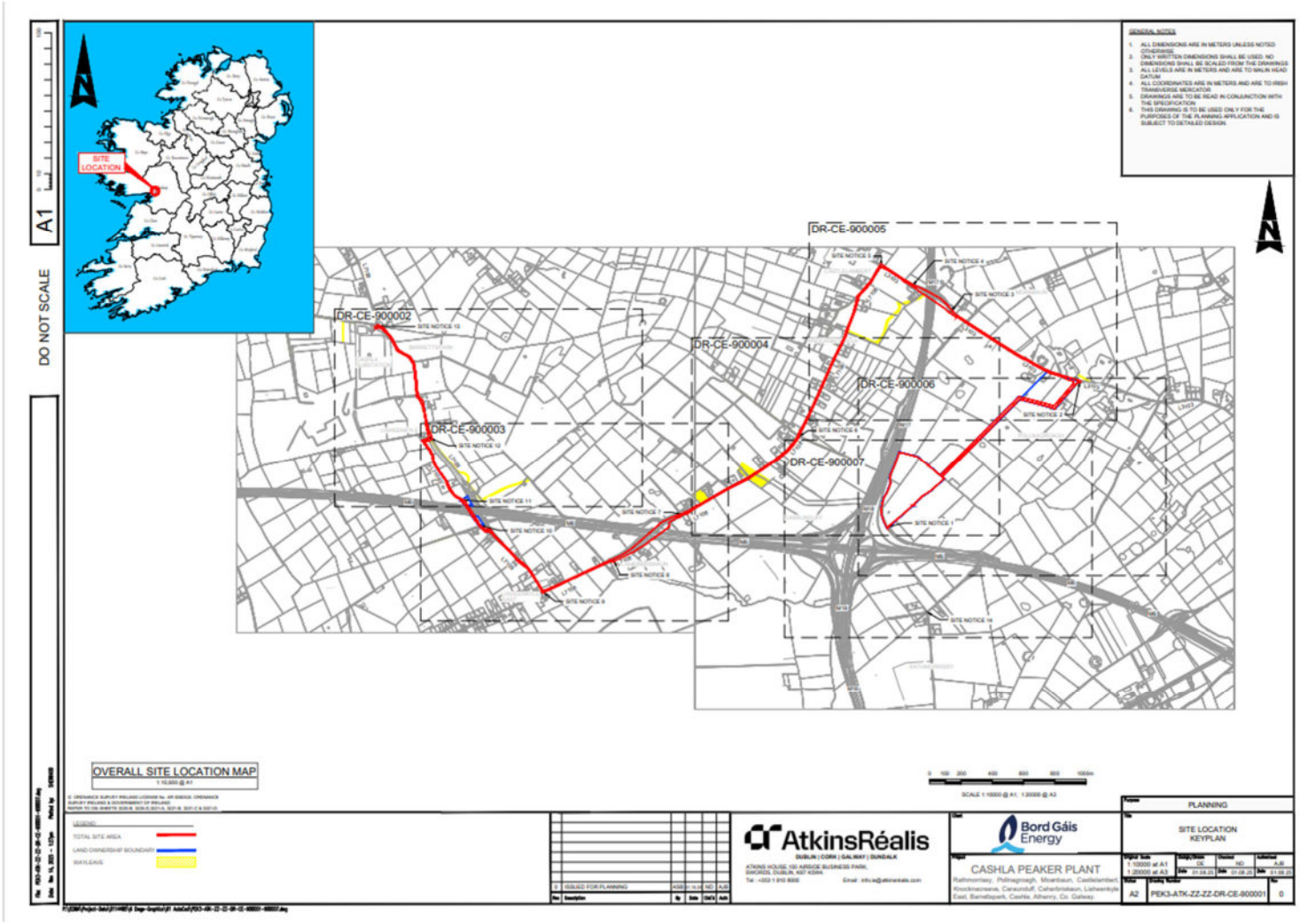


Figure 10-1 - Location of the Proposed Project and underground cable grid route to connect into the existing Cashla Substation (Source: AtkinsRéalis Planning Drawings, 2025)

10.3.2 Access Road

Access to the proposed main project site will be provided via a newly proposed 1.15 km access road connecting to the L3103, approximately 1 km east of the M17 motorway (Figure 10-2).

Figure 10-2 - Site Access to the Proposed Main Project Site

10.3.3 Surrounding Roads

10.3.3.1 Peaker Plant

The proposed main project site is expected to receive both standard and abnormal load deliveries. Standard deliveries will be facilitated via the immediate regional road system which include the following roads (in order of proximity to the site): L3103, R339, R347, M6 and the M17. The extraordinary abnormal loads are anticipated to utilise the route illustrated in Figure 10-3 below.

Figure 10-3 - Proposed Extraordinary Abnormal Load Route

10.3.3.2 UGC Grid Route:

The proposed 220 kV UGC Grid Route is 8.1 km in length, and for the majority of the route navigates the public road network in an Eastward direction from the Cashla 220 kV substation to the Proposed Peaker Plant. The UGC route predominantly traverses L3103, L7108 and L7109 Local Roads with some minor sections traversing within privately owned lands. This is necessitated by the use of a horizontal directional drilling (HDD) section to cross the M6 motorway in 2 no. separate locations and the M17 motorway in 1 no. location. The proposed cable installation route is shown in Figure 10-4.

Figure 10-4 - Proposed 220 kV underground cable Grid Route from Cashla Peaker Plant to Cashla 220 kV Substation

10.3.4 Existing Pedestrian and Cyclist Facilities

Currently, there are no cycling facilities along the L3103 Local Road near the Proposed Project.

10.3.5 Existing Public Transport Facilities

There are currently no bus stops located on the L3103 Local Road in near vicinity of the Proposed Project.

10.4 Potential Impact of the Proposed Project

10.4.1 Baseline Traffic Data

Baseline traffic data for the nearest local road, L3103, was obtained from an Automatic Traffic Counter (ATC) survey conducted 50 m east of the junction with Moanbaun on 13 February 2025. The survey location is shown in Figure 10-5.

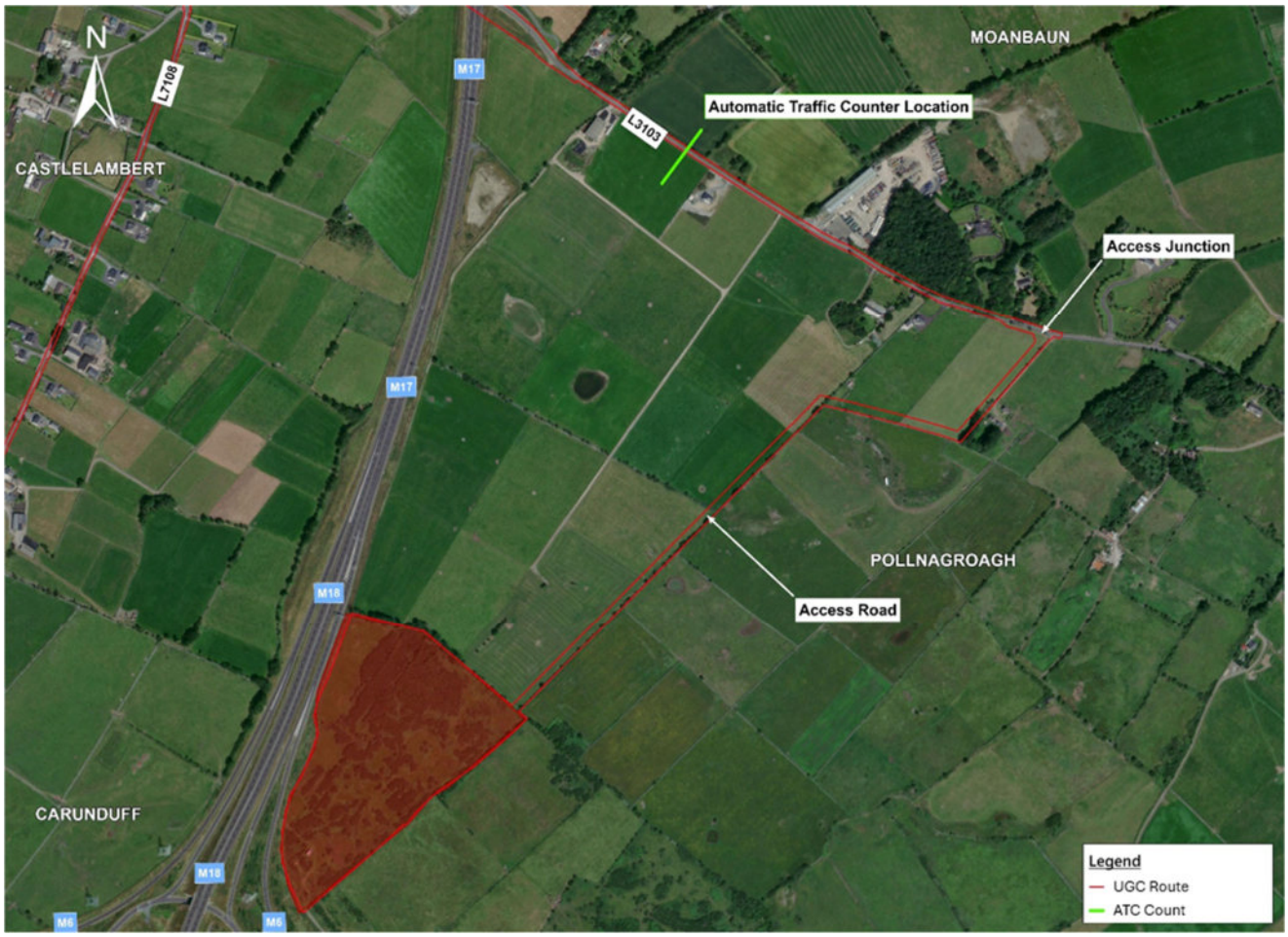


Figure 10-5 - Location of Automatic Traffic Counter survey

Based on the data, the two-way traffic flow along the L3103 is summarised Figure 10-6 below. The peak hours identified were:

- **AM Peak:** 8 to 9 am (around 280 passenger car units, pcu)
- **PM Peak:** 5 to 6 pm (around 230 pcu)

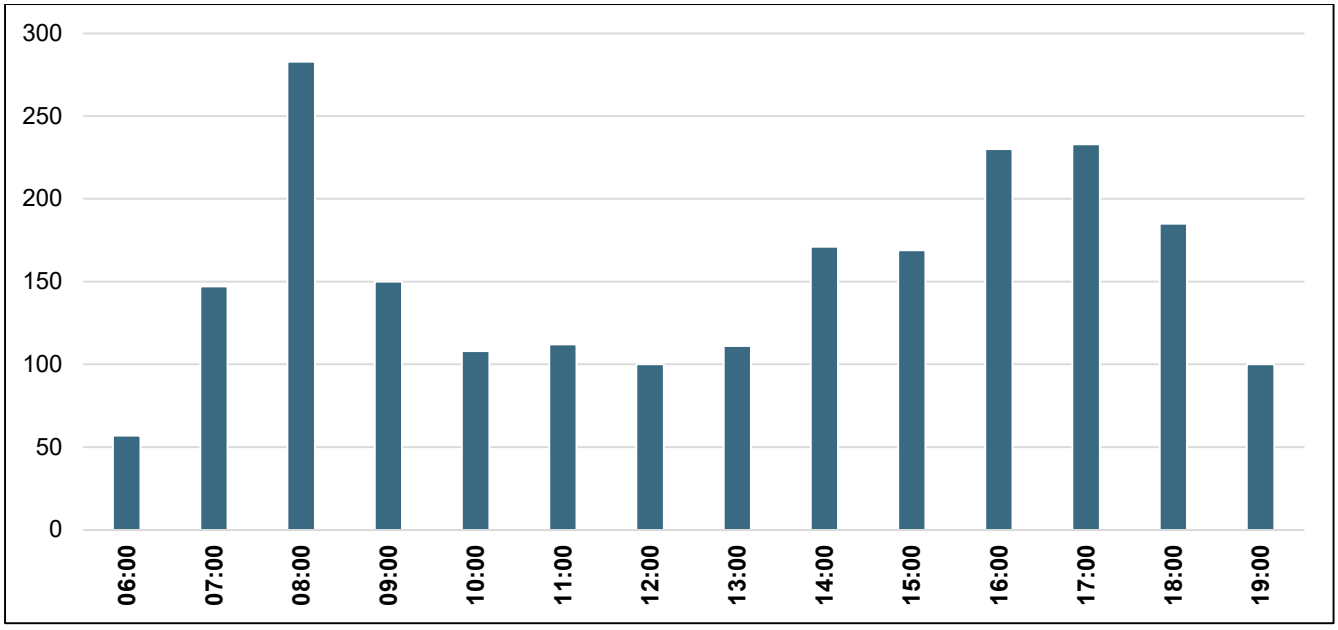


Figure 10-6 - Two-way existing flow from Automatic Traffic Counter survey (in PCU)

10.4.1.1 Potential Evolution of Baseline

It is noted that the baseline traffic conditions are likely to remain unchanged throughout the project timeline. This is based on the lack of background development on the surrounding road network.

10.4.2 Existing Capacity Analysis

The existing capacity of the R3103 was analysed in accordance with the guidelines provided in the Design Manual for Roads and Bridges, specifically Volume 5, Section 1, Part 3, titled 'Traffic Capacity of Urban Roads' (published in May 1999)[82]. According to this guidance, the two-way capacity of the L3103 (classified as UAP4) is 1,500 vehicles per hour.

10.4.3 Potential Impact: Operational Phase

During the operational phase of the Proposed Project, minimal traffic is anticipated to be generated. This is largely due to the characteristics of the project (minimally manned and remote operation). The only trips associated with the entire project during operation are as follows:

1. AGI Facility: Bi-weekly maintenance which will be serviced by a single vehicle (most likely a van).
2. Cashla Peaker Plant:
    a. Bi-weekly maintenance which will be serviced by a single vehicle (most likely a van)
    b. Single low sulphur diesel tanker (sporadic – low sulphur diesel is only required as a backup)
    c. Single tanker every 5 years in order to remove wastewater from site

[82] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR050007/TR050007-001302-Sapcote%20Parish%20Council%20-%20Comments%20on%20Relevant%20Representations%20(RRs)%204.pdf

Due to the nature of the project, these trips are likely to be sporadic and are considered imperceptible.

10.4.4 Potential Impact: Construction Period

The construction period is the only period within which any perceptible impact is expected on the local transportation network. The construction impact is divided into two main components:

- Additional construction trips onto the local road network (including staff, general deliveries and material import/spoil).
- Local Road Closures required due to the UGC installation.

Each component is discussed in further detail in the following sections.

10.4.4.1 Additional Traffic Flows:

This section estimates the number of daily construction trips likely to be generated and their potential impact on the L3103.

10.4.4.1.1 Working Period and Hours

Construction is expected to commence in Q2-2027 and last approximately eighteen months, while the construction of UGC Grid Route is estimated to take ca. 9 months (including resurfacing) where some of the elements may occur concurrently, if possible, in order to reduce impact timeframes. The standard working hours for the project are provided in the Table 10-1 below.

Table 10-1 - Operating Hours During Construction

Time Period	Peaker Plant / AGI	UGC Installation
Weekdays: Mon – Fri	07h00 – 18h00	07h00 – 18h00
Saturdays	07h00 – 14h00	No Work
Sundays	No Work	No Work

Any changes to these hours will be made in consultation with local authorities and will be subject to approval.

10.4.4.1.2 Staff Trips

At peak construction, up to 150 workers are expected on-site. Assuming a car ownership rate of 1.5 and 100% car mode share, approximately 100 car trips are anticipated. The mode share is based on the lack of pedestrian and cycling infrastructure on the local network.

All trips are assumed to be car-based (pcu factor = 1). The distribution of staff trips is shown in Table 10-2.

Table 10-2 - Staff Trips By hour

Time	Arrivals/ Departures	Percentage	Trips (pcu)
6 to 7 am	Arrivals	80%	80
7 to 8 am	Arrivals	10%	10
8 to 9 am	Arrivals	10%	10
5 to 6 pm	Departures	10%	10
6 to 7 pm	Departures	10%	10
7 to 8 pm	Departures	80%	80

Based on the above, it can be assumed that the majority of staff trips will occur outside the usual peak hours identified within the network.

10.4.4.1.3 Heavy Vehicles Trips

For the construction of the Peaker Plant, it is anticipated that the majority of heavy vehicle trips will be associated with earthworks. It is estimated that 13,000 m³ of earthworks material will be hauled during the construction period. Assuming a density of 2 tonnes/m³, the total weight of haulage material is expected to be around 26,000 tonnes.

Further, assuming a single trailer can accommodate 20 tonnes of material, this will constitute a total of 1,300 vehicle trips over the entire earthworks period.

To determine the number of vehicles per hour, the following assumptions were made:

- Earthworks period: 6 months out of the total two-year construction period
- Heavy vehicles restricted to 9 am – 4 pm (7 hours) on weekdays and 9 am – 2 pm on Saturdays
- Total of 40 hours per week
- Assuming 4 weeks per month, i.e. 160 hours/month and 960 hours over 6 months
- Assuming uniform haulage, it will result in 2 vehicles/hour
- Assuming vehicles return during the same hour, i.e. 4 two-way vehicle trips/hour
- Assuming PCU factor of 3, that is a total of 12 PCU/hour (two-way trips) of HV trips

It is unlikely that all abnormal loads will be transported on a single day. Assuming a worst-case scenario of 2no. abnormal loads per day, and a Passenger Car Unit (PCU) value of 4 per abnormal load, this results in 8 PCU daily trips, or 16 PCU two-way trips.

These trips will occur in the afternoon, outside of school closing hours, to minimize traffic impact.

Including other heavy vehicle (HV) trips (estimated at 6 PCU/hour), the maximum daily total is 14 PCU/hour, or 28 two-way trips (assuming return within the same hour). These are summarized in Table 10-3.

It should be noted Abnormal loads are assumed to occur outside of peak periods, as the exact timing will depend on the construction methodology. This assumption represents a worst-case scenario.

Table 10-3 – Two – way Construction Trips (in pcu)

	Staff		HV (in pcu)		Two-way total
Time	Arrival	Dep	Arr	Dep	
06h00	80	0	0	0	80
07h00	10	0	0	0	10
08h00	10	0	0	0	10
09h00	0	0	14	14	28
10h00	0	0	14	14	28
11h00	0	0	14	14	28
12h00	0	0	14	14	28
13h00	0	0	14	14	28
14h00	0	0	14	14	28
15h00	0	0	14	14	28
16h00	0	10	0	0	10
17h00	0	10	0	0	10
18h00	0	80	0	0	80

The other component of construction traffic will be associated with the UGC installation. The cable installation will include the following staff/equipment:

- Up to 10 Electrical/Civil Crews
- Excavators
- 360˚ tracked excavators (13 ton normally, 22 ton for rock breaker)
- Tracked dumpers / tractors and trailers
- Crane
- Hoist
- Power Tools
- Generator
- Scaffolding
- Substation Electrical Equipment

Whilst these activities are anticipated to generate small volumes of traffic, the scale of the traffic generated is anticipated to be far smaller than the Peaker Plant itself and not coincide with peak construction activities. The traffic impact associated with additional trips on the external road network is therefore considered negligible and short term.

10.4.4.1.4 Construction Traffic Impact

As stated earlier in the chapter, the capacity of the local road was determined to be 1,500 vehicles per hour. The following graph summarises in Figure 10-7 the total trip generation in relation to the baseline link capacity of Local Road L3103.

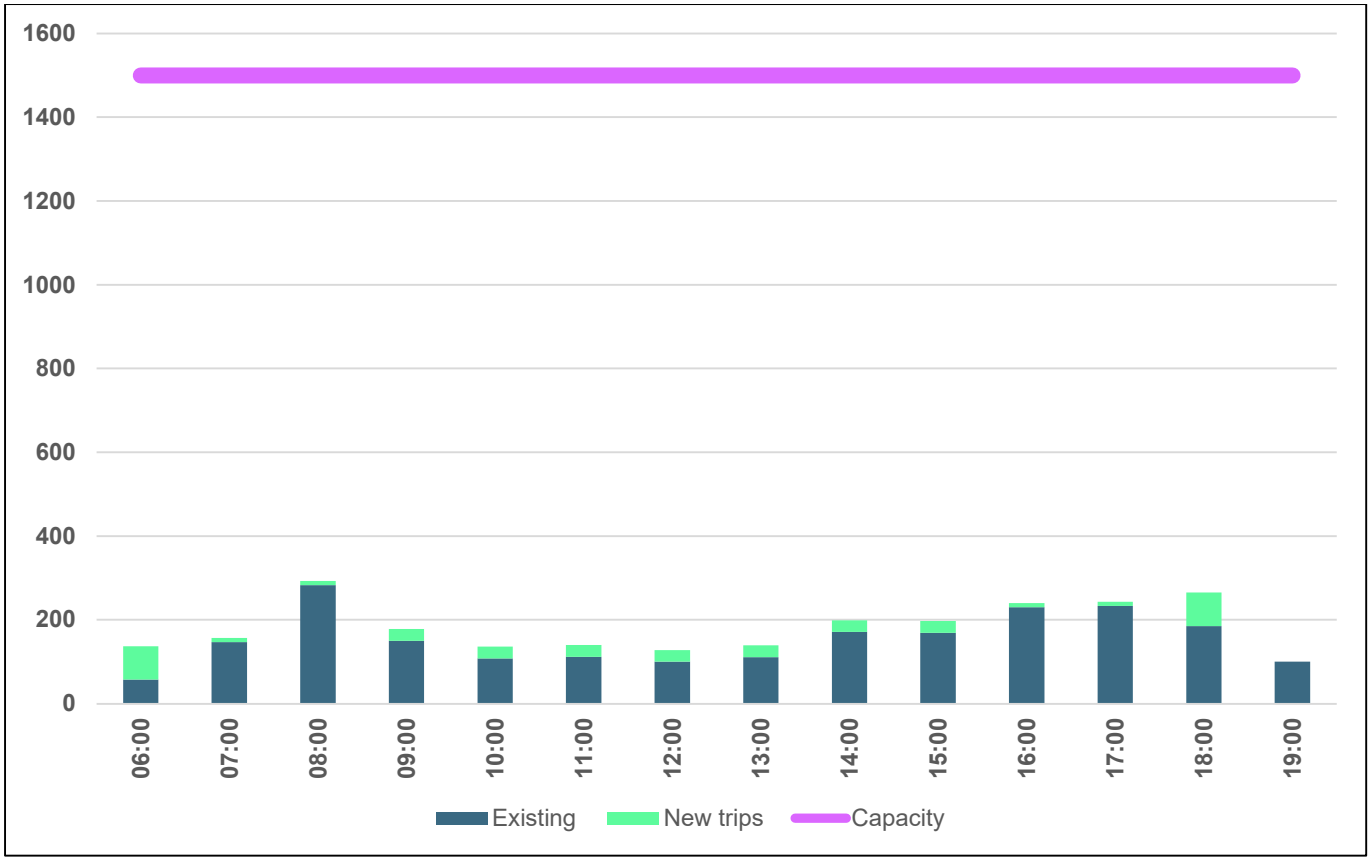


Figure 10-7 - Construction trips Impact

From the figure above, it can be observed that the cumulative flow is well within the maximum capacity of Local Road L3103. Thus, the impact of the additional trips will be “Not Significant”. It should be noted that a worst-case scenario was assumed regarding the number of construction trips generated as they would most likely occur outside of network peak periods.

10.4.4.2 Road Closures due to UGC Installation

The UGC Grid Route installation works will follow along the roads Lisheenkyle East (L7108), L7109 and L3103 as shown in the Figure 10-8 below. This installation will require two distinct closure instances, associated with the following construction activities:

3. Main Cable Construction (all works associated with installation of cable, backfilling and resurfacing trench)
4. Resurfacing (it is anticipated that all roads will require full width resurfacing in order to reinstate the road back to the original condition).

The closure summary for each road is provided in Table 10-4 and Figure 10-8 below.

Table 10-4 - Closure Periods for UGC Installation

Construction Activity	Total Duration	L3103	Lisheenkyle East (L7108)	L7109
Main Cable Construction	6 months	1 month	3 months	2 months
Resurfacing	4 months	2 weeks	2 months	1.5 months

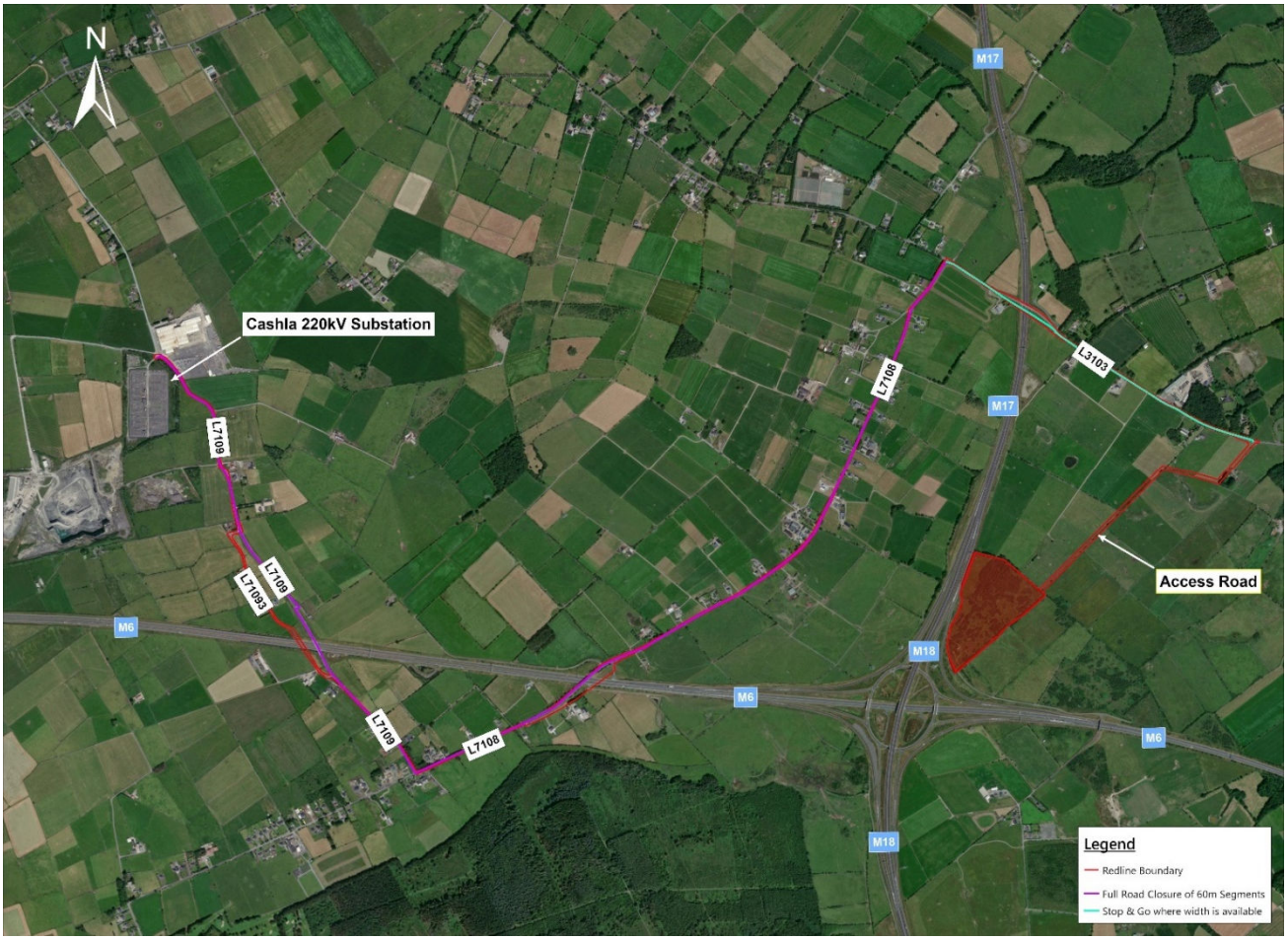


Figure 10-8 - Proposed Road Closures

It should be noted that GI investigations will be undertaken on local roads which will require minor traffic management measures to ensure safety of personnel. No road closures will be required at these locations.

10.4.4.2.1 Full Road Closures

Due to limited road width along Lisheenkyle East (L7108) and L7109 roads, full road closures will be required. A section of approximately 3km will be closed on both the roads, resulting in a diversion route of around 8km, which adds approximately 5km of extra travel.

While full closure is shown on these roads, only through-traffic will be impacted as residents will be able to access their properties from each side of the closure segments as outlined below. This will be facilitated via limiting trench lengths to sequential 30 to 50m sections (shorter segments between 2 – 5m will be implemented in scenarios where adjacent properties create short segments between access points. This will ensure residents' entry and egress from one side of a property is maintained at all times. Closure segments will, wherever possible, avoid local driveways in order to reduce impacts on local residents. An example of a proposed road closure is shown in Figure 10-9 below.

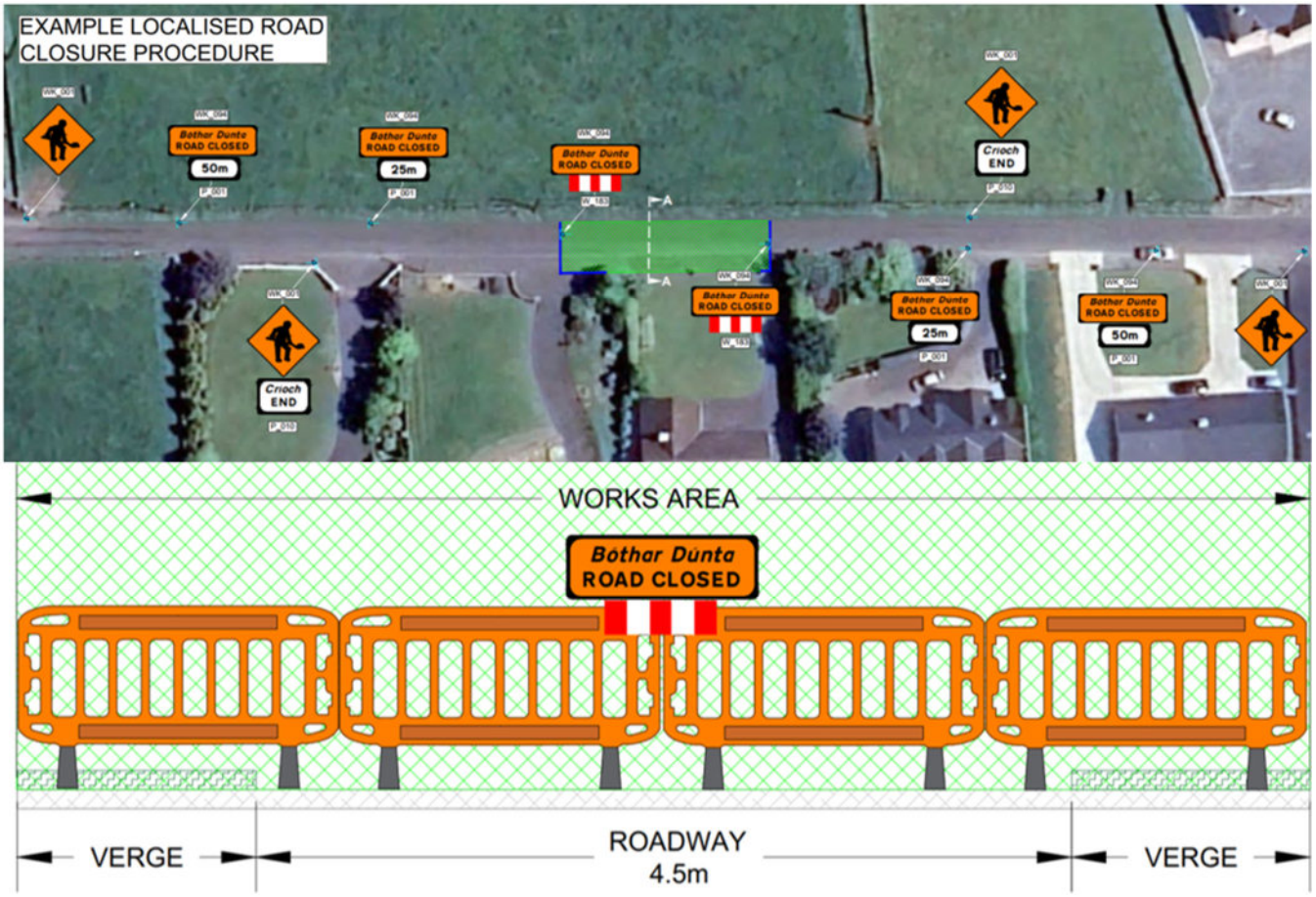


Figure 10-9 – Proposed Closure Procedure

The proposed diversions are as follows:

- Lisheenkyle East Road (L7108) Diversion Route: L7109 (via Lisheenkyle East (L7108) & L7109 junction) -> R339 (via L7109 road & R339 junction) -> L3103 Road (via R339 & L3103 Moor Road junction)
- L7109 Road: Along Lisheenkyle East Road (L7108) (Via Lisheenkyle East Road (L7108) & L7109 junction) -> L3103 road (via Lisheenkyle East Road (L7108) & L3103 junction) -> R339 (via R339 & L3103 Moor Road junction)
- Traffic will be diverted via alternative routes as outlined in Figure 10-10 and Figure 10-11 below. Examples of closure points at diversion junctions are shown in Figure 10-12 and Figure 10-13 below.

For more detailed layouts, refer to Drawing Nos. 068-AKR-001-02a and 068-AKR-001-03a which are included in the appendix of the Construction Traffic Management Plan (CTMP) presented in Appendix 2-11, Volume 3 of the EIAR.

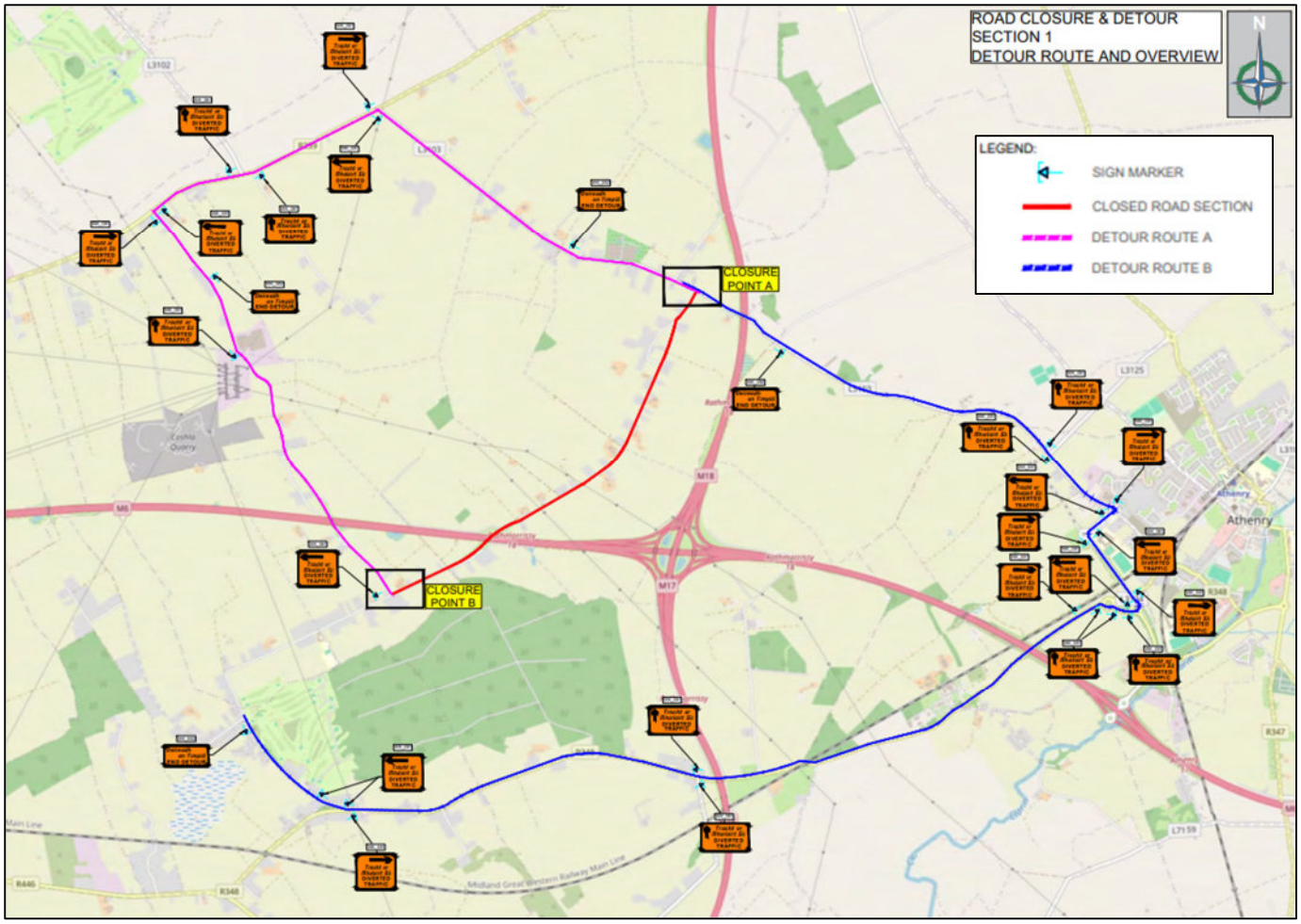


Figure 10-10 - Diversion Route during Lisheenkyle East Road (L7108) Closure (except local traffic). Note this figure is intended to show the relevant diversion routes. Refer to Drawing Nos. 068-AKR-001-02a and 068-AKR-001-03a which are included in the appendix of the Construction Traffic Management Plan (CTMP) for full details.

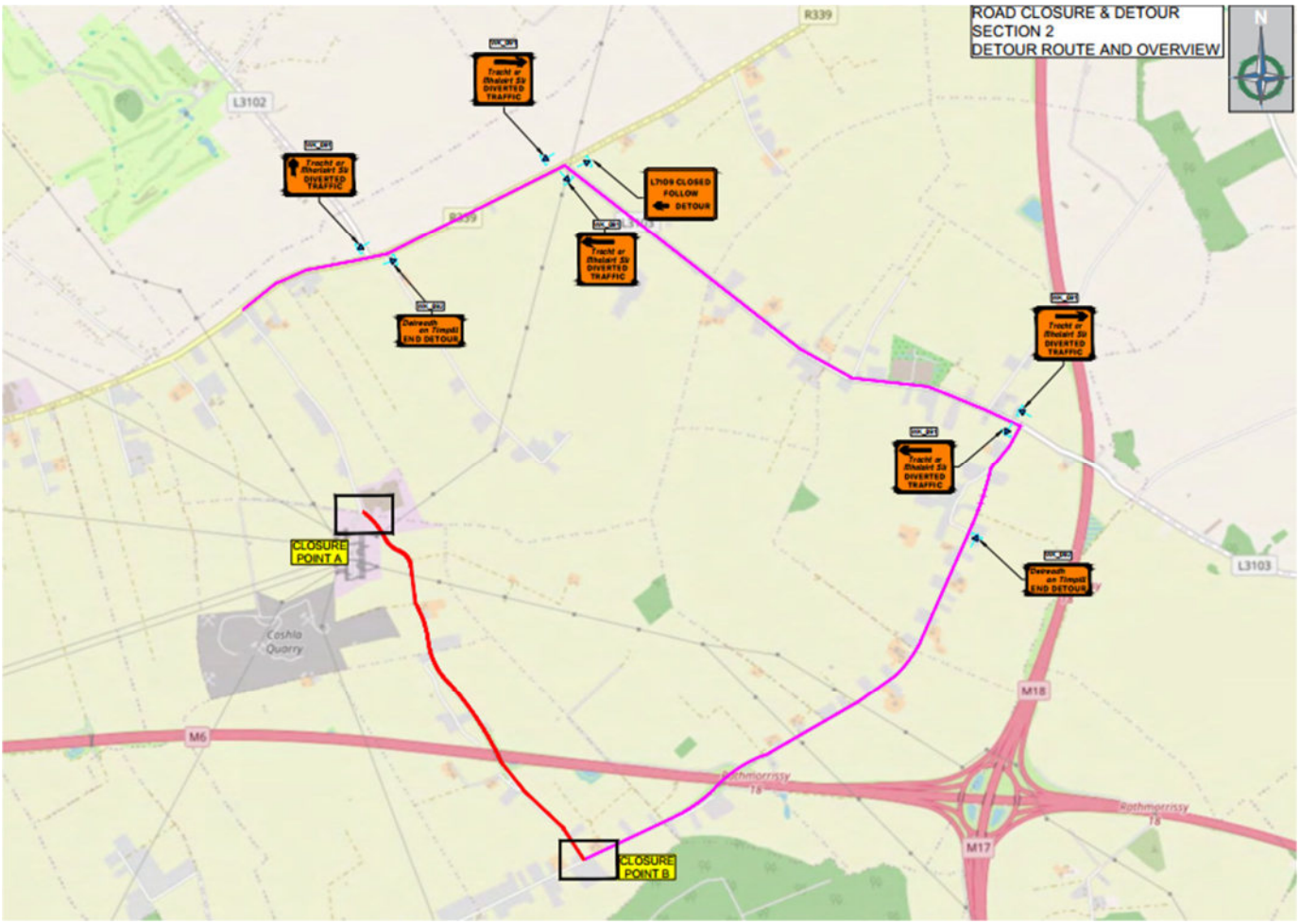


Figure 10-11 - Diversion Route during L7109 Road Closure (Except Local Traffic). Note this figure is intended to show the relevant diversion routes. Refer to Drawing Nos. 068-AKR-001-02a and 068-AKR-001-03a which are included in the appendix of the Construction Traffic Management Plan (CTMP) for full details.

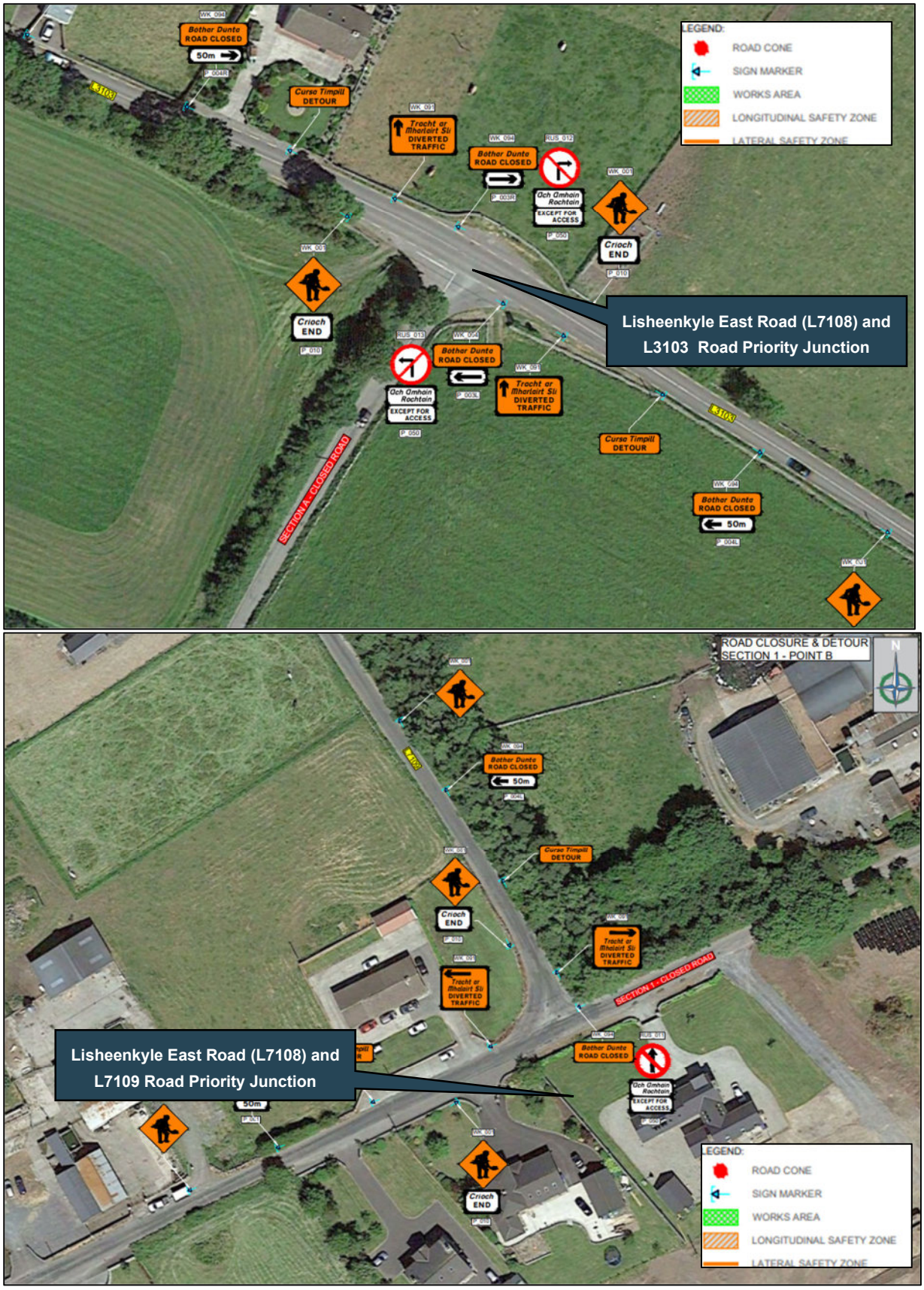


Figure 10-12 - Junctions Closed during Lisheenkyle East Road (L7108) Closure (Except Local Access)

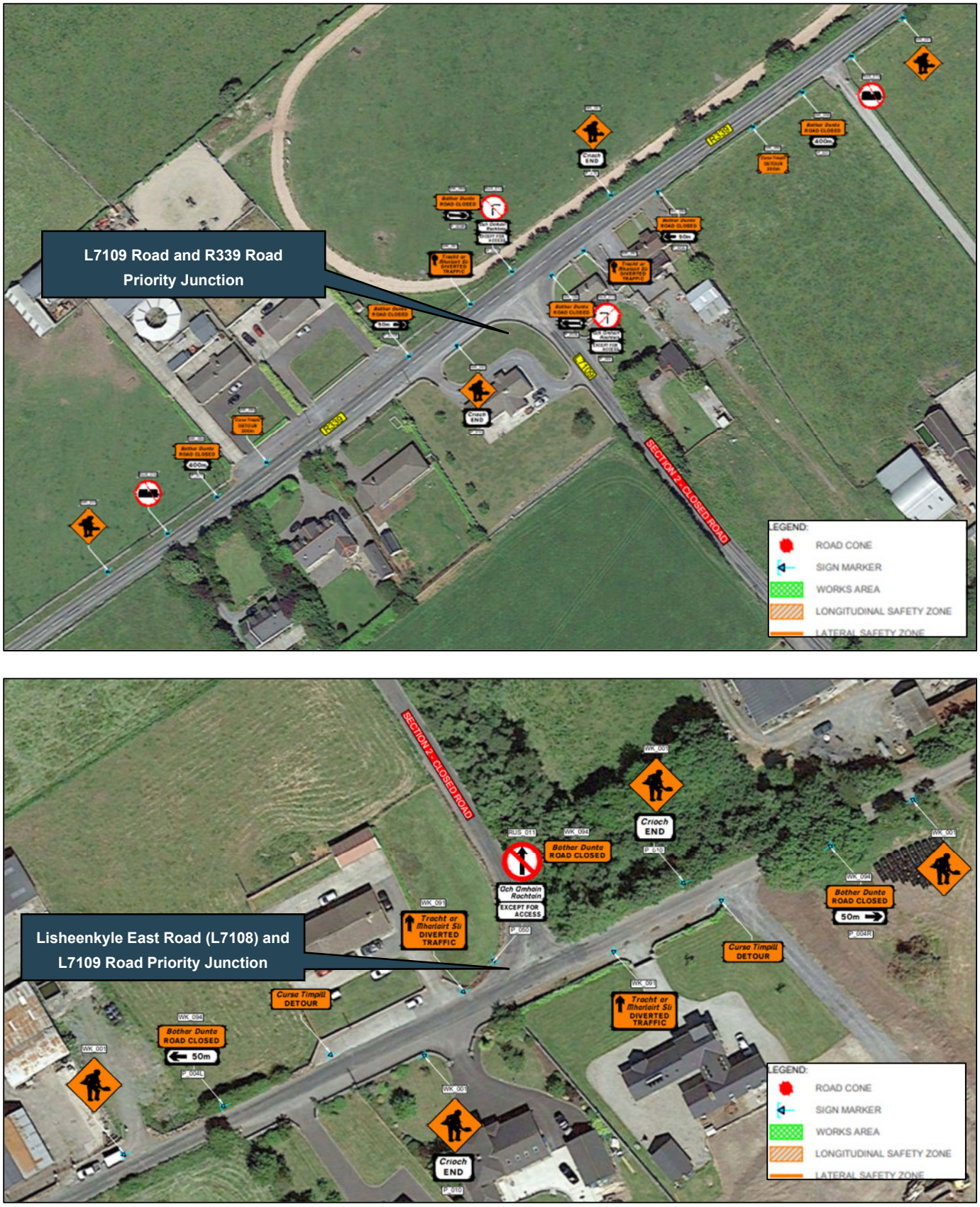


Figure 10-13 - Junctions Closed during L7109 Road Closure (Except Local Access)

Overall, the impact of full road closures are considered to be negative, significant but short term and will be limited to local residents on the L7108 and L7109. All through-traffic will be diverted with adequate warning in order to reduce the diversions required.

10.4.4.2.2 Partial Road Closures

Partial road closures are anticipated on the L3103 where sufficient width is available for one-way traffic. Installation works will be carried out on one side of the road, while a minimum 2.5m wide carriageway will be maintained for traffic flow on the other side. Temporary traffic signals will be used to safely guide vehicles through the work zone. It is proposed that the UGC will be installed in 30m segments with no more than 50m excavated without the majority of the previous section being reinstated. An example of the proposed system on the L3103 is shown in Figure 10-14 below. Further details are provided in Drawing No. 068-AKR-001-01.

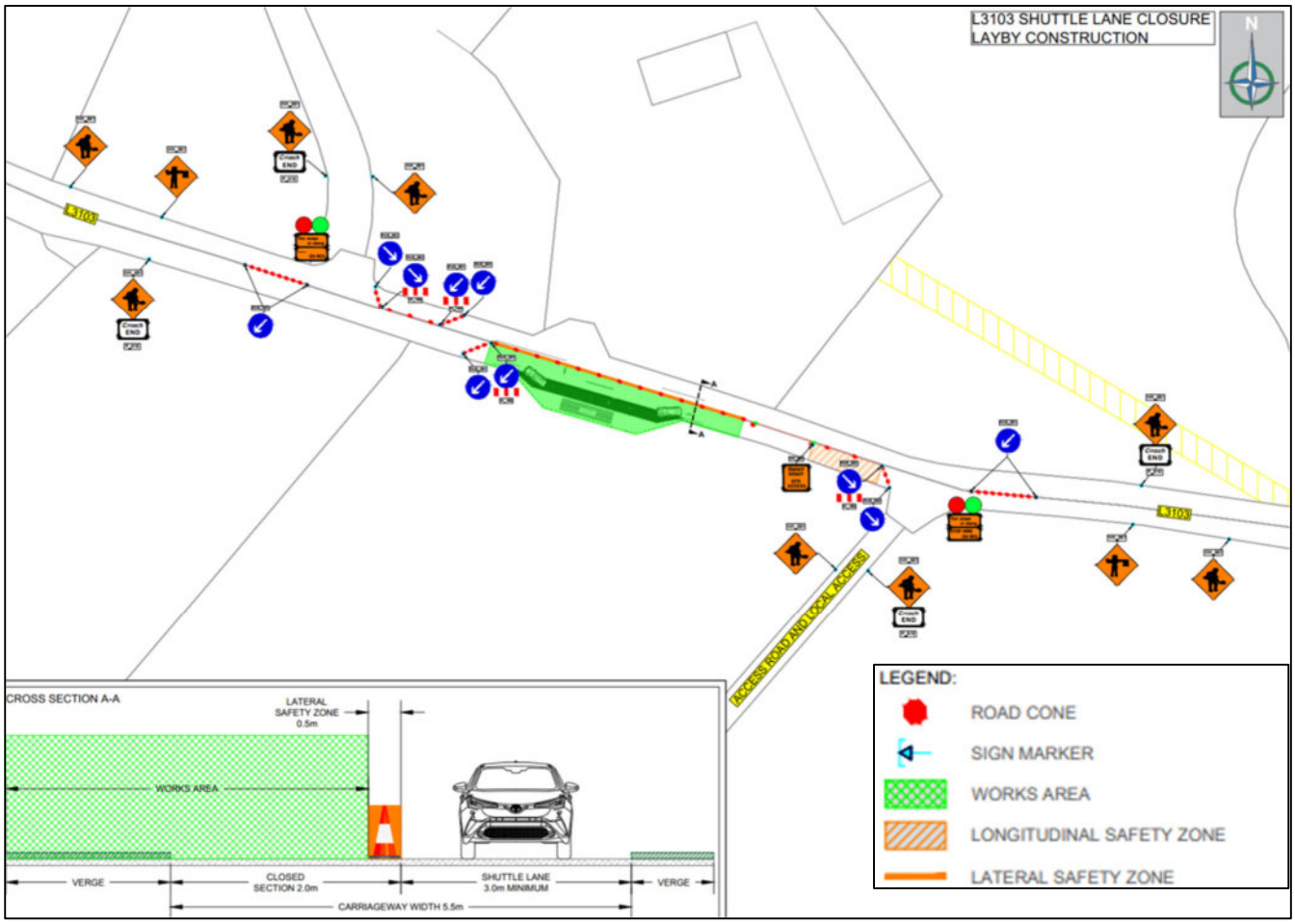


Figure 10-14 - Example of 'Stop/Go' system, along the L3103 (further details are provided in Drawing No. 068-AKR-001-01, CTMP, Appendix 2-11, Volume 3 of the EIAR)

Overall, the impact of partial road closures are considered to be negative, moderate and short term.

10.4.5 Potential Impact: Decommissioning Phase

During the decommissioning phase of the Proposed Project, minimal traffic is anticipated to be generated in comparison to the construction phase. This is based on the assumption that the cable will remain within the roads after decommissioning and will not be removed.

As a result, the decommissioning phase was not assessed in terms of traffic based on the anticipated lack of trip generation.

10.4.6 Exceptional Abnormal Loads

The exceptional abnormal loads assessment consisted of 2 no. separate components namely:

- Structural Assessment
- Pavement Analysis

These components are discussed in further detail in the following sections. It should be noted that vehicle tracking was also undertaken on the proposed haulage routes to identify any pinch points. None such were identified in this assessment but will be undertaken by the transport contractor and submitted as part of the Exceptional Abnormal Loads (EAL) application. Further details on the tracking can be found in the Civil Engineering Planning Report (Ref: PEK3-ATK-ZZ-ZZ-RP-CE-300001) submitted as part of this planning application (Appendix 2-1, Volume 3 of the EIAR).

The route is anticipated to originate at the Port of Galway via Lough Atalia Rd (R339) before connecting directly onto the N6 (which later becomes the M6). It runs on the M6 until Exit 17 (R348) at Athenry, before turning onto Ballygarraun South Rd. From Ballygarraun South Rd, the route runs onto the L3103 off of which access to the proposed main project site is provided. The route is approximately 25.5km in length and is shown in Figure 10-15 below.

Figure 10-15 – Proposed Abnormal Load Haul Route

10.4.6.1 Structural Assessment

The following section should be considered as a summary of the full report, Cashla Peaker Plant – Abnormal Load Assessment Report (Ref: 0114485DG0025) which is included as an Appendix 2-6, Volume 3 of the EIAR.

The section below provides a summary of the assessment which was undertaken as part of the route assessment. This Abnormal Load Assessment Report evaluates the feasibility of transporting three large components, up to 380 tonnes each, from Galway Port to the Cashla Peaker Plant via two routes. The assessment focused on nine critical structures along these routes, comparing the effects of Exceptional Abnormal Load (EAL) vehicles against original design loads in accordance with TII standards and Eurocode. Using conservative assumptions and finite element modelling, the analysis concluded that all structures on the preferred route can safely accommodate the proposed EAL configuration under controlled conditions, while the alternative route is unsuitable due to overstress at Castlelambert Overbridge.

A structural review of 9 no. structures was undertaken as part of an Exceptional Abnormal Load (EAL) assessment for several large components required for the implementation of the Proposed Project. These structures were identified based on 2 no. route options for the delivery of these components.

The assessment was undertaken in accordance with TII publication AM-STR-06042-01. This determined that a comparative assessment was the most appropriate methodology for verification of the structure. Based on this, TII publication AM-STR-06048-01 was used to carry the proposed abnormal load as per the EAL Management Flow Chart.

The assessment was undertaken using the following conditions:

- The EAL vehicle traverses the bridges at a speed of 10 mile/hour or less.
- The EAL vehicle travels along the slow lane of the carriageway.
- Where the structure has a median along the centre of the carriageway separating the 2 opposite directions of traffic, no other loading or vehicle travelling in the same direction is present on the same carriageway of the bridges during the EAL vehicle passage. i.e. Where EAL is travelling on Eastbound carriageway on a structure with a median at the centre, there shall not be no other loading traveling on Eastbound during the passage.
- Where the structure has no median along the centre of the carriageway separating the 2 opposite directions of traffic, no other loading or vehicle is present on the same structure during the EAL vehicle passage.

The list of structures assessed are presented in Table 10-5.

Table 10-5 - Structures assessed for Exceptional Abnormal Loads

Bridge List	Span (m)	Width (out to out) (m)	Structure Form and Material	Route - Over	Route - Under	Route Option
GB-N06-008.00 Ballybrit Cycle-lane Underpass	5.45	31.25	Single span, Precast Reinforced Concrete, Arch Bridge	N6	Foot/Cycle way	Proposed Route
GC-M06-001.00 Garraun Road Underbridge	15.25	45.84	Single span, Precast reinforced concrete. Integral Bridge	N6	Garraun North Road	Proposed Route
NC-M06-007.00	2.30	28.00	Box Culvert	NA	NA	Proposed Route

Bridge List	Span (m)	Width (out to out) (m)	Structure Form and Material	Route - Over	Route - Under	Route Option
Bat Underpass 1						
NC-M06-009.00 - OBG 157E Ballygaurraun road over rail bridge	18.50	47.42	Single span, Precast reinforced concrete. Integral Bridge	M6		Proposed Route
NC-M06-010.00 R348 Ballygaurraun Underbridge	19.25	37.81	Single span, Precast reinforced concrete. Integral Bridge	M6	Railroad	Proposed Route
NC-M06-011.00 Teagasc Underbridge (1)	5.60	43.30	Precast Concrete Box	M6	R348	Proposed Route
Road on Road Bridge	20	24.2	Single span, Precast reinforced concrete. Integral Bridge	Side Road	L7160	Proposed Route
OBG 157D	20.25	24.10	Single span, Precast reinforced concrete. Integral Bridge	Side Road	Prospect	Proposed Route
DC-M17-005.00 Castlelambert Overbridge	23.064 / 23.491	10	Double span, Precast reinforced concrete. Integral Bridge	L3103	Railroad	Alternative Route

The results of the analyses indicated that the load effects of the EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00 which lies on the alternative route. Therefore, the alternative route is not adequate for the transfer of 350 tonne equipment.

In conclusion, the EAL vehicle which is used to transfer equipment from Galway Port to Cashla Peaker Plant is suitable for passage over the identified structures on the proposed route. This conclusion is derived from the

fact that the load effects of the EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00.

10.4.6.2 Pavement Analysis

Full details of the pavement analysis can be found in Cashla Peaker Plant Pavement Analysis which is provided in Appendix 2-4, Volume 3 of the EIAR.

Due to the combined exceptional loads of the girder trucks and cargo, concerns in relation to the structural capacity of the pavements along the haulage routes were raised. As a result, an assessment was undertaken to determine the structural adequacy of the existing road pavement on the haulage routes along which the exceptional load associated with the project will be transported.

Pavement investigations were carried out to determine the structural capacity of the existing road pavements on the proposed haulage routes, and determine their suitability to accommodate the traffic loading associated with the proposed delivery of equipment to the project site. Pavement Management Services (PMS) Ltd were commissioned to conduct Falling Weight Deflectometer (FWD) testing, rotary coring, and a Ground Penetrating Radar (GPR) survey on the existing road pavements along the following proposed haulage routes presented below in Table 10-6.

Table 10-6 – Details of Sections Subject to Testing

	Section	Direction	Survey Length (m)
1	R381 Motorway to Carnmore Cross (Route 1)	Northbound	1,100
2	R339 Carnmore (Route 1)	Eastbound	6,755
3	L3103 (Route 1)	Southbound	3,590
4	L3103 Motorway to Site (Route 2)	Southbound	4,100
5	L3103 Motorway to Site (Route 2)	Northbound	4,140
6	R339 Ballybane to Port	Westbound	3,420
7	R339 Ballybane to Port	Westbound turn lane to R339	42
8	R339 Ballybane to Port	Westbound turn to R339	40
9	R339 Ballybane to Port	Eastbound turn to R399	37
10	R339 Ballybane to Port	Turn to N6 Westbound	40
11	R339 Ballybane to Port	Turn to N6 Eastbound	30

The pavement investigations on the regional and local roads listed below were completed in September 2025. Pavement investigation was not carried out on the motorway / national road network as it was assumed that these have indeterminate long life pavements that have sufficient structural capacity to accommodate the traffic loading associated with the proposed exceptional loads. A further assessment was also undertaken to account for the cumulative effect of the heavy equipment transport as well as the existing background traffic along the routes.Based on the review of FWD Level 1 and Level 2 pavement evaluation data, GPR survey, and IAPDM structural analysis, it is concluded that the pavement structures along the proposed haulage routes possess adequate residual capacity to withstand the anticipated loading from the heavy lifter transporter passes.

The cumulative loading demand of approximately 0.18 MSA (inclusive of the existing traffic volumes and the expected 3 loads per pass and 4 passes of the HLT) is substantially lower than the residual pavement life determined for each section of the route. As such, no pavement strengthening works are anticipated to be required to facilitate the transport movement, provided that conventional traffic management and operational controls are maintained during the haulage activity.

10.5 Traffic Management

This section provides an outline of the contents of the preliminary Construction Traffic Management Plan (CTMP) which has been prepared as part of this planning application (Refer to CEMP presented in Appendix 2-10, Volume 3 of the EIAR).

The CTMP was developed with differing levels of detail for specific components of the project as outlined below:

1. **Peaker Plant:** The traffic management plan for the Peaker Plant was developed to the level of a Construction Stage Traffic Management Plan (CSTMP). The purpose of this plan is to ensure feasibility of construction. This plan is then further developed into a full CTMP, a statutory requirement, by the contractor prior to construction.
2. **UGC:** A CTMP was developed in full detail for the UGC prior to submitting the planning application in order to mitigate potential risks. The full CTMP is provided in Appendix 2-11, Volume 3 of the EIAR.

The CSTMP and CTMP are both provided as part of the planning application (Appendix 2-11, Volume 3 of the EIAR).

Prior to construction, the contractor shall liaise with the relevant authorities including Transport Infrastructure Ireland, local council and Emergency Services for the purpose of finalising the Construction Stage Traffic Management Plan.

The Construction Stage Traffic Management Plan shall be termed an “Ongoing Document” such that any changes to construction programme, operations or unforeseen issues can be incorporated into the Traffic Management Plan at any stage throughout the proposed works as deemed necessary by the Employer, their agents or relevant authorities. This will include any conditions attached to the grant of permission. The principal contractor(s) shall also agree and implement monitoring measures to monitor the effectiveness of the Construction Traffic Management Plan. Details of monitoring measures are provided later in the document.

On finalisation of the Construction Stage Traffic Management Plan, the contractor shall adopt the plan and associated monitoring measures. The Construction Stage Traffic Management plan shall address the following issues:

- Car Parking
- Site Access & Egress;
- Traffic Management Signage;
- Routing of Construction Traffic;
- Timings of Material Deliveries to Site;
- Traffic Management Speed Limits;
- Road Cleaning; and
- Enforcement of Traffic Management Plan

These items are explained in detail in the remainder of this section of the report.

10.5.1 Car Parking

10.5.1.1 Construction Phase

All parking during the construction period will be provided on the proposed main project site within the site compound. No additional parking is to be provided. UGC installation will be facilitated via a shuttle service for all operatives.

10.5.1.2 Operational Phase

The Galway County Development Plan was reviewed for the purposes of parking provision and it was found that there was no prescribed rate for developments of this type. As a result, the potential for parking requirements was determined based on the anticipated operational characteristics of the site. The Proposed Project will be remotely operated for the majority of its operation but will require parking for security and maintenance. The site will provide capacity for 19 no. parking bays, comprising 1 accessible bay, 4 no. EV charging bays and 14 no. standard parking bays of which 4 no. will be provided as part of a substation which will be subject to a future planning application to An Coimisiun Pleanala, along with 20 no. bicycle parking stands. Of the 15 no. bays being provided as part of this planning application, a total of 12. No will be provided at the peaker plant while the remaining 3 no. will be provided at the AGI facility. Parking layout is shown on the Figure 10-16 below.

While it is not possible to calculate the number of vehicles associated with maintenance and security, it is assumed that the site will accommodate 2 no. security vehicles and 10 no. site maintenance vehicles during peak activity.

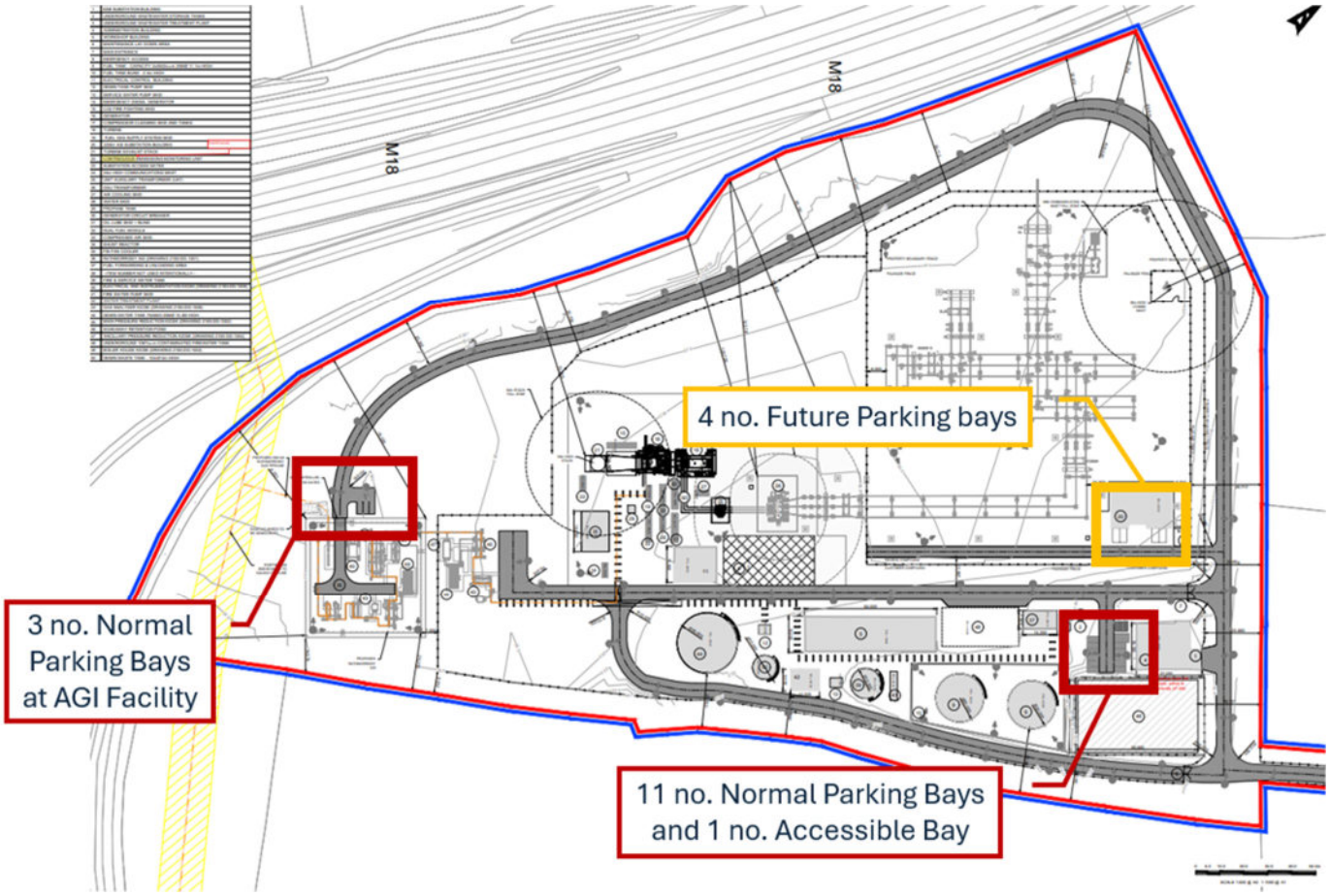


Figure 10-16 - Operational Car Parking Layout – Peaker Plant

10.5.2 Site Access and Egress

10.5.2.1 Cashla Peaker Plant

The proposed main project site is nestled between the M18/M6 interchange and will be directly accessed from the L3103 to the north of the proposed plant site. A new 6 m wide access road with fencing either side will be constructed from the L3103 to the plant. The L3103 starts from Athenry and is a branch off the R339 to the northwest. The actual access point will require works to the entrance of the site which will include demolition of an existing stone wall and reconstruction of same as well as the removal of several trees to achieve sightlines.

The substation road and gates will be accessed via a road external to the proposed main project site but within the Proposed Development boundary. EirGrid will be able to access these roads either by remote access control or by keypad access at the main entrance. Similarly, access to the GNI AGI will be from the same road. This road can also be accessed from the south of the site via a slightly more indirect approach to reach the site shown in green from Athenry.

10.5.2.2 AGI Access

The AGI will be accessed from a 6 m internal road which runs around the plant and provides access to the AGI and EirGrid substations. This internal access road can be accessed via security gate to the north of the site from the L3103 or from the south of the site.

10.5.2.3 Construction Access

The site will be accessed via the customer's proposed roadway. This will provide access to the site from the L3103 local road. The new roadway will also be compliant with all local planning requirements. The route is shown in Figure 10-17 below.

Figure 10-17 - Construction access route to the Site

10.5.2.4 Emergency Access

10.5.2.4.1 Proposed main project site

The proposed access road (access from the L3103) will serve as the emergency access to the proposed main project site and is illustrated in Figure 10-18 below.

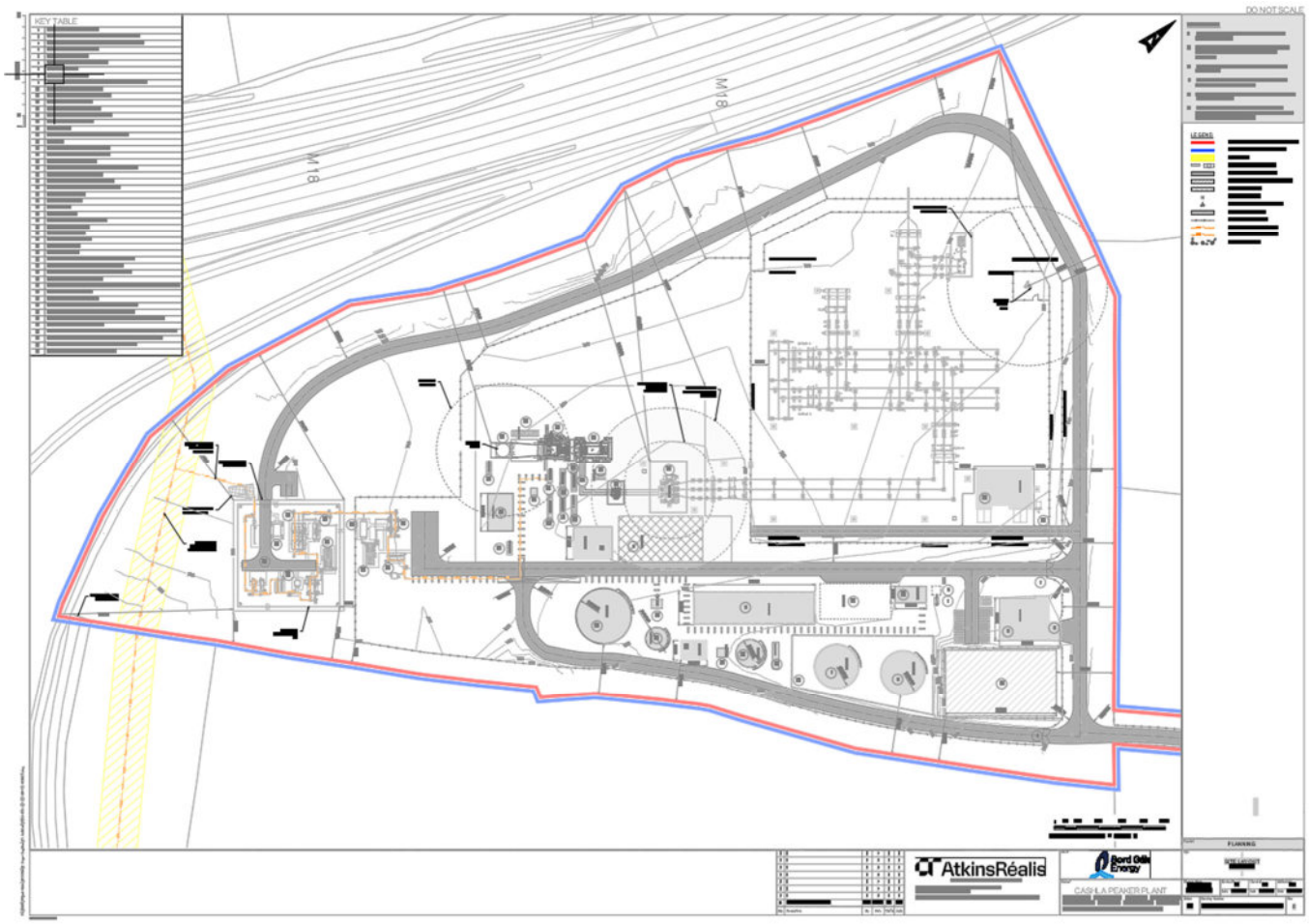


Figure 10-18 – Emergency Access – Peaker Plant

10.5.2.4.2 UCG Installation

For the UGC installation, emergency access will be provided via the existing road network. For sections currently subject to 30 to 50m closures, works are to be suspended with steel road plates placed to cover excavations, the traffic management equipment is to be moved to the verge and a temporary traffic lane created in order to facilitate emergency vehicles. This is shown in Figure 10-19 below.

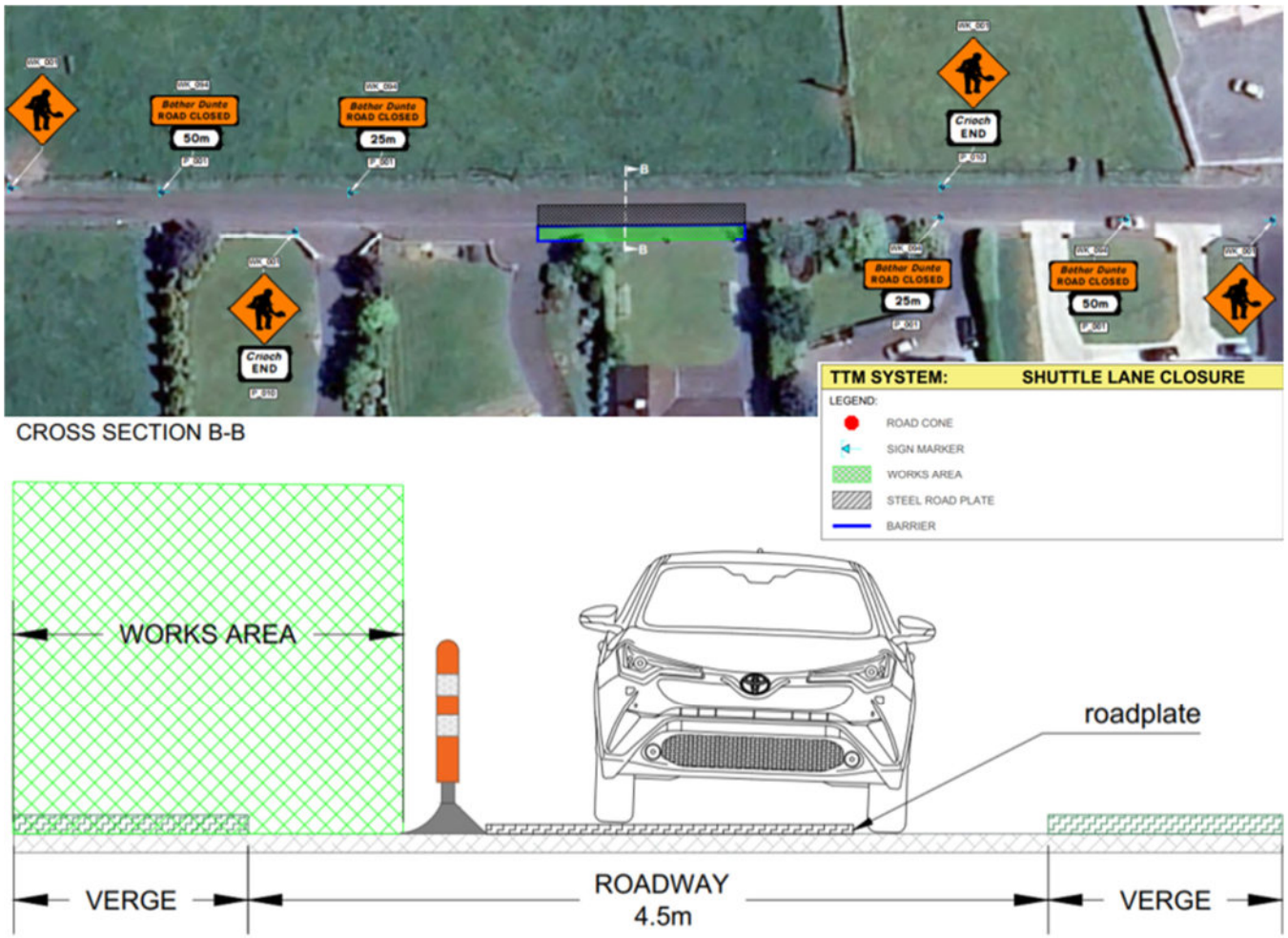


Figure 10-19 – Emergency Access – UGC Installation

10.5.3 Traffic Management Signage

Proposed signage will include warning signs to provide warning to road users of the works access / egress locations and the presence of construction traffic. All signage shall be provided in accordance with the Traffic Signs Manual - Chapter 8 – Temporary Traffic Measures and Signs for Roadworks and in agreement with Galway City and County Council. In summary, the contractor will be required to ensure that the following elements are implemented:

- The principal contractor(s) shall undertake consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements. Such signage shall be installed prior to works commencing on site;
- Provision of temporary signage indicating shuttle control ahead; and
- Provision of general information signage to inform road users and local communities of the nature and locations of the works, including project contact details.

10.5.4 Routing of Construction Traffic

Project construction Heavy Goods Vehicles (HGV) traffic will be directed away from communities where possible to minimise the effect on road users. Construction traffic will therefore be limited to local national and regional roads including the M6, M17, M18, R348, R339 and finally the L3103.

10.5.5 Timing of Material Deliveries

To reduce impacts on local communities and residents adjacent to the proposed sites, it is proposed that the material deliveries and UGC Grid Route works will be restricted between 9 am till 4 pm during weekdays, and, for material deliveries, 9 am till 2pm on Saturday. In addition:

- The contractor will be required to liaise with the management of other construction projects and the local authority to co-ordinate deliveries (where relevant);
- The contractor will be required to schedule deliveries in such a way that construction activities and deliveries activities do not run concurrently e.g. avoiding pouring of concrete on the same day as material deliveries in order to avoid conflict;
- HGV deliveries to the project site and UGC Grid Route works will be suspended on the days of any major agricultural shows, sports events, etc. that have the potential to cause larger than normal traffic volumes to the road network in the vicinity of the works;
- The contractor will be required to consult with members of the local community to ensure that deliveries and UGC Grid Route works will not conflict with sensitive events such as funerals. The contractor will be required to set up and administer a forum to facilitate this communication.
- HGV deliveries will avoid passing schools at opening and closing times where it is reasonably practical.

10.5.6 Traffic Management: Speed Limits

- Adherence to posted / legal speed limits will be emphasised to all staff / suppliers and contractors during induction training.
- Drivers of construction vehicles / HGVs will be advised that vehicular movements in sensitive locations, such as schools and local community areas, shall be restricted to 50 km/h unless otherwise posted with a lower speed limit. Such recommended speed limits will only apply to construction traffic and shall not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users.

10.5.7 Road Cleaning

- The contractor shall carry out road sweeping operations, employing a suction sweeper, to remove any project related dirt and material deposited on the road network by construction / delivery vehicles. Road sweeping operations shall be carried out daily (or at other intervals as may be required) where debris / mud deposits are evident in the immediate vicinity of the proposed access points.
- Wheel washing will be provided on site in order to avoid debris / mud is not carried onto the road.
- The contractor(s) shall also ensure that if mud / debris is carried out onto the road when the road sweeper is not present, site staff shall immediately manually clear the debris from the road, under appropriate temporary traffic management control.

10.5.8 Enforcement of Traffic Management Plan

All project staff and material suppliers will be required to adhere to the Construction Stage Traffic Management Plan (Refer to Appendix 2-11, Volume 3 of the EIAR). As outlined above, the principal contractor(s) shall agree and implement monitoring measures to monitor the effectiveness of the Traffic Management Plan and compliance will be monitored by the Site Engineer. Inspections / Spot checks will also be carried out to ensure that all project staff and material supplies follow the agreed measures adopted in the Traffic Management Plan.

10.5.9 Emergency Procedures During Construction

When developing the Construction Environmental Management Plan, the contractor will be responsible for determining emergency routes in the vicinity of the site in consultation with the relevant statutory bodies.

In the case of an emergency the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112;
- Exact details of the emergency/ incident will be given by the caller to the emergency line
- Operator to allow them to assess the situation and respond in an adequate manner;
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer;
- Where required, appointed site first aiders will attend the emergency immediately; and The Safety Officer will ensure that the emergency services are en-route.
- Activities on site before the emergency services arrive shall be overseen by the onsite emergency co-ordinator.
- If the person is trapped underneath the vehicle/ machine is not in an increasing level of danger, no attempt will be made by site personnel to remove the victim until the emergency services arrive on site.
- The onsite emergency co-ordinator will appoint a person to wait at the site entrance or closest point to where the emergency services have been directed to escort the emergency services to the injured person and the scene of the emergency.
- No attempt shall be made to turn an overturned vehicle/machine into its correct position until the victim is removed safely.
- The onsite emergency co-ordinator will appoint a person to go to the hospital if a casualty/casualties are taken there and will keep the company informed.
- The onsite emergency co-ordinator will ensure that the scene is preserved for investigation.

10.6 Mitigation Measures

10.6.1 Construction Phase

The impact of the project has been identified as temporary in nature with only short sections of road disrupted at any point in time. However, it is still important that any impact is minimised as far as possible. Prior to the commencement of the construction phase, the contractor will produce an updated Construction Traffic management Plan (CTMP) which will align with the CTMP provided with this application (Refer to Appendix 2-11, Volume 3 of the EIAR), updated to reflect any conditions imposed as part of any planning permission. The CTMP is a statutory requirement which focuses on mitigating the impacts of traffic on the surrounding environment. The contractor will produce the updated plan in consultation with the local council as well as suppliers and sub-contractors. The CTMP will focus on the following key issues:

- Working hours
- Road closures and procedures during construction
- Traffic management signage
- Detailed traffic management programme
- Emergency Procedures.

10.6.1.1 Peaker Plant Site Construction

Strategies to mitigate transport-related impacts during the Proposed Project construction phase are outlined below. It highlights that traffic during construction will be transient, with no ongoing traffic impacts post-construction. The plan will focus on minimising congestion, environmental impacts, and safety risks.

- During the construction phase, clear construction warning signs will be placed on the approach to the site access point, in accordance with Chapter 8 of the Traffic Signs Manual. The site entrance will have appropriate signage. Access to the construction site will be controlled by onsite personnel and all visitors

will be asked to sign in and out of the site by security/site personnel. Site visitors will receive a suitable Health and Safety site induction and Personal Protective Equipment ("PPE") will be worn.

- A community liaison officer will be appointed in order to keep residents informed of ongoing works which related to the public road network.
- A dedicated person will be appointed for the management of the deliveries during the construction stage. It will also be this person's duty to make sure the construction routes are adhered to at all times.
- The Applicant will conduct a pre- and post-construction condition survey on the public road, with the developer liable to repair any damage to the public road attributed to the construction of the Proposed Project.
- Deliveries will be scheduled to avoid morning and evening peak hours. This will avoid HGV traffic arriving during the morning peak hours and creating conflict with local residents' commute or school run. Construction personnel will be encouraged to car-pool, or to travel to site in minibuses.
- All deliveries will be transported via local roads L3103 and L7109. The contractor will develop a detailed Logistics Plan to identify the delivery schedule requirements. The contractor will operate a "Just in Time" delivery philosophy to minimise materials stored on site and reduce congestion in and around the works compound.
- To control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, the following mitigation measures will also be implemented.
  - Wheel washing facilities will consist of a water bowser with pressure washer. The bowser will contain water only and no other additives. Run-off from this activity will be directed to the drainage situated on the lower boundary of the construction compound. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site.
  - Drivers will adopt driving practices that minimise dust generation including a 30km/h internal access road speed limit; and
  - Any dust generating activities will be avoided or minimised, wherever practical, during windy conditions.
- Any construction outside of the standard working hours should be agreed with the local authority in advance.
- Once construction of the Proposed Project is completed, all machinery and equipment will be removed and hard standing within the Proposed Project site excavated. The area will be regraded with the stockpiled topsoil to a natural profile. Road surfaces, road markings, etc. will be fully reinstated as is and in such a manner that there is no change to the operation of the local road network.
- Once a suitable quarry site has been identified, the contractor will undertake a traffic assessment to ensure that it does not impact on the surrounding road network.

10.6.1.2 Extraordinary Abnormal Loads

The final haul route will be agreed prior to the delivery of extraordinary or abnormal loads, which may occur several months after the commencement of on-site construction activity for the power plant. As part of the abnormal load delivery process, Pre-construction and post-construction surveys of the public road network proposed for use as haul routes, including inspections of bridges, culverts, and other relevant structures, shall be carried out by the applicant in advance of any phase of development that involves the movement of abnormal loads. These requirements shall not apply to earlier phases of development that do not involve such movements. The locations and scope of the surveys and inspections shall be agreed upon in advance with Galway County Councils Roads Authority and shall include structural capacity assessments, where required, to confirm the network's suitability to accommodate the proposed load types and volumes.

10.6.1.3 Underground cable route construction

To reduce impacts on local communities and residents adjacent to the proposed sites, it is proposed that the material deliveries and UGC Grid Route works will be restricted to between 9 am till 4 pm during weekdays,

and, for material deliveries, 9 am till 2pm on Saturday. The contractor will be required to liaise with the management of other construction projects and the local authority to co-ordinate deliveries and to schedule deliveries in such a way that construction activities and deliveries activities do not run concurrently e.g. avoiding pouring of concrete on the same day as material deliveries in order to avoid conflict. UGC Grid Route works will be suspended on the days of any major agricultural shows, sports events, etc. that have the potential to cause larger than normal traffic volumes to the road network. The contractor will be required to communicate, via the community liaison officer, with members of the local community to ensure that deliveries and UGC Grid Route works will not conflict with sensitive events such as funerals and avoiding passing schools at opening and closing times where it is reasonably practical.

10.6.1.3.1 Underground Cable Route in Public Road

Where the route is within public road carriageways, and where possible, the trench will be installed in the non-trafficked strip between the wheel marks on the road. The cable route will be micro-sited based on the presence of existing utilities and the nature of the road and the adjoining terrain. It is preferable to excavate a trench within the middle of the roadway to reduce vehicle loading traversing over the ducting. Temporary reinstatement may be provided to allow larger sections of road to be permanently reinstated together.

10.6.1.3.2 Underground Cable Route on Private Lands

The access track will consist of a 3m minimum wide track with a ten-tonne axle weight load bearing capacity, capable of supporting construction vehicles. The contractor(s) will be required to utilise the local public road network in the vicinity of the work area and from there utilise private tracks, where appropriate. Before the commencement of development, precise access arrangements will need to be agreed upon with the respective landowners.

Where access tracks within private lands are not possible along the route, work areas will be reinstated with excavated soil and either seeded with native species, allowed to vegetate naturally or reinstated with excavated grass turves and will be restored to their original condition.

10.6.2 Operational Phase

The only trips associated with the operational phase of the project are associated with periodic maintenance, sporadic fuel supply and wastewater removal. These trips are considered so imperceptible that mitigation measures are not required.

10.7 Residual Effects

The traffic-related residual effects of the Proposed Project are anticipated to be “negligible”.

10.8 Monitoring Requirements

The Proposed Project will have the following monitoring requirements:

- The Applicant will conduct a pre- and post-construction condition survey on the public road, with the developer liable to repair any damage to the public road attributed to the construction of the Proposed Project.

10.9 Difficulties encountered during preparation of this chapter

No difficulties were encountered during preparation of this chapter.

10.10 Overall Impact Summary

With the exception of the road closures associated with the cable installation, which will be short term, no significant impacts are anticipated for the Proposed Project during any phase, including cumulative and residual impacts.

While short term significant impacts are expected during the construction phase, significant mitigation measures will be implemented in order to reduce the overall impact.

The cumulative impact assessment indicates that the Proposed Project and the Gannow Windfarm (Ref: 25/61412) will result in **short-term, significant impacts** on the local road network, specifically along L-7108 and L-7109, due to full road closures during grid connection works. These closures will lead to traffic diversions and increased travel distances for local residents. While the works will be carried out sequentially to minimize concurrent disruption, the overall duration of closures will be extended.

The cumulative construction activities will result in:

- Main Cable Construction: Up to 6 months combined impact across affected roads.
- Resurfacing: Approximately 4 months, with localised effects.

These impacts are considered **negative and significant but temporary**, confined to the construction phase and primarily affecting local traffic and residents.

Comprehensive traffic management plans, phased construction scheduling, and clear diversion signage are proposed to reduce inconvenience and maintain safety. Coordination between both projects will further minimise cumulative disruption.

While short-term significant impacts are expected during the construction phase, significant mitigation measures will be implemented to reduce the overall impact. **No other significant impacts are anticipated for the Proposed Project during any other phase.**

11. Land, Soils and Geology

11.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) addresses the potential effects of the Proposed Project on land, soils and geology. It considers the existing baseline conditions, evaluates the likely impacts arising during the construction, operational and decommissioning phases, and outlines appropriate mitigation (where necessary) to prevent, reduce, or offset any identified likely significant effects and monitoring measures.

This chapter describes the type of land, soils, and geology encountered within the study area of the Proposed Project located in Pollnagroagh / Rathmorrissy, Athenry, Co. Galway (Grid Reference: 53˚18'05.7"N, 8˚48'07.6"W) (Figure 11-1). The Study Area for the purposes of this assessment is defined as all lands denoted by the project boundary and within a 2km buffer, which is a suitably conservative approach, taking account of relevant best practice guidance (TII, 2008)[83]. The Proposed Project refers to the project in its entirety, including all aspects denoted by the project boundary presented in Chapter 1 Introduction and Methodology of this EIAR.

11.1.1 The Proposed Project

The Peaker Plant will function as a balancing asset, operating intermittently during periods of low renewable energy generation and high electricity demand. It is proposed that the Peaker Plant will operate until 31 December 2050. The Proposed Project is described in detail in Chapter 2 Project Description of the EIAR.

11.1.2 Land (including Land Take)

The Peaker Plant Site and sections of the Underground Cable (UGC) are located within the area identified under the Core Strategy Map as Strategic Economic Corridor by the Galway County Development Plan 2022-2028 (Volume 1, Chapter 2, page 38). The aim of this corridor is to:

- Reserve lands to support nationally and regionally significant activities and to attract specialist enterprise development that is large scale of high value
- Facilitate opportunities for employment and technology-based uses;
- Ensure that development is compatible with the enhancement, preservation and protection of the environment and cultural resources recognised in this corridor;
- Identify sites of adequate size and location to accommodate necessary infrastructure or support activities which would not be appropriate in proximity to centres of population or sensitive environments or environmentally sensitive economic activities.

[83] Relevant TII 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (NRA, 2008) states that *'when undertaking geological, hydrological and hydrogeological studies… It is recommended that the study area should encompass an overall width of 500m, i.e. 250m from the centre line of each route corridor. The study area may need to be extended where the footprint of the proposed road scheme extends outside of this area... Notwithstanding this, some professional judgement must be applied in assessing whether the study area around a particular road corridor needs to be extended to take account of potentially significant impacts which could arise a greater distance away…'*. Accordingly a conservative study area has been identified as all lands denoted by the project boundary and within a 2km buffer zone.

The remaining sections including sections of the UGC and the existing Cashla Substation are within land identified by Galway County Development Plan 2022-2028 Core Strategy Map (Volume 1, Chapter 2, page 38) as the Strategic Development Corridor.

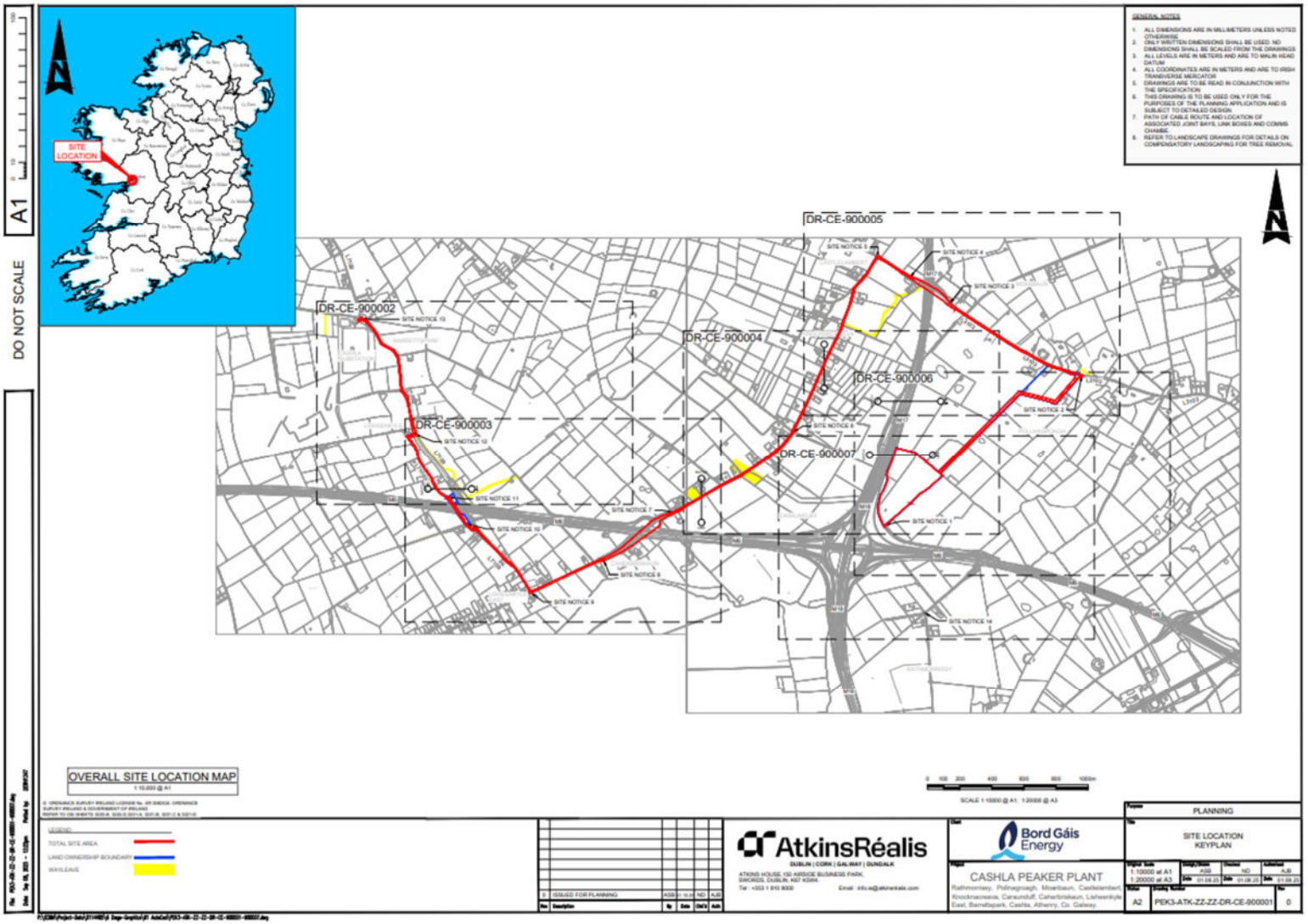


Figure 11-1– Site Location and boundary of the Proposed Project (Grid Reference: 53˚18'05.7"N, 8˚48'07.6"W).

Figure 11-2 – Aerial imagery of Proposed Project denoted by the Redline Boundary – i.e. Cashla Peaker Plant, Internal Access Road from L3103, Underground Cable Grid Connection Route and existing Cashla Substation.

11.2 Study Assessment and Methodology

The following scope of works was undertaken by AtkinsRéalis in order to complete the land, soils and geology assessment:

- Desk-based study including review of available historical and relevant ground investigation information from the Geological Survey of Ireland (GSI); and,
- QGIS Site Setting Maps, reviewed by an experienced Geo-environmental engineer.

The Study Area for the purposes of this assessment is defined as all lands denoted by the project boundary and within a 2km buffer, taking account of relevant best practice guidance (TII, 2008) as previously described. The Proposed Project refers to the project in its entirety, including all aspects denoted by the project boundary as presented in Chapter 1 Introduction and Methodology, and Chapter 2 Project Description of this EIAR.

This assessment was completed in accordance with relevant best practice guidance from the Institute of Geologists of Ireland (IGI), '*Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements'* (IGI, 2013). The IGI guidance document is an updated version of the 2002 guidelines, 'Geology in Environmental Impact Statements, A Guide' (IGI, 2002), which was revised to take account of legislative changes, and the operational experience developed by geoscientists in the production of relevant environmental assessments. This assessment has also been prepared in accordance with the relevant Environmental Protection Agency (EPA, 2022) guidance, *'Guidelines on the information to be contained in Environmental Impact Assessment Reports'* published in May 2022.

The desk-based study involved reviewing information from the following sources:

- GSI Datasets Public Viewer and Groundwater web-mapping (consulted 12/05/2025).
- Ordnance Survey web-mapping to assess the surface topography and landforms (consulted 12/05/2025).
- EPA Public Viewer and web-mapping (consulted 12/05/2025).
- Google Maps Aerial photography (consulted 12/05/2025).
- Ground Investigation Guidance Document Part 1 - Overview GE-ERW-01001 (September 2024) GE-ERW-01001.
- Ground Investigation Guidance Document Part 2 – Supplementary Information GE-ERW-01002 (February 2025) GE-ERW-01002.

A geophysical survey report was completed by Terra Survey company (Appendix 11-1, Volume 3 of the EIAR). A Ground Investigation study was conducted by Priority Geotechnical Limited (PGL, 2025), which included borehole and trial pit logs (Appendix 11-1, Volume 3 of the EIAR).

The scope of the ground investigation was designed by AtkinsRealis geotechnical and environmental teams to ensure that suitable geo-environmental and engineering data was obtained for the Proposed Project (preliminary design stage), taking account of the receiving environment, proposed initial engineering design, and baseline monitoring and environmental data requirements. The number of intrusive investigation locations and depths were deemed to be suitably representative and robust for engineering and environmental requirements. As with any ground investigation, an iterative approach is standard practice. Therefore while the information provided (via. site specific geophysical surveys and ground investigation works) provides a robust understanding of the geotechnical setting, given the inherent heterogenous nature of karst geology, supplementary ground investigations will be required at detailed design and pre-commencement stages. The number of soil samples and proposed environmental testing requirements are considered to be suitably representative and robust for this EIAR, taking account of the current baseline setting, and nature of the Proposed Project.

The geophysical survey report (Terra Survey, 2025) and Ground Investigation study (PGL, 2025) were reviewed as part of this assessment and are presented in Appendix 11-1, Volume 3 of the EIAR. To determine ground conditions at the Proposed Project, 7no. cable percussion boreholes, 4no. rotary boreholes and 17no. Trial Pits were completed. During the site works, some of the cable percussion boreholes were re-located due to the presence of high boulder and cobble content. Ground conditions are summarised below in Section 11.311.3.3.

During the Ground Investigation and Geophysical Survey, lands in the northern portion of the Cashla Peaker Plant site including the land proposed for the Open-Cycle Gas Turbine Generator and the proposed access road were surveyed. The location of the AIS substation and the UGC route were not assessed during this ground investigation or geophysical survey, as these elements had not been fully designed at that juncture. During the investigation, numerous areas of high resistivity were encountered – indicating potential karst features or other subsurface pockets. Foundation solutions, as detailed further within Section 11.4.2.1 of the assessment, present the engineering solutions that will respond to the presence of karst and at construction stage the robust karst protocols identified will be implemented to control and respond to any karst features encountered. These limitations have no material impact on the findings of this assessment, as clearly described in Section 11.2.2.

Chemical testing was untaken by Eurofins (UK) on behalf of PGL in accordance with BS 10175:2011+A2:2017. Methods of test for soils for civil engineering purposes and the ISRM suggested methods for rock characterisation, testing and monitoring.

11.2.1 Impact Assessment Criteria and Significance of Effects

This assessment has been completed in accordance with relevant best practice guidance from the Institute of Geologists of Ireland (IGI), 'Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements' (IGI, 2013).

This assessment has also been prepared in accordance with, and is fully compliant with the relevant Environmental Protection Agency (EPA) guidance, 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' published in May 2022, specifically with regard to the significance of effects (as per 'Table 3.4 Descriptions of Effects' of these Guidelines) of the proposed development on the receiving land soils and geology environment.

Table 11-1 – Impact Classification Terminology (IGI, 2013)

Impact Characteristic	Term	Description
Quality	Positive	A change which improves the quality of the environment
	Neutral	A change which does not affect the quality of the environment
	Negative	A change which reduces the quality of the environment
Significance	Imperceptible	An impact capable of measurement but without noticeable consequences
	Slight	An impact which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate	An impact that alters the character of the environment in a manner consistent with existing and emerging trends
	Significant	An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment

	Profound	An impact which obliterates sensitive characteristics
Duration	Short-term	Impact lasting one to seven years
	Medium-term	Impact lasting seven to fifteen years
	Long-term	Impact lasting fifteen to sixty years
	Permanent	Impact lasting over sixty years
	Temporary	Impact lasing for one year or less
Type	Cumulative	The addition of many small impacts to create one larger, more significant impact
	'Do Nothing'	The environment as it would be in the future should no development of any kind be carried out
	Indeterminable	When the full consequences of a change in the environment cannot be described
	Irreversible	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost
	Residual	Degree of environmental change that will occur after the proposed mitigation measures have taken effect
	Synergistic	Where the resultant impact is of greater significance than the sum of its constituents
	'Worst Case'	The impacts arising from a development in the case where the mitigation measures may substantially fail

Table 11-2 – Criteria for Rating Site Importance of Geological Features (IGI, 2013)

Importance	Criteria	Typical Example
Very High	Attribute has a high quality, significance or value on a regional or national scale Degree or extent of soil contamination is significant on a national or regional scale Volume of peat and/or soft organic soil underlying route is significant on a national or regional scale	Geological feature rare on a regional or national scale (NHA) Large existing quarry or pit Proven economically extractable mineral resource
High	Attribute has a high quality, significance or value on a local scale Degree or extent of soil contamination is significant on a local scale Volume of peat and/or soft organic soil underlying route is significant on a local scale	Contaminated soil on site with previous heavy industrial usage Large recent landfill site for mixed wastes Geological feature of high value on a local scale (County Geological Site) Well drained and/or high fertility soils Moderately sized existing quarry or pit Marginally economic extractable mineral resource
Medium	Attribute has a medium quality, significance or value on a local scale Degree or extent of soil contamination is moderate on a local scale Volume of peat and/or soft organic soil underlying route is moderate on a local scale	Contaminated soil on site with previous light industrial usage Small recent landfill site for mixed wastes Moderately drained and/or moderate fertility soils Small existing quarry or pit Sub-economic extractable mineral resource
Low	Attribute has a low quality, significance or value on a local scale Degree or extent of soil contamination is minor on a local scale Volume of peat and/or soft organic soil underlying route is small on a local scale	Large historical and/or recent site for construction and demolition wastes Small historical and/or recent landfill site for construction and demolition wastes Poorly drained and/or low fertility soils Uneconomically extractable mineral resource

Table 11-3 – Criteria for Rating Impact Significance at EIS Stage – Estimation of Magnitude of Impact on Geological Attribute (IGI, 2013)

Magnitude of Impact	Criteria	Typical Example
Large Adverse	Results in loss of attribute	Loss of high proportion of future quarry or pit reserves Irreversible loss of high proportion of local high fertility soils Removal of entirety of geological heritage feature Requirement to excavate / remediate entire waste site Requirement to excavate and replace high proportion of peat, organic soils and/or soft mineral soils beneath alignment
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Loss of moderate proportion of future quarry or pit reserves Removal of part of geological heritage feature Irreversible loss of moderate proportion of local high fertility soils Requirement to excavate / remediate significant proportion of waste site Requirement to excavate and replace moderate proportion of peat, organic soils and/or soft mineral soils beneath alignment
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Loss of small proportion of future quarry or pit reserves Removal of small part of geological heritage feature Irreversible loss of small proportion of local high fertility soils and/or high proportion of local low fertility soils Requirement to excavate / remediate small proportion of waste site Requirement to excavate and replace small proportion of peat, organic soils and/or soft mineral soils beneath alignment
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	No measurable changes in attributes
Minor Beneficial	Results in minor improvement of attribute quality	Minor enhancement of geological heritage feature
Moderate Beneficial	Results in moderate improvement of attribute quality	Moderate enhancement of geological heritage feature
Major Beneficial	Results in major improvement of attribute quality	Major enhancement of geological heritage feature

Table 11-4 –Rating of Significant Environmental Impacts at EIS Stage (IGI, 2013)[84]

Importance of Attribute	Magnitude of Impact			
	Negligible	**Small Adverse**	**Moderate Adverse**	**Large Adverse**
Extremely High	Imperceptible	Significant	Profound	Profound
Very High	Imperceptible	Significant/Moderate	Profound/Significant	Profound
High	Imperceptible	Moderate/Slight	Significant/Moderate	Profound/Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight/Moderate

11.2.2 Limitations and Difficulties Encountered

A comprehensive series of surveys (comprising walkover survey, Geophysical Survey, and intrusive Ground Investigations) have been carried out within the project site. During the Ground Investigation and Geophysical Survey, lands in the northern portion of the Cashla Peaker Plant site including the land proposed for the Open-Cycle Gas Turbine Generator and the proposed access road were surveyed. The location of the AIS substation and the UGC route were not assessed during this ground investigation or geophysical survey, as these elements had not been fully designed at that juncture. During the investigation, numerous areas of high resistivity were encountered – indicating potential karst features or other subsurface pockets. Targeted investigations will be carried out at localised areas where resistivity was high, during the detailed design stage. Accordingly, for the purpose of this assessment it is conservatively assumed that karst conditions are present within the project site.

Foundation solutions, as detailed further within Section 11.4.2.1 of the assessment, present the engineering solutions that will respond to the presence of karst and at construction stage, the robust karst protocols identified will be implemented to control and respond to any karst features encountered. These engineering solutions will ensure that there will be no significant impact to the receiving land, soils and geology environment via. risk to foundation design, ground collapse, or structural failure.

Similarly, there will be no potential significant environmental impacts to the receiving land, soils and geology environment, during the operational phase via. identified karst geology beneath the project site. Engineering design solutions (including secure onsite containment (fuel, waste water, contaminated storm water / firewater run-off), and offsite disposal of all associated waste streams) as detailed further within Section 11.4.2.2 of the assessment, have been developed in response to assumed karst conditions present across the project site. These solutions will ensure that there will be no discharge of contaminated water or potentially contaminated water to ground beneath the project site during the operational phase.

This technical assessment has been prepared, taking account of the above limitations, and identified engineering solutions. These limitations have no material impact on the findings of this assessment. The residual impacts as stated within this chapter remain valid.

[84] As noted previously, this assessment has also been prepared in accordance with, and is fully compliant with the relevant Environmental Protection Agency (EPA) guidance, 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' published in May 2022, specifically with regard to the significance of effects (as per 'Table 3.4 Descriptions of Effects' of these Guidelines) of the proposed development on the receiving land soils and geology environment.

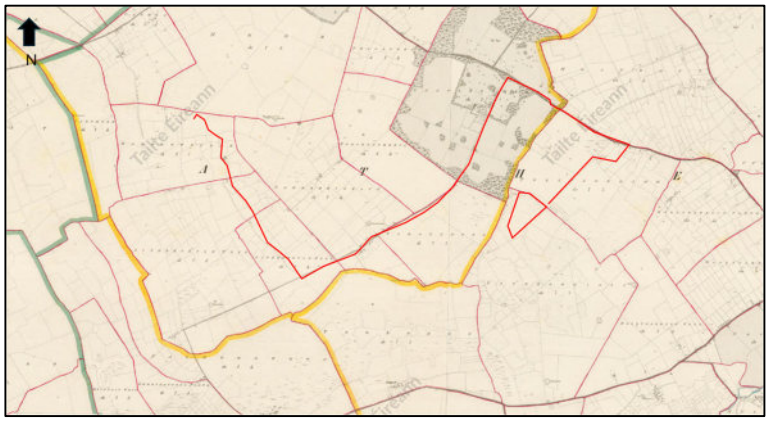
11.3 Receiving Environment

This section provides a description of the land, soils and geology in the Study Area of the Proposed Project and also takes into account the current and historical land uses within the Study Area.

11.3.1 Site Development

A review of historical maps (including available 6-inch historical maps, 25-inch historical maps, and aerial photographs (1995 to 2018) from the Ordnance Survey of Ireland) (OSI, 2025) and current aerial photography (Bing Maps, 2025), confirms that land use within the Proposed Project is generally agricultural with the exception of the proposed HV cable route which is mostly within a public road. The wider surrounding lands have developed considerably since the late twentieth century; including for roadway infrastructure, however the dominant land use remains agricultural.

Table 11-5 - Historical mapping of the Proposed Project Site – Land Use

Description	Historical Mapping
Map Genie 6 Inch First Edition 1829-1841 (OSI, 2025) - The Proposed Project, and its surrounds is dominated by agricultural use.	
Map Genie 25 Inch BW 1995 (OSI, 2025) – No significant change noted.	

Description	Historical Mapping
Map Genie 1996 to 2000 (OSI, 2025) – No significant change noted.	
Map Genie 2001-2005 (OSI,2025) - No significant change noted.	
Map Genie 2011-2013 (OSI, 2025) – Aerial photography between 2011-2013 shows the development of the M6 Road to the South of the Proposed Project.	

Description	Historical Mapping
Map Genie 2013-2018 (OSI, 2025) - The aerial photography between 2013 – 2018 shows the development of national roads such as the M17, M18, M6 and the associated interchange adjacent to the Proposed Project.	
Google Maps (2025) – No significant changes noted in present day. Large industrial development noted circa (ca.) 2.5km east of the Proposed Project.	

11.3.2 Current Site Setting (and topography)

The Proposed Project site is approximately 19.17 hectares (ha) overall and consists of the Cashla Peaker Plant site (ca. 9.7 ha) including the AGI and internal access road from the L3103 (ca. 1.8 ha) and the grid connection route (ca. 7.6 ha).

The Cashla Peaker Plant Site is a greenfield site located in Rathmorrissy and Pollnagroagh, Athenry, ca. 18 km east of Galway City and ca. 2km west of Athenry. The existing 'Cashla Peaker Plant' site has an area of ca. 9.76 ha (total project area: 19.17 ha) and is positioned between the northern and eastern arms of the M6/M18 interchange. The Cashla Peaker Plant' site is generally composed of agricultural land, rural scrublands and residential land located along the proposed underground cable (UGC) route. Access to the site will be provided via a newly proposed access road connecting to the L3103, ca. 1km east of the M17 motorway.

The proposed 220 kV underground cable is approximately 8.1 km in length and will transport electricity from the proposed 220 kV substation connecting the Athenry OCGT Peaker Plant to the existing 220 kV Cashla substation. For the majority of the route, the UGC navigates the public road network in an eastward direction from Cashla 220 kV substation to the Athenry OCGT Peaker Plant. The UGC route predominantly traverses within the public road curtilage, with some minor sections traversing within privately owned lands. This is necessitated by the use of a horizontal directional drilling (HDD) section to cross the M6 motorway in two separate locations and the M17 motorway in one location.

The Engineering Report prepared by AtkinsRealis (2025) summarised the topography at the Proposed Project as follows:

'*undulating elevations with a general low point of ca. 51.8m to the northeast of the site. The site rises as it heads south with an isolated high point to the southwest of 58.5 and general levels to the south of the site of around 57.0m AoD'*

There are no local foul sewer systems existing on the Proposed Project site.

Existing infrastructure at the site includes a transmission line consisting of a 650mm diameter, 85barg. high pressure gas transmission main which runs south to north through the existing site (refer to Chapter 14 Material Assets).

The existing 220 kV Cashla-Tynagh 220 kV line substation is located within the greenfield site bordering the southwest portion of the Proposed Project (AtkinsRéalis, 2025).

11.3.3 Ground Investigation

11.3.3.1 Regional Setting

Information on the site geology was obtained from the Geological Survey of Ireland (GSI, 2025). Existing boreholes within the Study Area and depth to bedrock are shown in Figure 11-3. The depth of the existing boreholes ranged between ca. 0.5-5.5m. It is evident from Figure 11-3, that at several locations, bedrock was met within the depth of investigation, while in others it was not, indicating varying depth range of bedrock in the site substrata.

Figure 11-3 - Existing Boreholes (GSI, 2025)

11.3.3.2 Priority Geotechnical Limited Ground Investigation

As mentioned previously in Section 11.2, ground investigations were undertaken by Priority Geotechnical Limited (PGL; 2025), which included:

- 7no. cable percussion boreholes, 4no. rotary boreholes, 2no. soakaway pits and 17no. trial pits carried out to determine ground conditions for the western and eastern access route options (Refer to Table 11-6);
- Geochemical analysis on 9no. soil samples collected from seven trial pits located across the proposed 'Cashla Peaker Plant' site , at depths of between 0.5 to 1.5m BGL (Refer to Table 11-7);
- Groundwater monitoring in 4no. cable percussion boreholes.

Refer to Figure 11-4 for all 'as built' ground investigation locations.

Table 11-6 - Trial Pit and Boreholes examined with associated depths (PGL Factual Report, 2025)

Trial Pit / Borehole No.	Max Depth (m BGL)
TP01	1.20
TP02	2.70
TP03	3.10
TP04	0.90

Trial Pit / Borehole No.	Max Depth (m BGL)
TP05	2.10
TP06	3.00
TP07	1.10
TP08	2.70
TP09	2.30
TP10	2.40
TP11	1.30
TP12	2.10
TP13	1.20
TP14	2.50
TP15	1.20
TP16	1.90
TP17	2.80
RC01	7
RC02	8.6
RC03	8.3
RC04	9.9
BH01	0.7
BH02	1
BH02A	0.8
BH02B	1
BH03	0.8
BH03B	0.8
BH04	0.7
SA01	1.6
SA02	1

Figure 11-4 - Trial Pits and Boreholes carried out by Priority Geotechnical (PGL 2025).

11.3.3.2.1 Chemical Testing

As part of the PGL 2025 ground investigation, nine soil samples collected from seven trial pits located in the proposed 'Cashla Peaker Plant' site at depths of between 0.5 to 1.5 m bgl were submitted for geochemical analysis (Refer to Table 11-7)[85]. The comprehensive testing suite included metals, total cyanide, total sulphate, total petroleum hydrocarbons (TPH), speciated polycyclic aromatic hydrocarbons (PAHs), benzene, toluene ethylbenzene and xylene (BTEX), total phenols, polychlorinated biphenyls (PCBs) and asbestos. In addition, the nine samples were submitted for soil leachate analysis (ammonium only).

[85] Standard Report_25-08261-20250318 181714.PDF

Table 11-7 – List of soil samples scheduled for environmental testing

Trial Pit No.	Depth (m)
TP01	0.5
TP02	1
TP03	0.5
TP03	1.5
TP04	0.5
TP05	1.0
TP06	1.5
TP06	1.0

Human Health GQRA / Risk Screening

In order to provide an assessment of the risks to humans presented by contaminants within soils, a human health Generic Quantitative Risk Assessment (GQRA) / risk screening exercise has been undertaken by AtkinsRéalis. The screening involves comparing contaminant / parameter concentrations observed at the site with appropriate generic assessment criteria (GAC). The GQRA forms Tier 2 of the tiered approach to assessing risks from land contamination as set out in the UK Environment Agency LCRM Framework (UK EA, 2025), and which is accepted best practice with respect to contaminated land assessment in Ireland. The GAC used to screen the soil data include:

- Contaminated Land: Applications in Real Environments (CL:AIRE), 2014, Category 4 Screening Levels (C4SLs) and in their absence; and
- AtkinsRéalis soil screening values (SSVs)

The nine soil samples have been screened against relevant GAC for a commercial land use which is considered to be appropriate for the proposed Peaker Plant development. Refer to Appendix 11-2, Volume 3 of the EIAR. No exceedances of GAC were reported at sampling any location. Soil concentrations of organic analytes (TPH, PAHs, BTEX and PCBs) were typically below the laboratory detection limit and no asbestos was detected. The chemical results are consistent with the trial pit logs which recorded topsoil over sandy gravel or gravelly clay.

These results (as presented in Appendix 11-2, Volume 3 of the EIAR) verify the findings of the desk based review and are consistent with anticipated baseline soil conditions, given the primarily greenfield setting and site history, as described previously.

11.3.4 Soils

Teagasc soils underlying the Cashla Peaker Plant Site consist of Karstified bedrock outcrop or subcrop (RckCa) (GSI, 2025). The proposed UGC route is primarily underlain by limestone-derived tills (TLs). The existing Cashla substation is underlain by made ground (GSI, 2025) (Refer to Figure 11-5).

The Subsoil Permeability map (GSI, 2025) shows how permeable the subsoils are in Ireland. The map shows the subsoil permeability category at any point on the land surface as long as the subsoil is greater than 3m thick. There are three categories: ‘High’, ‘Moderate’ or ‘Low’. Subsoil permeability at the ‘Peaker Plant’ site is classified as ‘not mapped’ in southern sections. However, the northern and eastern areas, including the proposed access road, are classed as ‘Moderate’ with small pockets of ‘High’ permeability (GSI, 2025).

Similarly, the UGC route traverses areas of both ‘not mapped’ and ‘Moderate’. The Cashla Substation site is also classified as ‘not mapped’ and ‘Moderate’.

Figure 11-5 - Teagasc Soil Maps (GSI, 2025)

The primary superficial / quaternary sediments underlying the Cashla Peaker Plant site comprise karstified bedrock outcrop or subcrop (KaRck) and till derived from limestones. There is a small portion of eskers comprised of gravels of basic reaction (BasEsk) along the proposed access road (GSI, 2025; Figure 11-6). The UGC route and Cashla Substation site are underlain by tills derived from limestone with small scattered pockets of karstified bedrock (GSI, 2025).

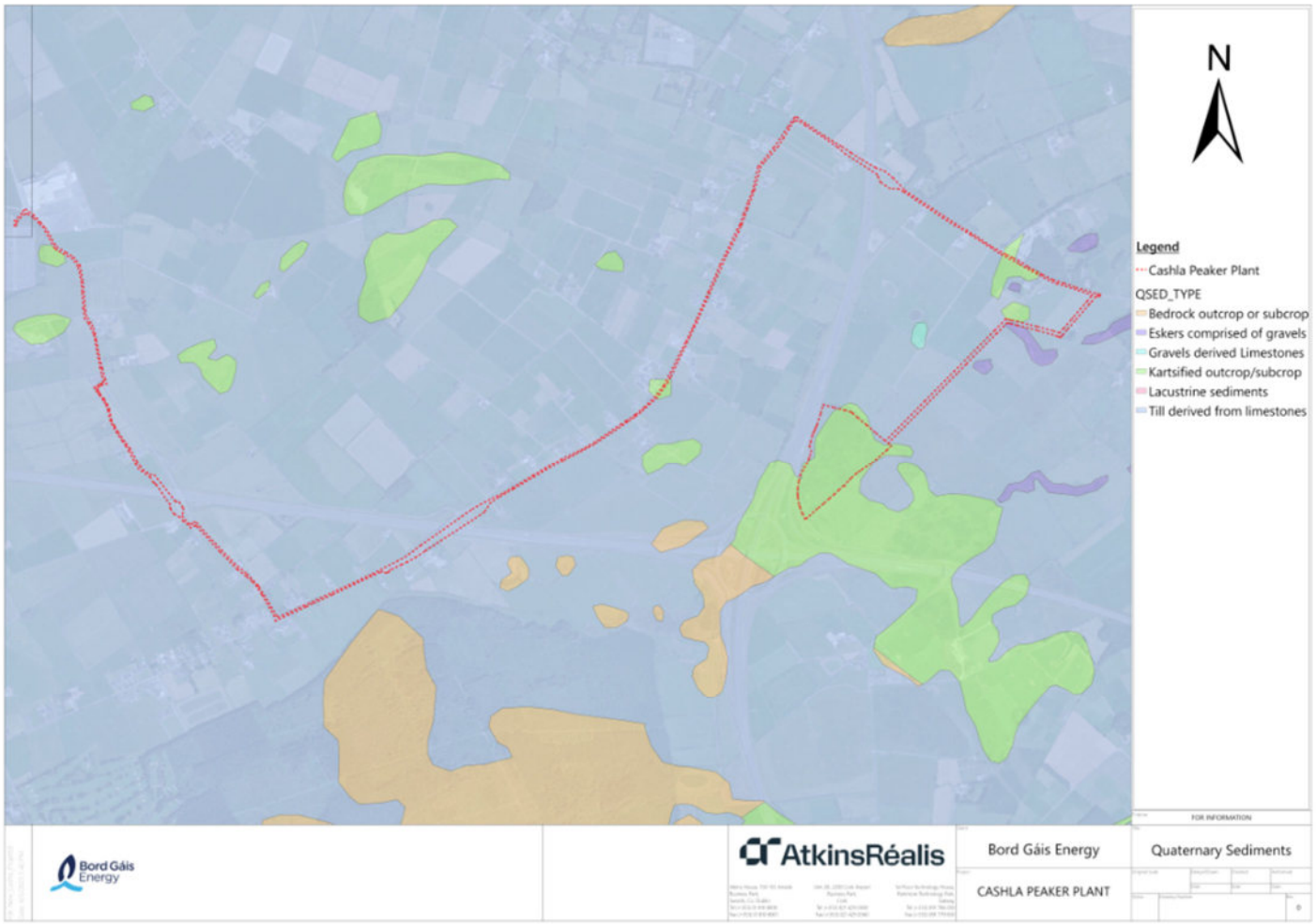


Figure 11-6 - Superficial / Quaternary Deposits (GSI, 2025)

11.3.4.1 Contaminated Land Risk - Potential Offsite Sources

A review has been undertaken of all potential offsite sources of contamination including relevant EPA licenced facilities, as summarised in this section, and presented in Figure 11-7.

City Bin Co Ltd (site code: W0148), located 5.9km southwest is the only EPA licenced waste facility within 10km of the Project.

On a regional scale there are 6no. Industrial Emissions Licence (IEL), Integrated Pollution Control (IPC) & Integrated Pollution Prevention Control (IPPC) licenced facilities within 5km of the Project:

- Byrne-Mech Limited (site code: P0369), located 2.89km east;
- Galway Metal Company Limited (site code: P1006), located 8.26km southwest;
- Hygeia Chemicals Limited (site code: P0324), located 8.62km southwest;
- Colas Bitumen Emulsions (West) Limited (site code: P0056), located 8.76km southwest;
- Chemoran Limited (site code: P1169), located 8.96km southwest; and,
- APW Galway Limited (site code: P0133), located ca. 9.06km southwest
- On a regional scale there are 8no. Section 4 Discharges licenced facilities within 5km of the Proposed Project:
- Katesan Ltd. (site code: W429/07), located 4.48km south;
- Athenry golf club (site code: W237/91), located 3.4km southwest;

- Coshla Quarries Ltd. (site code: W469/13), located 4km west;
- C&F Tooling Ltd. (site code: W485/15), located 3.57km northwest;
- Peter Gillhooley (site code: W431/07), located 3km east;
- Cregmore National School (site code: W468/12), located ca. 3.5km northwest;
- A S O Brien Developments (side code: W415/06), located ca. 2.6km east; and,
- Raheen Hotel (site code: W378/04), located ca. 2.71km east.

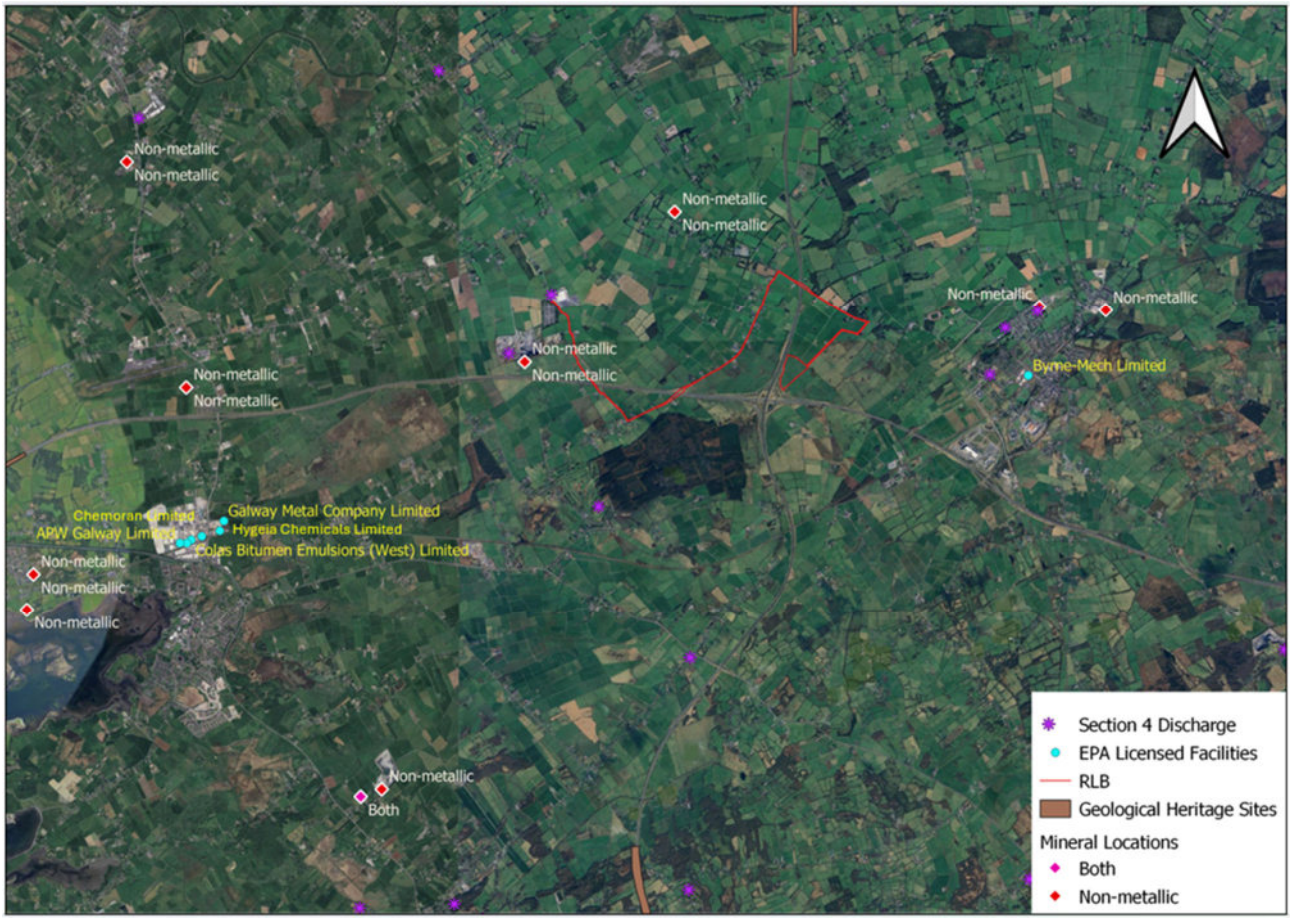


Figure 11-7 – Location of EPA Licensed facilities, Geological Heritage Areas and Mineral Localities in vicinity of the site (EPA, 2025)

11.3.4.2 Contaminated Land Risk - Potential Onsite Sources

A review of historic maps as per Section 11.3.1, shows that land use in the Study Area is predominantly agricultural in nature. The 'Peaker Plant' Site is located on a greenfield site positioned between the northern and eastern arms of the M6/M18 interchange. The proposed UGC route will primarily traverse public roads, with only minor sections traversing privately owned lands. The existing Cashla Substation site is a brownfield site. Site specific soil records summarised below indicate no presence of contaminated lands within the Peaker Plant Site. It should be noted that land assessed during the ground investigation and geophysical study only covered lands as shown in Figure 11-8 to Figure 11-12 below. Potential sources of contamination include surface runoff from the adjacent motorway, however due to variations in topographical levels, it is unlikely that this will impact the Proposed Project. Therefore, the risk of contamination via onsite and / or offsite sources is low.

11.3.4.3 Site specific Soil Data

Site specific soils records from the ground investigation (PGL, 2025)[86] and geophysical survey report (Terra Survey, 2025) are summarised as follows:

- Topsoil was encountered 0.2 m to 0.4 m below ground level;
- Clay layer was encountered below topsoil and described as sandy gravelly firm to stiff clay with low boulder content. Boulders were 200-450 mm in diameter. In TP05 boulder sizes were 200-1200 mm in diameter;
- Firm to stiff Clay was extensively encountered and up to 2.8 m below ground level (bgl) at the trail pits TP08 to TP17 which are located at west and east access routes.
- The over burden material was described as clay in rotary core holes, however in cable percussive boreholes soil was described as gravel at the same holes in the proposed Peaker Plant area.
- Sand / Gravel was described as clayey, gravelly sand/gravel with medium to high boulder content with 200-850 mm in diameter. In TP05 boulders sizes were encountered 200 to 1200 mm;
- Rock – Bedrock was described as moderately to heavily weathered, medium strong to very strong, grey, fossiliferous, limestone in rotary core holes. Total core recovery at the boreholes were almost 100 % and the Rock Quality Designation (RQD) Values ranges from 0 to 100 %;
- Rockhead was noted at 0.7 m to 1.3 m bgl in rotary core holes.
- In trial pits, sand/gravel were encountered up to a depth of 3 m below ground level. Examination of trial pits photos concluded that encountered sand/gravel at the trial pits may be a product of weathered rock.
- Geophysical anomalies suggest karst features potentially extending to depths of up to 20 m.
- According to the Terra Survey Geophysical Survey Report, numerous areas were flagged as suspect for karstification within limestone bedrock such as possible air-filled voids or indicative of clay-filled voids. In total there were 18 no. anomalies identified. Refer to section 11.3.5 for further information on anomalies.
- A schematic representation of the underlying geology via. geological sections in the vicinity of the Proposed Project is presented in Figure 11-11 and Figure 11-12 below.

[86] P25025_LOGS_140325.pdf

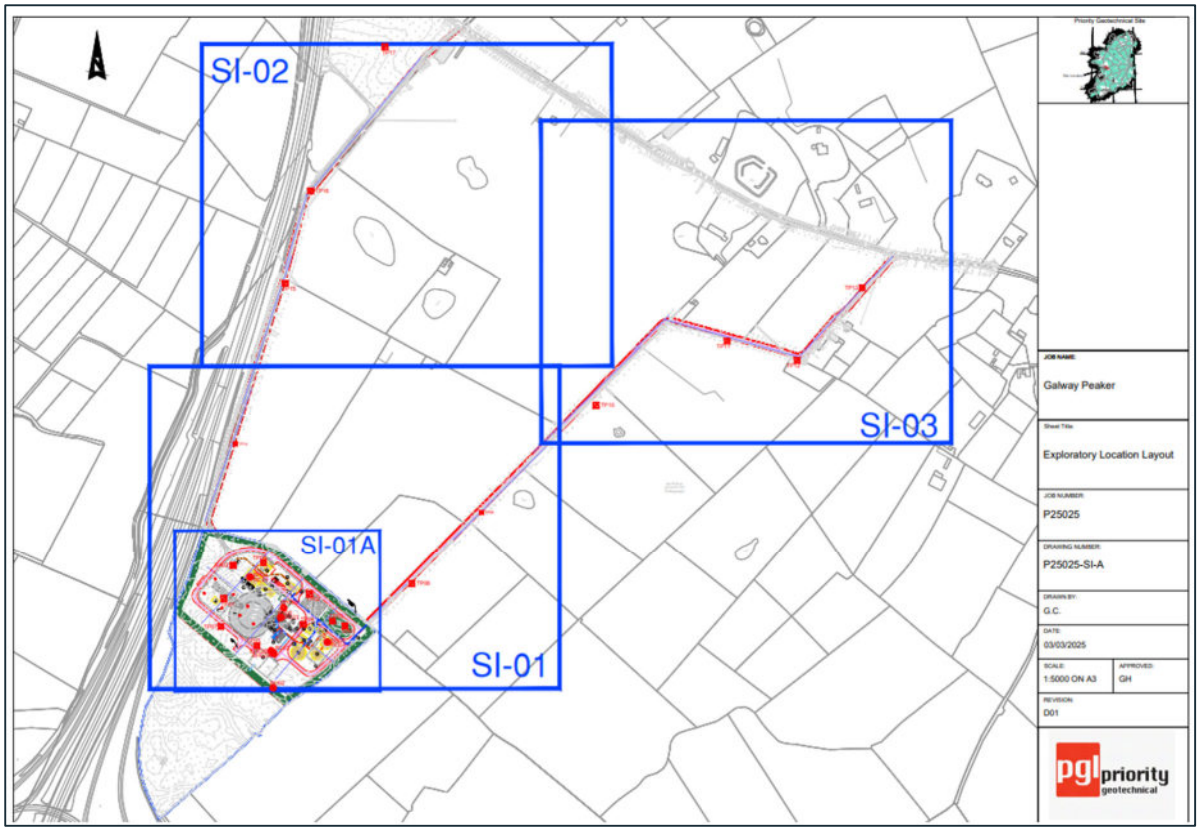


Figure 11-8 – Land covered during the Ground Investigation Study conducted by PGL in 2025

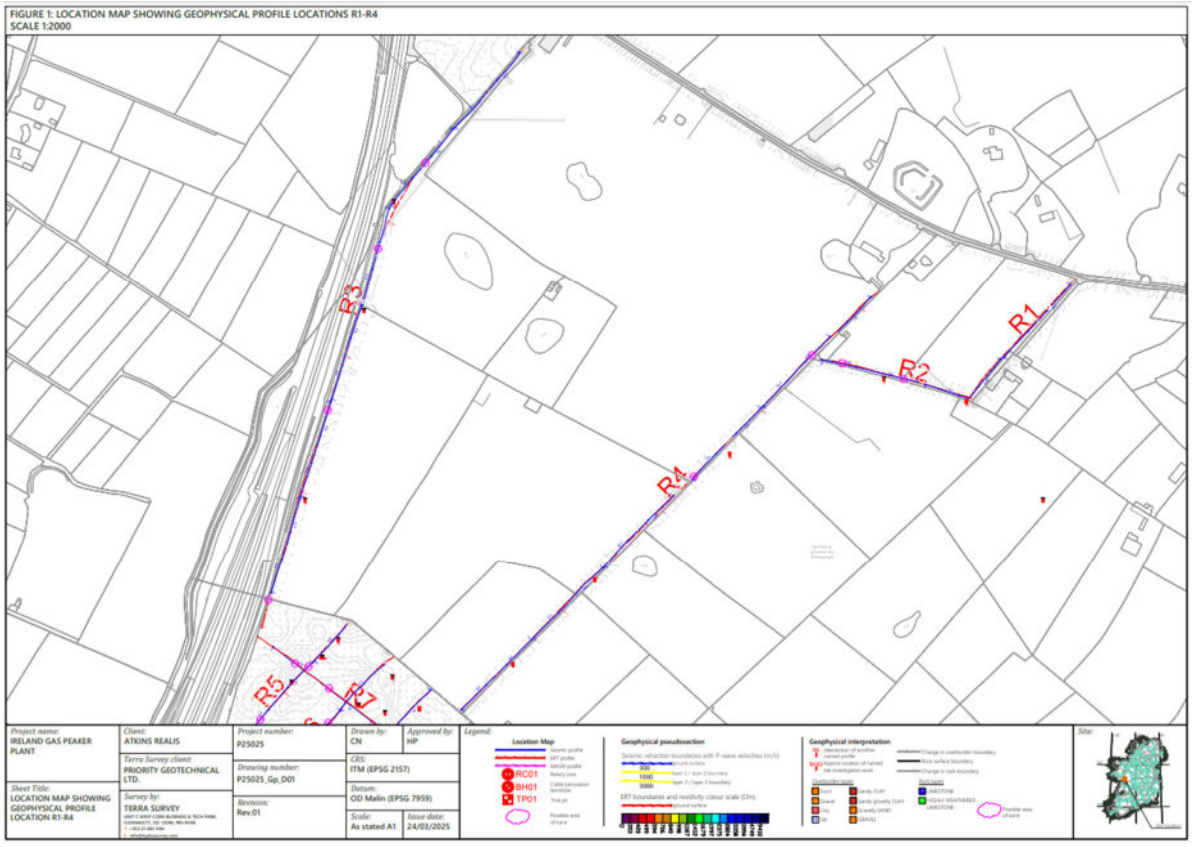


Figure 11-9 – Land Covered during the Geophysical Study conducted by Terra Survey Ltd in 2025 (Part 1)

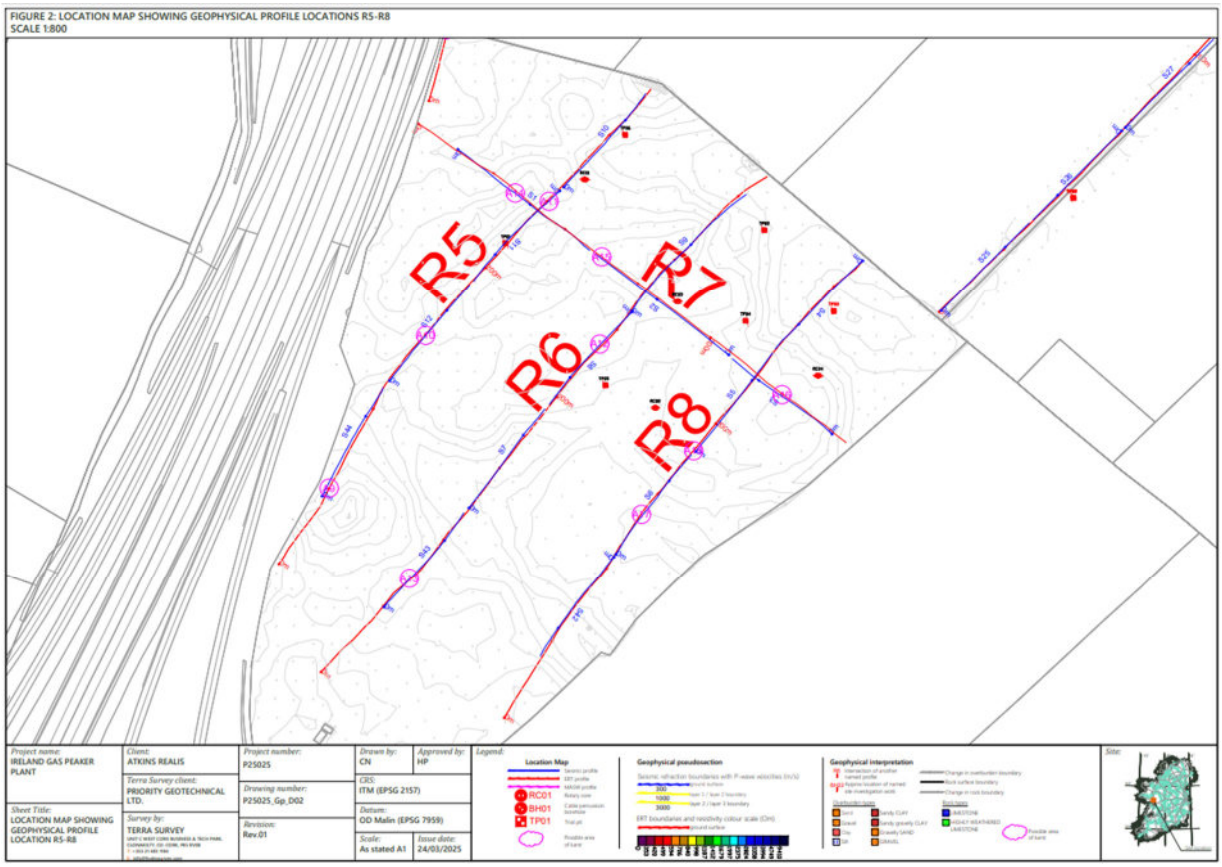


Figure 11-10 – Land Covered during the Geophysical Study conducted by Terra Survey Ltd. in 2025 (Part 2)

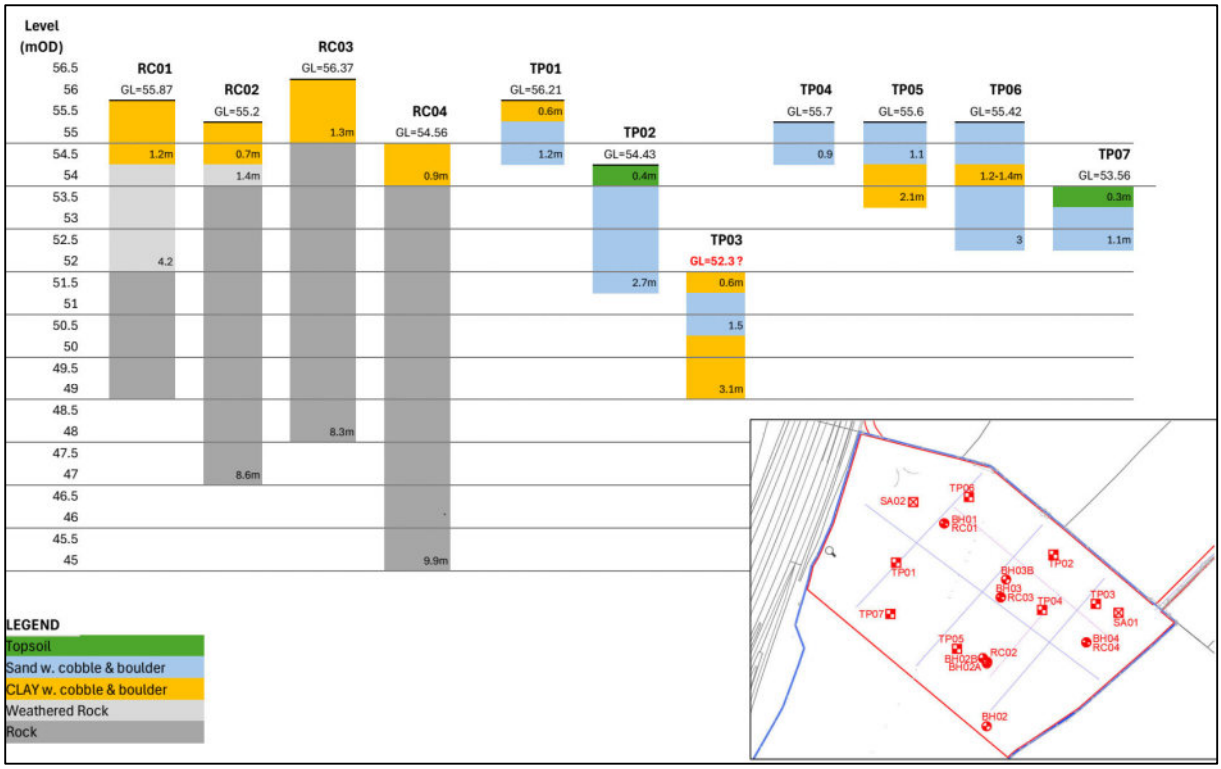


Figure 11-11 – Draft Exploratory Hole Cross Sections at proposed Peaker Plant Site. RC = Rotary Core; TP = Trial Pit

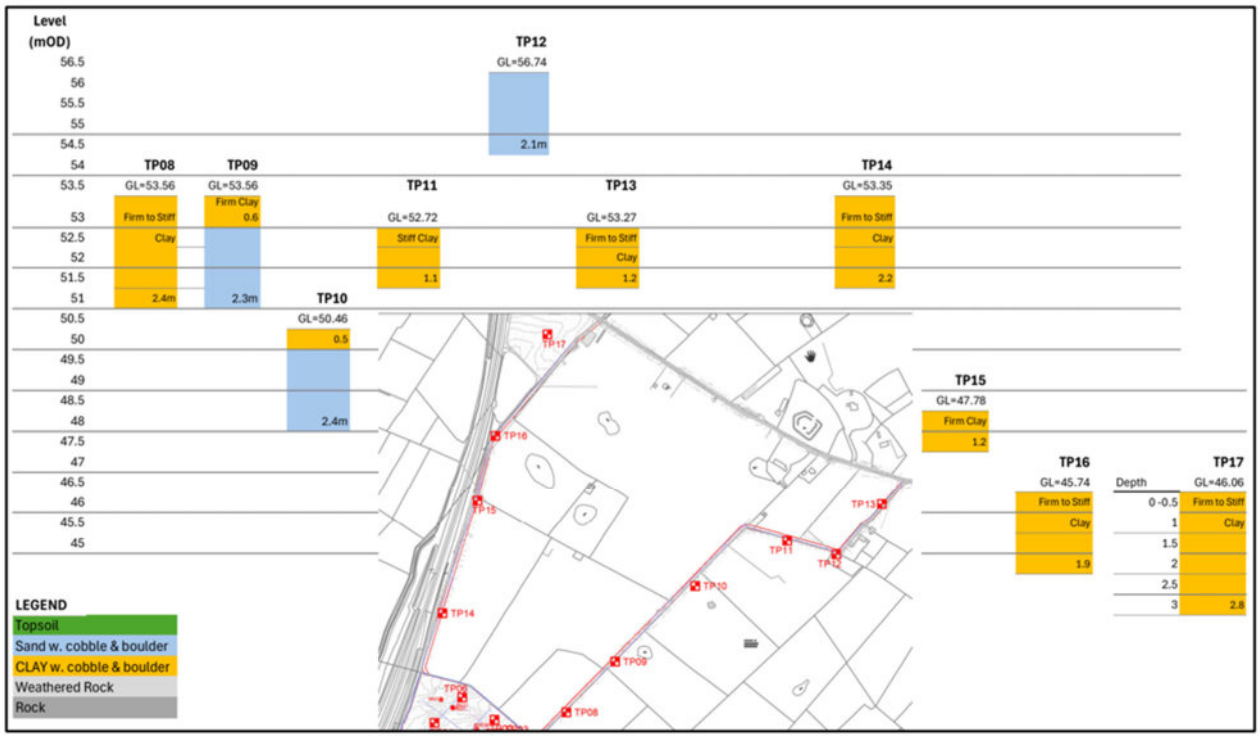


Figure 11-12 – Draft Exploratory Hole Cross Sections along proposed Access Route

11.3.5 Bedrock Geology

The GSI bedrock geology 100k map (Figure 11-13) identifies the underlying formation within Study Area as the Burren Formation, composed of pale grey clean skeletal limestone. Small portions of bedrock outcrops are scattered throughout the Proposed Project, including the northern section of the Cashla Peaker Plant Site, along the proposed access road, the UGC route and at the existing Cashla substation site (GSI, 2025).

The bedrock geology 500k (Figure 11-14) underlying the Proposed Project is composed of marine shelf facies; limestone & calcareous shale.

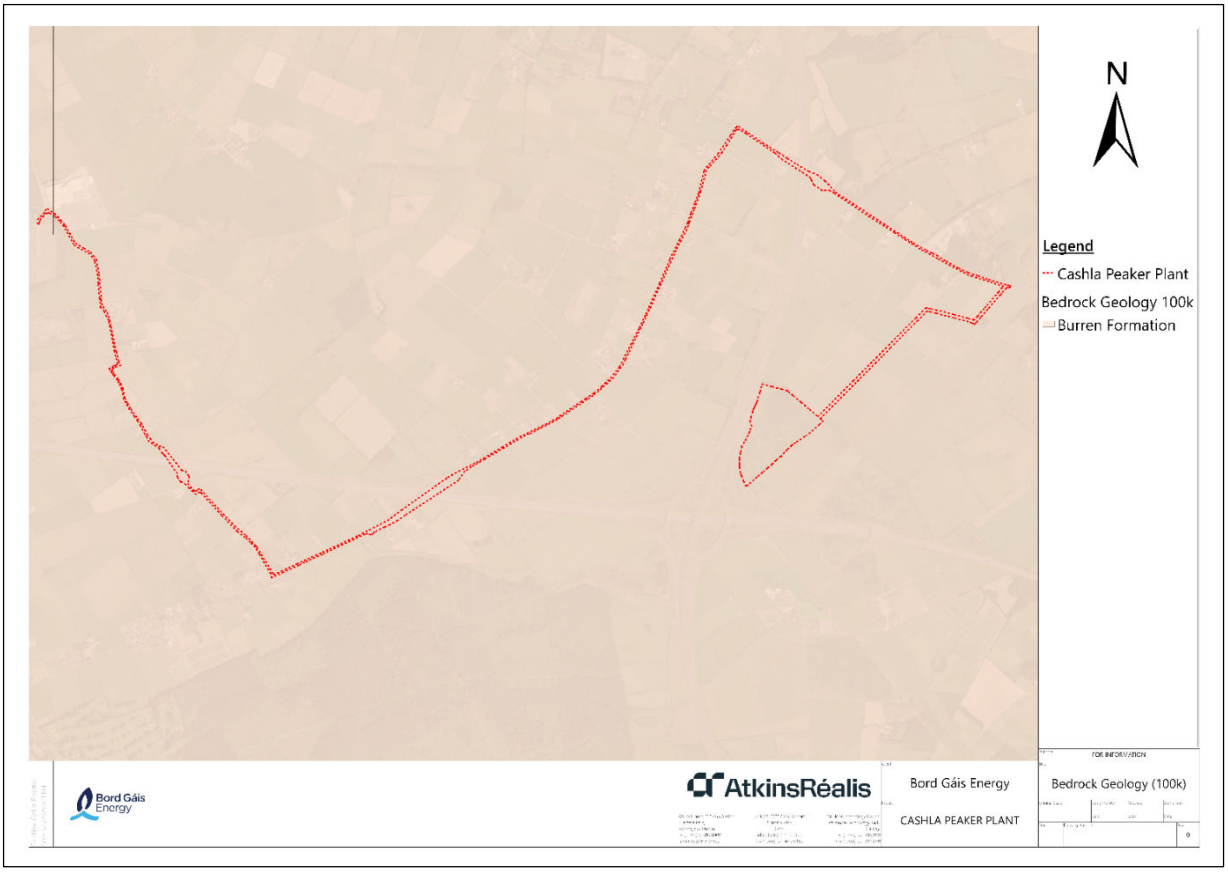


Figure 11-13 – Map showing bed rock geology (100K). Source (GSI, 2025)

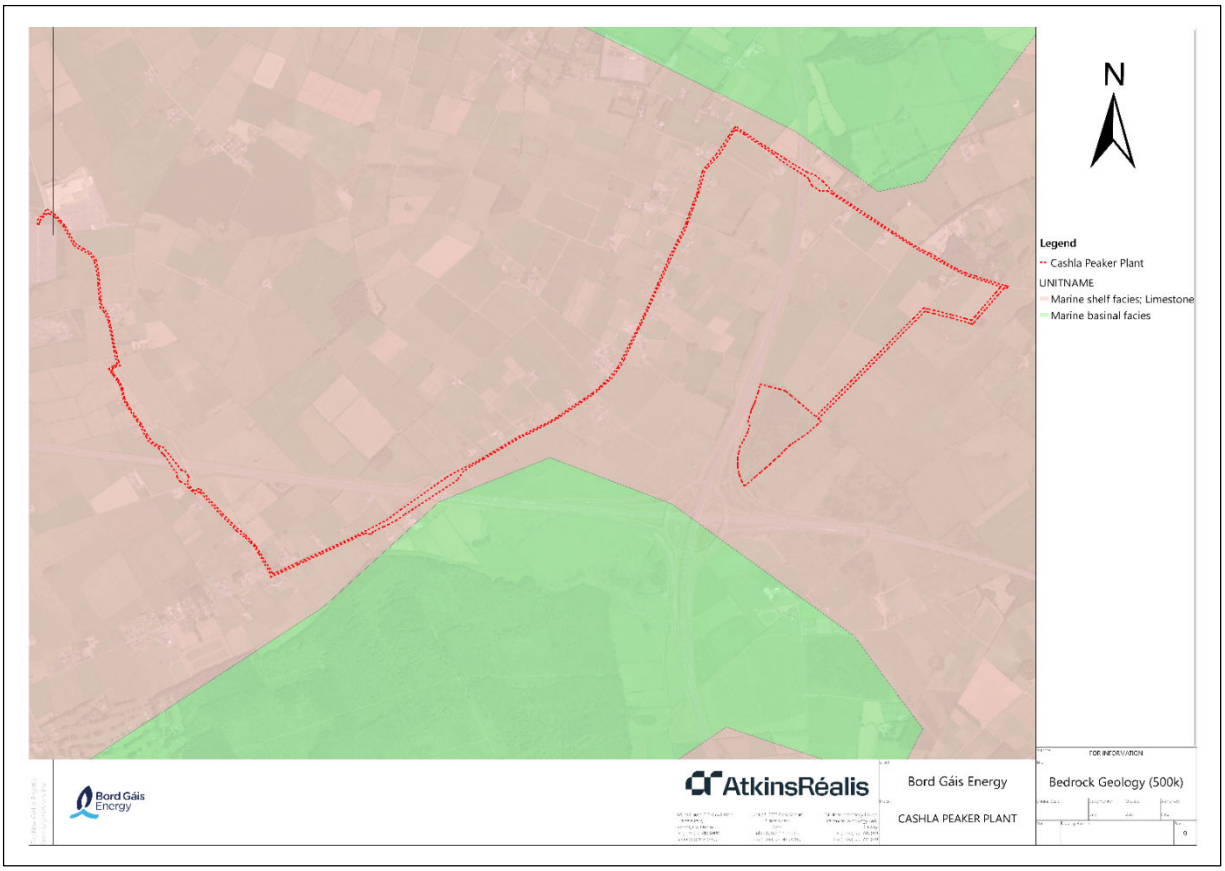


Figure 11-14 – Map showing Bedrock Geology (500K). Source (GSI, 2025)

A map showing Karst features is presented in Figure 11-15 (GSI, 2025). During pre-application consultation, it was noted by ACP that: '*The proposed site is located on Karst Limestone, therefore, there is potential for indirect connectivity with Inner Galway Bay SPA (Site Code:IE004031) and Galway Bay Complex SAC (Site Code: IE000268) which are located ca. 9.11km and 7.04km respectively from the site.*' Potential indirect connectivity with these protected sites is evaluated and assessed in detail within Chapter 5- Biodiversity, Volume 2 of this EIAR.

Based on regional mapping, there are 5no. identified potential karst features located within 20m of the proposed access road, and 2no. within 20m of the UGC route according to GSI regional mapping (Table 11-8).

Table 11-8 – Karst Landforms identified within 20m of the Proposed Project.

Type of Feature	Karst ID	Distance from Proposed Project (m)	Direction
Cave	IE_GSI_Karst_40K_2253	12	West
Cave	IE_GSI_Karst_40K_6471	20	East
Enclosed Depression	IE_GSI_Karst_40K_10347	8	East
Enclosed Depression	IE_GSI_Karst_40K_16907	19.7	East
Enclosed Depression	IE_GSI_Karst_40K_13913	19.7	East
Enclosed Depression	IE_GSI_Karst_40K_10350	14.3	East
Enclosed Depression	IE_GSI_Karst_40K_10262	16.9	West

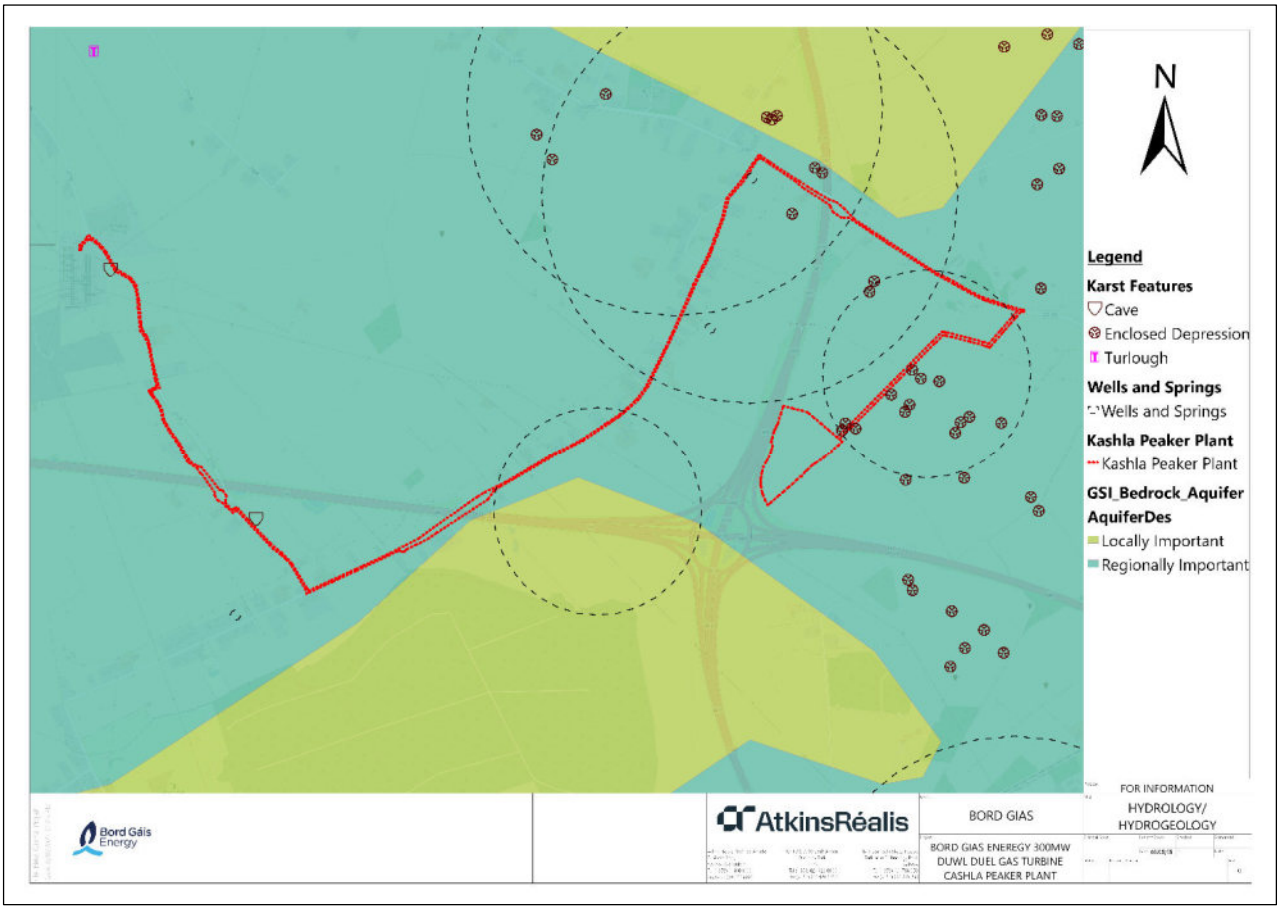


Figure 11-15 – Map showing Karst features and aquifers underlying the Proposed Project (GSI, 2025)

As previously discussed, given the regional karst site setting, a geophysical survey and geotechnical investigation was conducted (Refer to Appendix 11-1, Volume 3 of the EIAR), and the results are discussed as follows.

The Terra Survey Geophysical Report (Terra Survey, 2025) identified 18no. anomalies, which were interpreted as potential karst features. A risk rating was assigned based on the likelihood of encountering karst features, and subsequent potential engineering and structural issues. It should be noted that the proposed design, from concept through to design as clearly demonstrated in Section 11.4.2, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environmental, and water (groundwater) environment is negligible.

High resistivity indicates greater risk of encountering voids or cavities, while low resistivity indicates high risk of encountering presence of infill materials, such as clay or water-saturated sediments. The details of anomalies encountered are summarised below in Table 11-9. Refer also to Appendix 11-1, Volume 3 of the EIAR for a copy of the full report and all supporting drawings / cross sections.

Table 11-9 - Anomalies underlying the Proposed Project (Terra Survey, 2025)

Name	Easting	Northing	Depth (m BGL)	Priority*	Description
A1	547302.3	728710.6	20	High	Interpreted as high risk due to high amplitude of low resistivity

Name	Easting	Northing	Depth (m BGL)	Priority*	Description
					extending to depth and resulting in likely dramatic drop in bedrock elevation / increase in bedrock weathering.
A2	547389.1	728688.4	15	Low	Interpreted as low risk due to limited amplitude of the drop in resistivity with depth.
A3	546492.4	728376.9	20	Medium	Interpreted as medium risk as low resistivity extending to depth, likely corresponding to dramatic drop bedrock elevation / increase in bedrock weathering
A4	546576.4	728644.6	40	High	Interpreted as high risk as large (ca. 200m length) area where low resistivity extends into bedrock. Interpreted as a karst feature
A5	546647.3	728873.1	30	Low	Interpreted as a similar feature to A4, but smaller and low risk.
A6	546714.2	728994.0	30	High	Interpreted as high risk as low resistivity extending deep into the bedrock (>50m bgl). Likely relating to karst.
A7	547260.0	728722.1	30	Medium	Interpreted as medium risk as has a large area of low resistivity extending to depth
A8	547093.1	728551.5	30	High	Interpreted as high risk as has area of low resistivity that extends to depths of greater than 50m bgl
A9	546428.0	728124.8	15	High	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.
A10	546481.2	728208.6	15	Medium	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.
A11	546549.1	728282.7	15	Medium	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity

Name	Easting	Northing	Depth (m BGL)	Priority*	Description
					indicates a lower likelihood of air filled voids.
A12	546577.0	728203.8	20	High	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.
A13	546472.2	728075.0	20	Medium	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.
A14	546549.6	728039.7	20	High	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.
A15	546597.4	728106.1	20	High	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.
A16	546672.8	728199.1	15	High	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.
A17	546592.7	728241.1	20	High	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.
A18	546613.8	728225.6	20	Low	High resistivity close to the surface within ca. 15m bgl. High resistivity indicates possible air filled voids while lower resistivity indicates a lower likelihood of air filled voids.

*Characterised by subtle variations in lateral resistivity values, which are hypothesised to correspond to karstified formations

Accordingly, the proposed design, from concept through to design as clearly demonstrated in Section 11.4.2, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environment, and water (groundwater) environment is negligible.

The Construction Environmental Management Plan (CEMP) will include specific provisions for vibration monitoring, setting appropriate threshold values based on site-specific conditions and relevant standards. Real-time monitoring and alert systems will enable immediate action should vibration levels approach the agreed limits. This approach ensures that, although the karst conditions are not fully defined at the planning stage, they will be fully characterised prior to construction, allowing targeted and effective vibration management measures to be applied.

The Proposed Project is underlain by a Regionally Important Aquifer – Karstified (conduit). There is a locally important bedrock aquifer – bedrock which is moderately productive only in local zones, located immediately southeast of the UGC route where it crosses the M6 for the first time. Refer to Chapter 12 Water of this EIAR for further details.

The Proposed Project is underlain by 2no. groundwater bodies (GWB) including the GWDTE-Galway Bay Complex (SAC000268) (EPA Code: IE_WE_G_0087) and the Clarinbridge GWB (EPA Code: IE_WE_G_0008). Both are classified as ‘Good’ under the Water Framework Directive Status 2019-2024 and are ‘Not at Risk’ of failing to meet Water Framework Directive goals by 2027.

11.3.6 Geo-hazards

Landslide susceptibility classification across the Project which has a low inferred risk (Figure 11.16). There are no landslide events recorded in the area of the Proposed Project. Furthermore, there are no recorded landslide events within 10km of the Proposed Project (GSI, 2025).

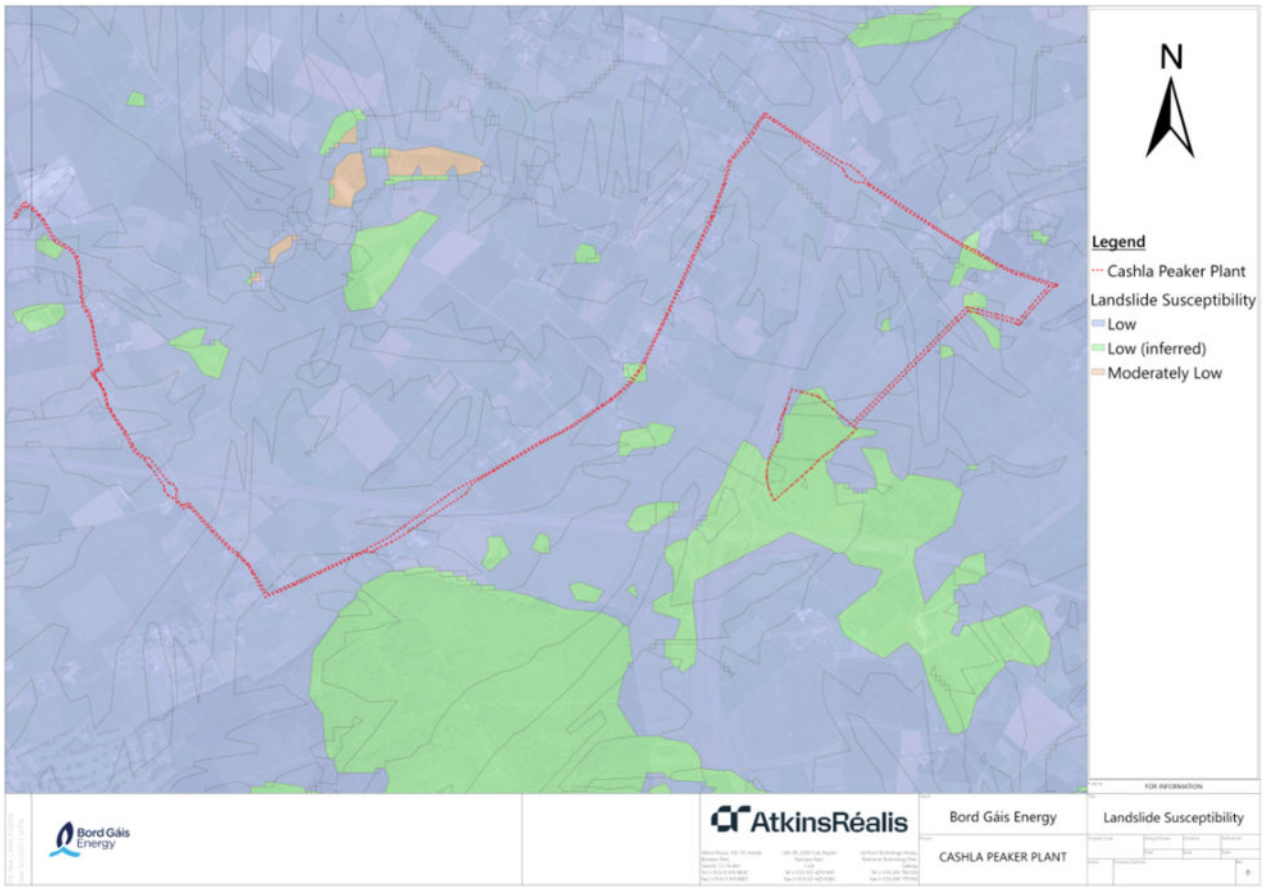


Figure 11-16 - Landslide susceptibility classification map (2025)

11.3.7 Geological Heritage

There is 1no. Geological Heritage Area (GHA) located within 5km of the Proposed Project. Figure 11-7 shows Caherateemore M17 Road Cut (site code: GY024); '*An 800 m long road cutting along the M17 motorway, with both high and low cliffs of rock'* Geological Heritage Area (GHA) located ca. 3.3km north of the Proposed Project. However based on the nature of the Project, the designation criteria and location of this GHA, the Project will not result in any likely environmental effects to designated GHA.

11.3.8 Mineral Occurrences

There are 4no. Mineral Localities within 5km of the Proposed Project (Table 11-10).The closest mineral occurrence is located ca. 2.6km east of the site.

Table 11-10- Mineral Localities showing distance from the Proposed Project

Mineral Localities (Ref No.)	Distance from Proposed Project (km)
4716 – Dimension Stone	2.6
4717 – Dimension Stone	3.79
2282 – Sand and Gravel	3.53
2528 – Brick, Clay	4.37

11.3.9 Radon

Radon is a radioactive gas. It is formed in the ground by the radioactive decay of uranium which is naturally present in all rocks and soils, albeit levels will vary depending on geological conditions. The EPA radon map for the Study Area indicates radon levels of 'about 1 in 5 homes in this area is likely to have high radon levels' (Figure 11-17). A High Radon Area is an area where it is predicted that more than 10% of homes will exceed the national reference level (EPA, 2025). However, in accordance with relevant building regulations, a radon barrier will be installed beneath all buildings to be constructed as part of the Proposed Project. Therefore, radon will not have any effect on the Proposed Project.

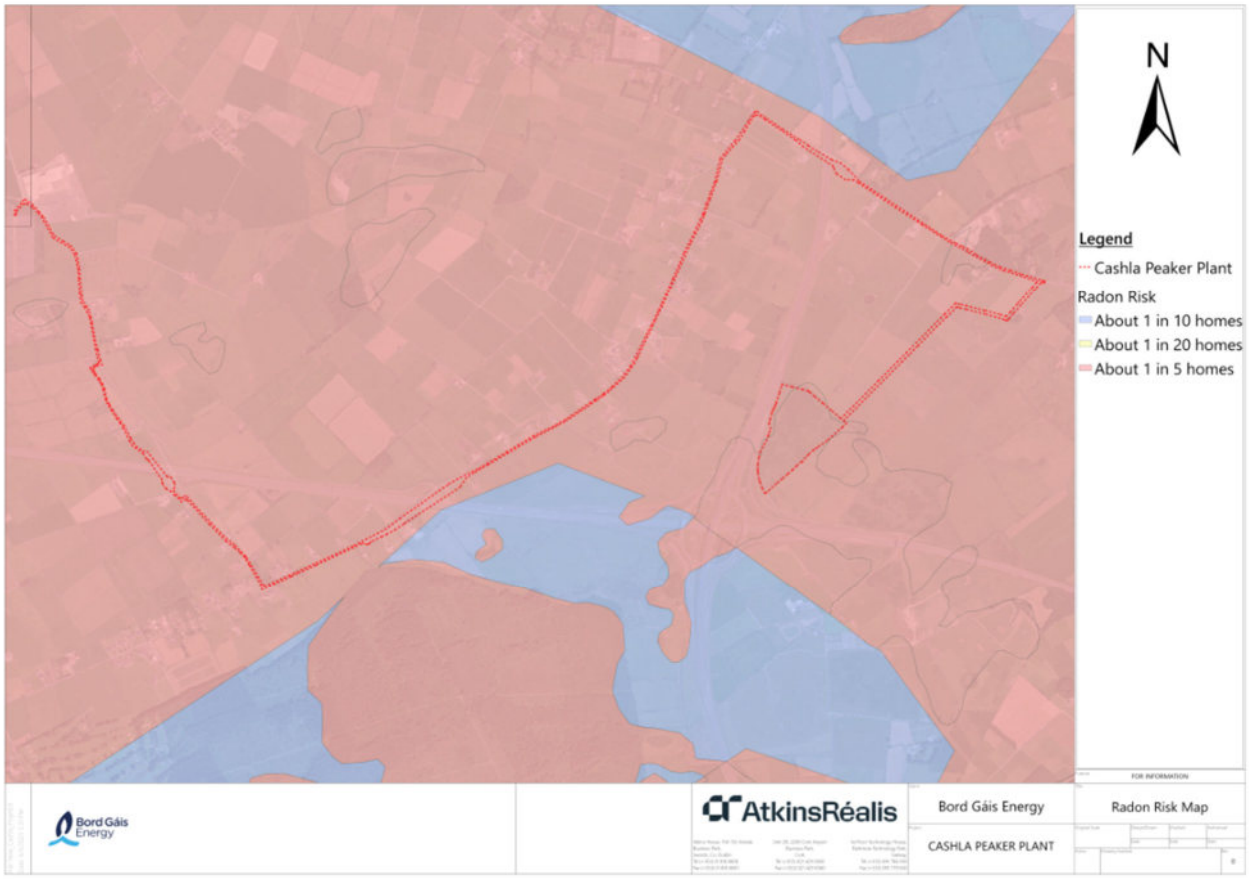


Figure 11-17 - Regional Radon Levels (EPA, 2025)

11.3.10 Initial Conceptual Site Model

An initial conceptual site model (CSM) has been prepared for the Project. The CSM identifies the potential or known sources of contamination, receptors and pathways between the two. Where all three are present or are considered likely to be present (source-pathway-receptor linkage), they are called a potential contaminant linkage (PCL). The CSM is based on a review of the baseline presented within Section 11.3. the summary of potential contamination sources and potential receptor and pathways are provided in this Table 11-11 and Table 11-12.

Table 11-11– Potential Contamination Sources

Location	Potential Source of Contamination	Potential Contaminants of Concern
On-site	Made Ground associated with the construction and operation of existing road infrastructure.	Organic compounds: polycyclic aromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylenes (BTEX). Inorganic compounds: ammonium, nitrite, nitrate, cyanide. Heavy metals. Asbestos fibres and asbestos containing materials (ACM)
	Agricultural farming practices potentially leading to spills / leaks.	Organic compounds: PAH, TPH, BTEX. Inorganic compounds: ammonium, sulphate, nitrite, nitrate, cyanide. Heavy metals. Pesticides
Off-site	Made Ground associated with the construction and operation of existing road infrastructure including the adjacent M18 / M17.	Organic compounds: PAH, TPH, BTEX. Inorganic compounds: ammonium, sulphate, nitrite, nitrate, cyanide. Heavy metals. ACM.
	Agricultural farming practices within the 250 m of the Proposed Project.	Organic compounds: PAH, TPH, BTEX. Inorganic compounds: ammonium, sulphate, nitrite, nitrate, cyanide. Heavy metals. Pesticides
	Existing Cashla 220 kV substation located adjacent to the south of the site.	Organic compounds: PAH, TPH, BTEX. Inorganic compounds: ammonium, sulphate, nitrite, nitrate, cyanide. Heavy metals. Polychlorinated biphenyl (PCBs)
	Made Ground associated with the construction and operation of residential and commercial land uses within the study area.	Organic compounds: PAH, TPH, BTEX. Inorganic compounds: ammonium, sulphate, nitrite, nitrate, cyanide. Heavy metals. ACM.

Table 11-12 – Potential Receptors and Pathways

Receptor Group	Receptor	Principal Contaminant Migration Pathways
On-site	Farmers on agricultural land	Inhalation of soil-derived dust, fibres, gases and vapours. Dermal contact with and ingestion of contaminants via. potential pollution during construction works.
	Future road users including pedestrians	
	Construction workers and Future Peaker Plant workers	
Off-site	Farmers on agricultural land within the study area.	Dermal contact with and ingestion of contaminants in soil-derived dusts and water that may have migrated off-site; and Inhalation of soil-derived dust, fibres, gas and vapours which may have migrated off-site.
	Residents in residential properties within the study area.	
	Workers at the existing adjacent Cashla 220 kV substation and at commercial properties within the study area.	

11.4 Potential Effects

This section presents potential effects that may occur due to the Proposed Project, in the absence of mitigation.

11.4.1 Characteristics of the Proposed Project

A detailed description of the Proposed Project is presented in Chapter 2 Project Description. To identify, describe and assess the likely significant effects from the Proposed Project, the main components are described below:

Proposed Peaker Plant

- Construction of a OCGT plant primarily fuelled by natural gas (the Peaker Plant). The site is triangular in shape, approximately 9.76ha in area and generally comprised of agricultural grassland. The site is positioned between the northern and eastern arms of the M6/M18 interchange. Key components of the Peaker Plant include:
  - OCGT plant primarily fuelled by natural gas
  - One emissions stack and balance of plant with a proposed height of 30m and 7m width
  - Above Ground Installation (AGI)
  - 220 kV Air Insulated Substation
  - One 220 kV electrical transformer
  - Ancillary grid connection infrastructure (underground cable)
  - Secondary fuel (low sulphur diesel) storage and transfer facilities
  - New workshop, stores, car park and administration buildings
  - Ancillary infrastructure including internal roads, external lighting, security fencing, utilities and drainage
  - Soft landscaping to enhance site integration and visual screening

Underground Gas Pipeline

- An underground gas pipeline (existing Mayo-Galway pipeline) is situated to the south of the Proposed Peaker Plant. A new underground transmission gas pipeline named GNI146 Rathmorrissy Gas Pipeline (subject to Section 39A Consent under the Gas Act 1976, as amended) will be connected to this pipeline

by GNI and routed underground via a 42 m long trench to the proposed Rathmorrissy AGI situated in the south east corner of the project site.

Permanent Access Road

- A 1.15km long, 6m wide permanent access road connecting the Cashla Peaker Plant site to the L3103. Existing land use along the route of the proposed access road route is agricultural grassland.

Proposed 220 kV underground cable

- A 220 kV UGC approximately 8.1km in length which will transport electricity from the proposed 220 kV substation connecting the Cashla Peaker Plant to the existing 220 kV Cashla substation. For the majority of the route, the UGC navigates the public road network in an eastward direction from Cashla 220 kV substation to the Peaker Plant.
- The UGC route predominantly traverses within the public road curtilage, with some minor sections traversing within privately owned lands. This is necessitated by the use of a HDD section to cross the M6 motorway in two separate locations and the M17 motorway in one location.

11.4.2 Design Mitigation

A robust engineering design has been developed for the project, informed by the site specific geological and hydrogeological conditions, including the potential presence of onsite subsurface karst geology.

11.4.2.1 Engineering measures (potential structural / geotechnical risk)

A robust karst protocol will be adapted during foundation construction comprising the following:

- Soil strip across each foundation footprint to expose the bedrock surface.
- Targeted closely spaced proof coring to confirm the presence of any possible Karst within 15 to 20m of the bedrock surface.
- If no significant voids or Karst features are encountered during the proof coring process then Foundation Solution 1 will be adapted.
- If a significant Karst feature is encountered during the proof coring process then Foundation Solution 2 will be adapted.

Foundation Solution 1

- In the event the targeted proof coring confirms no significant Karst features are present it is envisaged that traditional reinforced concrete raft and strip foundations (founded directly on the limestone bedrock) will be adequate for the proposed plant and single storey buildings. For the single storey buildings a traditional reinforced concrete strip foundation will be founded directly on the weathered bedrock. For the heavier items of plant / tanks we expect the top surface of weathered bedrock will be ‘ripped’ down to un-weathered bedrock with the reinforced concrete foundations founded on this un-weathered rock. These reinforced foundations will be designed to span over any minor surface karst fissures encountered at the bedrock formation level (exposed as part of the local soil strip at the foundation locations).

Foundation Solution 2

- In the event that the abovementioned targeted proof coring exercise identifies a Karst feature under the footprint of a heavy item of plant it is envisaged that a piled foundation solution will be required locally at the karst feature. This piled foundation solution will comprise cased Odex drilled piles. The piles will be cased to mitigate the risk of grout loss and negate the risk of aquifer contamination. In terms of piling plant, an Odex piling rig is typically used for piling through karst. A reinforced concrete pile cap or ground beams (located just below ground level) will be built on top of the piles to support the plant or building above. In terms of reinforced concrete foundation footprint (on plan), Solution 1 and Solution 2 will be virtually identical with the only varying item being the introduction of local piling at any karst voids encountered.

Site Access Road

- The site access road construction will typically comprise granular 6F2 capping material (founded on competent subgrade confirmed via on-site CBR testing) with a Clause 804 granular sub-base and hot-rolled asphalt wearing and surface courses as is typical for standard road construction. The access road crosses a suspected karst feature identified as part of the site investigation work and again a robust karst protocol shall be adapted here as follows.
- The formations in the vicinity of the suspected karst feature will be proof rolled and observed for signs of weakness with CBRs taken to confirm capacity. In any areas of low CBRs the top soil and overburden clay will be removed to expose the weathered rock surface. Any dips in the limestone rock surface will be infilled with granular 6F2 capping material laid and compacted in accordance with the TII specification for roadworks. The road construction above any karst features will incorporate a high strength geotextile. This geotextile shall have a 100-year design life.
- The above measures hence present a robust engineering solution to mitigate any risks associated with the presence of karst (AtkinsRealis, 2026).

Conclusion

- It is noted the boreholes and follow-on rotary coring did not encounter any Karst features. Similarly, the base of trial pits did not encounter any open depressions and all terminated on solid limestone bedrock. In Karst areas it is standard investigative practice to carry out geophysical surveying to assess for the presence of Karst. Based on the results of the geophysical survey, several anomalies have been identified across the site area. Notably, these anomalies exhibit very high resistivity levels and indicate potential air voids or clay filled voids at several resistivity points, ranging from A1 to A18. The presence of these high resistivity point suggests the possibility of karst formations or other subsurface pockets (either air voids or infilled with clay).
- The solutions as discussed above present the engineering solutions that will respond to the presence of karst, and at construction stage the robust karst protocols identified will be implemented to control and respond to any karst features encountered (AtkinsRealis, 2026).

11.4.2.2 Engineering measures (potential environmental risk)

Engineering design solutions have been developed in response to assumed karst conditions present across the project site, as summarised below.

Fuel and Water Storage

- Low sulphur diesel (secondary fuel) will be stored in two steel double-skinned full containment tanks, and further contained within a sealed concrete bunded area. The tanks will contain a combined quantity of ca. 5470 tonnes (or 6670m^3) of low sulphur diesel fuel. The tanks will be designed in accordance with EN 14015 inclusive of all safety features required by the standard and as the result of safety design reviews during the detailed design stage.
- Secondary back-up low sulphur diesel fuel will be offloaded on site from road tankers in a hard standing area with provision to collect any spilled low sulphur diesel to prevent any discharge to ground.
- The emergency low sulphur diesel (secondary fuel) generator will contain a quantity of low sulphur diesel fuel (up to 1000L) in a co-located tank sufficient for an estimated 24 hours operation. The engine's design will be compliant with the latest regulatory requirements which will be stated in the Site's Industrial Emissions (IE) operating licence.

Water / Waste Streams

- Demineralised water will be produced onsite using a treatment plant that converts potable water supplied by Uisce Éireann. Waste from demineralised water production will be stored in a contaminated firewater tank, constructed from sealed GRP or reinforced concrete. This waste stream will be stored in the contaminated firewater tank (which has been appropriately sized), as detailed in Chapter 2 Project Description, and removed for off-site disposal to a licensed wastewater treatment facility.

Site Drainage Infrastructure & Firefighting System

- Foul / Domestic wastewater will be conveyed to the proposed onsite WWTP, then stored in a sealed underground cesspool for off-site disposal by tanker. The system will be designed, installed, and tested in accordance with Uisce Éireann and Local Authority standards (IW-CDS-5030-03).
- The site will be an EPA (IE) licensed site and as such is limited in its discharge of stormwater to ground due to the possibility of contaminated firewater in the discharge. Any stormwater captured on hardstanding areas that is not contaminated will be discharged to ground via soakaway. Any stormwater which falls outside of the hardstanding areas will be allowed to discharged to ground.
- The new storm sewer network will be gravity fed and segregated into different sections to facilitate contaminated fire water collection. The areas will be controlled by actuator valves to control the flow path of the segregated areas (see drawing transmittal sheet).
- Stormwater is collected via a piped network and directed to a soakaway pond in the northeast. Hardstanding areas and kerbed roads ensure containment, with runoff captured by linear drains and gullies. Parking areas use sealed permeable paving. Pollution control includes hydrocarbon interceptors (IS EN858), a full retention forecourt separator at the fuel delivery area, and a Class 1 bypass separator before the soakaway.
- The IED licensed site must retain all potentially contaminated firewater generated during a fire event. This water must be stored on-site for subsequent off-site disposal via tanker. Contaminated firewater typically originates from high-risk areas such as buildings, generators, and turbines. Low-risk areas (i.e. roads without structures and grassed zones) are excluded from this requirement.
- To manage contaminated firewater effectively, the stormwater drainage network will be divided into multiple zones. Each zone will be equipped with a sensor-controlled actuator valve. In the event of a fire, runoff from the affected zone will be diverted to the firewater tank, while rainfall from unaffected zones will continue to discharge to the site's soakaway system. This zoning approach helps minimize the required size of the contaminated firewater tank. Additionally, the firewater tank will serve as a holding tank for unrecoverable demineralised production water (as detailed above), requiring an extra 350 m³ of capacity. This brings the final total tank volume to 1,086 m³.
- Contaminated firewater will be captured via the stormwater system and directed to containment tanks for off-site treatment. The system accounts for concurrent rainfall (10 year, 24 hour storm event) and firefighting water. The site is divided into three catchments with actuator valves controlled by pH/contaminant probes (trigger range: pH <5.5 or >9). Only affected catchments divert runoff to containment, minimizing tank size while meeting EPA licensing requirements. This will link into the site SCADA system.

Potable Water

- The site will be supplied with a new 150 mm diameter water main which will come from Athenry. This new section of watermain will be installed by Uisce Éireann to the site entrance on the L3103 as outlined in the Confirmation of Feasibility.

Refer to the full set of engineering drawings and the design report (AtkinsRealis, 2025) submitted as part of this application (Appendix 2-12, Volume 3 of the EIAR), for further details. These solutions will ensure that there will be no discharge of contaminated water or potentially contaminated water to ground beneath the project site during the operational phase.

11.4.2.3 Peaker Plant Site Construction

A detailed description of the proposed construction methodologies is presented in Chapter 2 Project Description. A summary of the key aspects relevant to Land, Soils and Geology is outlined below.

Earthworks

- Earthworks will be conducted on the Peaker Plant site and access route. Excavation depth along the access route and Peaker Plant site is shown on the Civil Engineering cut and fill drawings that form part of the

planning application pack (refer to Appendix 2-12, Volume 3 of the EIAR). No made ground was recorded during the 2025 ground investigation. Topsoil (0.3–0.4m thick) and the following subsequent layers up to the top of bedrock will be reused as Class 1 or 2 fill material following site-based testing. The excavated material is expected to be acceptable for re-use under TII Earthwork Specification standards. Granular material is expected to be Class 1 Granular Fill material and due to cobble and large boulder content of the material, crushing may be required. Cohesive material is expected to be Class 2 Cohesive Fill material. Re-use of the material will be confirmed after receival of the sieve analysis test results.

- On-site works will commence with site wide earthworks and associated landscape and biodiversity enhancements.

The earthworks will consist of:

- Topsoil stripping to a depth of 150 mm and storing on site.
- Sitewide cut and fill to formation levels for construction.
- Surplus excavated material will be used on-site for landscaping, and the remaining material will be taken off-site by a licenced waste carrier to an appropriately licenced waste facility or to an end user with similar requirements of by-product excavated materials generated from a greenfield site.
- Where possible, appropriate material excavated during ground works will be re-used as part of earthworks and as back-fill for open trenches/pipe tracks where necessary. Site excavated material suitable for re-use will be used to achieve the formation design levels.
- Waste arising from the site clearance, primary infrastructure and earthworks is expected to comprise made ground/topsoil, gravels and clay/silt material, and would be either re-used onsite or removed offsite for appropriate reuse, recovery and/or disposal as required.
- Any contaminated excavated material found on site will be removed by licensed waste carriers and disposed of at appropriately licensed facilities.
- Based on the ground investigation information, it is anticipated that weathered Limestone will be encountered in the excavations. It is expected to be easily ripped, due to the experience of excavation during Trial Pit works.
- Groundwater levels are expected to remain well below excavation depths based on the ground water monitoring results received as part of the Site Investigation (AtkinsReális, 2026).
- Disposal of surface water run-off in excavations during construction will be by captured in sumps and disposed to groundwater via infiltration by pumping to proposed temporary lagoons. This will allow slow seepage of the surface water runoff to ground with the benefit of filtration as the water percolates to ground in the lagoon.

During the construction stage, tracked excavators will likely be sufficient to excavate soils to a maximum depth of 4m across the site. The extent of excavation for service / utility trenches will vary. All excavations are anticipated to encounter sandy silt / clay and/or gravel, boulders, weathered bedrock and potentially solid bedrock. Rock breaking and excavation of shallow weathered rock will be required.

Based on preliminary engineering calculations, presented in Chapter 2 Project Description, it is anticipated that ca. 13,000 m^3 of excess subsoil (topsoil, native soil) will require offsite disposal. All such material will be removed and disposed of offsite to a suitably permitted / licenced waste recovery / disposal facility in accordance with relevant waste management legislation (including but not limited to the Waste Management Act of 1996 (as amended) and all subsequent waste management regulations as amended).

It is anticipated that ca. 34,300m^3 of materials will need to be imported for various civil elements including roads, concrete slabs, building foundations and gravel areas.

Foundations

As detailed previously, a robust karst protocol will be implemented during foundation construction comprising the following:

- Soil strip across each foundation footprint to expose the bedrock surface.
- Targeted closely spaced proof coring to confirm the presence of any possible Karst within 15 to 20m of the bedrock surface.
- If no significant voids or Karst features are encountered during the proof coring process then Foundation Solution 1 will be adapted.
- If a significant Karst feature is encountered during the proof coring process then Foundation Solution 2 will be adapted.

Refer to Section 11.4.2.1 for Foundation Solution 1 and Foundation Solution 2 details.

Access Road

As detailed previously, a robust karst protocol will be implemented during the construction of the proposed access road. Refer to Section 11.4.2.1 for the access road design and construction details.

11.4.3 Decommissioning

It is proposed that the Peaker Plant will operate until 31 December 2050. It is noted that under IE Licence requirements BGE will be required to prepare and maintain a Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP)

Decommissioning will be carried out in accordance with the EPA and GNI's established procedures and prevailing best practice at the time of closure. The decommissioning process will involve the safe isolation of all gas infrastructure, removal of gas inventory, and the de-energisation of equipment. Pipework will be purged, degassed, and rendered inert in line with EPA requirements and GNI's transmission decommissioning process AM/BP/107. Where appropriate, redundant underground infrastructure may be filled with grout to ensure long-term stability.

Above-ground equipment, such as valves, filters, kiosks, and associated infrastructure, and structures will be dismantled and removed from site by suitably qualified contractors. Materials will be segregated and sent for re-use, recycling, or licensed disposal in line with legislative requirements and commercial viability. Any foundations or hardstanding associated with the Cashla Peaker Plant will be broken up and removed to licensed facilities where practicable. Sub-surface foundations, if present, may be broken to a depth of 1m below ground level, with the remainder left in situ.

All decommissioning works will be carried out in accordance with the Environmental Liabilities Risk Assessment (ELRA) and a Closure, Restoration and Aftercare Management Plan (CRAMP) which require approval from the EPA prior to commencement of the operational phase.

Once decommissioning works are completed, the site will be reinstated and returned to a condition compatible with the surrounding land use, including the application of suitable soils and reseeding where required.

11.4.4 Construction Phase Effects

The effect on land take at the site is likely to have a slight negative effect on the environment of the area. This will be a long-term effect.

Potential effects of the Proposed Project during construction pre-mitigation, with respect to soils and geology, are expected to include:

- Disturbance of the soil resource and loss of fertile land; and
- Effects associated with potentially existing ground contamination and potential for new land contamination arising from construction activities.

11.4.4.1 Land, Soil and Geology

Potential impacts to land and soil during construction activities are related to the disturbance of soil resources and loss of fertile land through temporary and long-term land take associated with the construction of the Proposed Project as detailed in Section 11.4.1. In total, the project site (as presented in the Proposed Project boundary in Figure 1-1 of Chapter 1 Introduction and Methodology) covers approximately 19.17 hectares.

Earthworks will be required during construction which will include the stripping of topsoil and subsoil, excavation and ground raising to achieve the required formation level for the Proposed Project. Potential changes to the baseline situation which could create potential land and soil effects include:

- Loss / damage of soil resources (topsoil and sub-soil) and fertile land suitable for agriculture;
- Excavation of soils resulting in an increase in dust generation;
- Exposure of the topsoil and subsoil to the effects of weathering, erosion and generation of sediment laden surface water runoff;
- Soils beneath the Proposed Project may become compacted by construction machinery.

There are no geological heritage sites, mineral occurrences or known quarries recorded on-site or within the study area, therefore potential impacts to geology are likely to be limited during construction.

11.4.4.2 Land Contamination

Construction activities for the Proposed Project could potentially introduce new sources of contamination and disturb and mobilise potential existing sources of contamination, which may pose a risk to human health. Potential changes to the baseline situation which could create potential contamination effects for the construction phase include:

- Mobilising existing contaminants which may be present in soils due to excavation and stockpiling;
- Generation of soil derived dust which may include contaminants or fibres with subsequent inhalation by site users;
- Introducing new sources of contamination through construction activity, such as through spillages and leakage of construction materials or substances;
- Creation of new pathways for migration of contaminants in groundwater, such as through earthworks, piling and installation/removal of below ground services.

11.4.5 Operational Phase Effects

11.4.5.1 Land and Soil

11.4.5.1.1 Short-term Effects

Short-term effects pre-mitigation have been identified for land and soil associated with the construction of the temporary contractors' compound area located within the north of the site; the land and soil in this area will be returned to its initial baseline condition as part of the reinstatement following construction.

Following the installation of the 42m section of gas pipeline connecting to the AGI, it is anticipated that the majority of the soil excavated as part of the gas pipe installation works will be reinstated as backfill and land and soil in this area will be returned to its initial baseline condition.

11.4.5.1.2 Long-term Effects

Long-term effects pre-mitigation have been identified for land and soil associated with the proposed gas turbine and generator with ancillary equipment, a 220 kV substation, an AGI, demineralised water tank, low sulphur diesel tanks, buildings, access roads, car park and associated long-term infrastructure including the UGC. The construction of these features will result in the long term loss of land. The effect on land take at the site is likely to have a slight negative effect on the environment of the area. This will be a long-term effect.

11.4.5.2 Land Contamination

Environmental effects from land contamination pre-mitigation are likely to be greatest during construction, with reduced effects likely during operation. The Proposed Project will be operated in accordance with the relevant regulations, best practice guidance and pollution prevention including relevant EPA guidance 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013).

It should be noted that the proposed design, the proposed design, from concept through to design as clearly demonstrated in Section 11.4.2, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environmental, and water (groundwater) environment is negligible.

Notwithstanding this, the operation of the Proposed Project may introduce new sources of contamination, such as through spills and leaks. These could potentially migrate in soils and via preferential pathways, such as below ground service ducts and channels.

11.4.5.3 Decommissioning Phase Effects

Decommissioning will be carried out in accordance with EPA requirements and GNI's established procedures and prevailing best practice at the time of closure. All decommissioning works will be carried out in accordance with the Environmental Liabilities Risk Assessment (ELRA) and a Closure, Restoration and Aftercare Management Plan (CRAMP) which will require approval from the EPA prior to commencement of the operational phase.

Once decommissioning works are completed, the site will be reinstated and returned to a condition compatible with the surrounding land use, including the application of suitable soils and reseeding where required.

11.5 Impact Assessment

An impact assessment has been carried out in line with IGI, 2013 (IGI, 2013) and EPA (2022) guidance. A summary of the assessment is presented in Sections 11.5.1 to 11.5.3 below.

The effect on land take at the site is likely to have a slight negative effect on the environment of the area. This will be a long-term effect. However, the Proposed Project is immediately adjacent to the transport connection of the M17, and this change is consistent with existing and emerging trends.

11.5.1 Baseline

The baseline assessment in Section 11.3 has identified features which have been given an importance rating in line with the methodology presented in Section 11.2.

Table 11-13 – Land, Soil and Geology Importance Assessment

Category	Feature	Importance	Justification
Land contamination	On-site: Made Ground associated with the construction and operation of existing road infrastructure.	Low	A review of the historical development of the site records that the site is located in a generally rural area with limited industrial / commercial historical development and no significant potential sources of contamination identified. The 2025 ground investigation completed by PGL in the area of the Proposed Peaker Plant and access road identified natural soils. Geo-chemical analysis on soil samples recorded low concentrations of inorganic and organic parameters and no asbestos was identified. No human health or environmental risks have been identified based on site specific soils analytical data.
Land contamination	On-site: Agricultural farming practices potentially leasing to spills / leaks.	Low	
Land contamination	Off-site: Made Ground associated with the construction and operation of existing road infrastructure including the adjacent M18 / M17.	Low	
Land contamination	Off-site: Agricultural farming practices within the study area.	Low	A review of the historical development of the site records that the site is located in a generally rural area within limited industrial / commercial historical development and no significant potential sources of contamination identified. No human health or environmental risks have been identified based on site specific soils analytical data.
Land contamination	Off-site: Existing Cashla 220 kV substation located adjacent to the west of the site.	Low	
Land contamination	Off-site: Made Ground associated with the construction and operation of residential and commercial land uses within the 250 m of the Proposed Project.	Low	
Soil	Grey Brown Podzolics and Brown Earths	Medium	Medium fertile, deep well drained soils (mainly basic).
Soils	Renzinas and Lithosols	Medium	Medium fertile, shallow well drained soils (mainly basic).
Geology	Quaternary sediments - Karstified bedrock outcrop or subcrop	Low	No geological heritage sites, mineral occurrences or known quarries/pits on-site or within the study area.
Geology	Quaternary sediments – Glacial Till and gravels and Eskers of gravels.	Low	No geological heritage sites, mineral occurrences or known quarries/pits on-site or within the study area.
Geology	Bedrock – Burren Formation	Low	No geological heritage sites, mineral occurrences or known quarries/pits on-site or within the study area.

11.5.2 Construction Phase

The potential for impact to land, soil and geology as a result of the Proposed Development during the construction phase has been assessed and is presented below Table 11-14.

Table 11-14 – Construction Phase Impact Assessment

Category	Feature	Importance	Impact	Quality	Duration	Type	Magnitude	Significance
Land contamination	On-site: Made Ground associated with the construction and operation of existing road infrastructure.	Low	Potential for exposure of human receptors by generation of potentially contaminated dust and vapours released by the construction works.	Negative	Short term	Irreversible	Small adverse	Imperceptible
Land contamination	On-site: Agricultural farming practices potentially leading to spills / leaks.	Low		Negative	Short term	Irreversible	Small adverse	Imperceptible
Land contamination	Off-site: Made Ground associated with the construction and operation of existing road infrastructure including the adjacent M18 / M17.	Low		Negative	Short term	Irreversible	Small adverse	Imperceptible
Land contamination	Off-site: Agricultural farming practices within the study area.	Low		Negative	Short term	Irreversible	Small adverse	Imperceptible
Land contamination	Off-site: Existing Cashla 220 kV substation located	Low		Negative	Short term	Irreversible	Small adverse	Imperceptible

Category	Feature	Importance	Impact	Quality	Duration	Type	Magnitude	Significance
	adjacent to the west of the site.							
Land contamination	Off-site: Made Ground associated with the construction and operation of residential and commercial land uses within the study area.	Low		Negative	Short term	Irreversible	Small adverse	Imperceptible
Soils	Grey Brown Podzolics and Brown Earths	Medium	Loss or damage to soil resources / fertility via risk of pollution during construction works.	Negative	Permanent	Irreversible	Small adverse	Slight
Soils	Renzinas and Lithosols	Medium	Loss or damage to soil resources / fertility via risk of pollution during construction works.	Negative	Permanent	Irreversible	Small adverse	Slight
Geology	Quaternary sediments - Karstified bedrock outcrop or subcrop	Low	Loss / damage to underlying geology via risk of pollution during construction works.	Negative	Permanent	Irreversible	Small adverse	Imperceptible
Geology	Quaternary sediments – Glacial Till and gravels and Eskers of gravels.	Low		Negative	Permanent	Irreversible	Small adverse	Imperceptible
Geology	Bedrock – Burren Formation	Low		Negative	Permanent	Irreversible	Small adverse	Imperceptible

11.5.3 Operational Phase

The potential for impact to land, soil and geology as a result of the Proposed Development during the operational phase has been assessed and is presented below Table 11-15.

Table 11-15 – Operational Phase Impact Assessment

Category	Feature	Importance	Impact	Quality	Duration	Type	Magnitude	Significance
Land contamination	On-site: Potential for low sulphur diesel fuel spills/leaks during operation of the Cashla Peaker Plant which may migrate in soils and via preferential pathways, such as below ground service ducts and channels.	Low	Potential for exposure of human receptors via direct exposure and inhalation pathways.	Negative	Long term	Irreversible	Negligible	Imperceptible

11.5.4 Decommissioning Phase

The potential for impact to land, soil and geology as a result of the Proposed Project during the decommissioning phase has been assessed and is presented below Table 11-16.

Table 11-16 – Decommissioning Phase Impact Assessment

Category	Feature	Importance	Impact	Quality	Duration	Type	Magnitude	Significance
Soils	Grey Brown Podzolics and Brown Earths	Medium	Reinstatement of soils to a condition compatible with the surrounding land use, including the application of suitable soils and reseeding where required.	Positive	Permanent	Residual	Minor beneficial	Slight
Soils	Renzinas and Lithosols	Medium		Positive	Permanent	Residual	Minor beneficial	Slight

11.6 Mitigation Measures

11.6.1 Construction Phase

Mitigation measures apply to all elements of the Proposed Project unless otherwise stated.

- The excavation of material will be minimised as much as possible to reduce the impact on land, soils and geology. Where possible, and if suitable with certainty for use, excavated material will be re-used as part of earthworks and as backfill. Topsoil and subsoil that has been stripped as part of the construction works will be reinstated as part of landscaping works, where possible.
- Where soil material is unsuitable for use or where excess soil is generated with no certainty for use, soils (including Made Ground) will be appropriately sampled and tested prior to offsite removal. Soils will be classified in accordance with the EPA Guidance Document 'Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (2015). It will be the contractors responsibility to ensure that all waste soils are classified correctly and managed, transported and disposed of offsite in accordance with the requirements of the Waste Management Act 1996, as amended, the Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste and any relevant subsequent waste management legislation.
- All waste products (general waste, plastic, timber, etc.) arising during the construction phase will be managed and disposed of under the provisions of the Waste Management Act 1996 and associated amendments and regulations. All waste material will be disposed of at a fully licensed disposal / recovery facility.
- It will be the contractors responsibility to ensure that a project specific Detailed Resource and Waste Management Plan (developed in accordance with relevant 2021 EPA Guidance) is fully implemented onsite for the duration of the project.
- A suitably experienced and qualified Environmental Manager (who will also act as the Resource Manager as stipulated within the RWMP (Appendix 2-5, Volume 3 of the EIAR) and CEMP (Appendix 2-10, Volume 3 of the EIAR)) will provide environmental management and supervision during the works.
- The Construction Environmental Management Plan (CEMP) will include specific provisions for vibration monitoring, setting appropriate threshold values based on site-specific conditions and relevant standards. The construction methodology and vibration management measures will ensure that any areas identified as being of higher karst sensitivity are subject to appropriate controls, such as the use of low vibration piling (if needed) techniques, controlled excavation, and enhanced monitoring and alert systems will enable immediate action should vibration levels approach the agreed limits. This approach ensures that karst conditions will be fully managed prior to construction, allowing targeted and effective vibration management measures to be applied.
- A robust **karst protocol** will be adapted during foundation construction comprising the following:
  - Soil strip across each foundation footprint to expose the bedrock surface.
  - Targeted closely spaced proof coring to confirm the presence of any possible Karst within 15 to 20m of the bedrock surface.
  - If no significant voids or Karst features are encountered during the proof coring process then Foundation Solution 1 will be adapted.
  - If a significant Karst feature is encountered during the proof coring process then Foundation Solution 2 will be adapted.
  - **Foundation Solution 1 -** In the event the targeted proof coring confirms no significant Karst features are present it is envisaged that traditional reinforced concrete raft and strip foundations (founded directly on the limestone bedrock) will be adequate for the proposed plant and single storey buildings. For the single storey buildings a traditional reinforced concrete strip foundation will be founded directly on the

weathered bedrock. For the heavier items of plant / tanks we expect the top surface of weathered bedrock will be 'ripped' down to un-weathered bedrock with the reinforced concrete foundations founded on this un-weathered rock. These reinforced foundations will be designed to span over any minor surface karst fissures encountered at the bedrock formation level (exposed as part of the local soil strip at the foundation locations).

- **Foundation Solution 2 -** In the event that the abovementioned targeted proof coring exercise identifies a Karst feature under the footprint of a heavy item of plant it is envisaged that a piled foundation solution will be required locally at the karst feature. This piled foundation solution will comprise cased Odex drilled piles. The piles will be cased to mitigate the risk of grout loss and negate the risk of aquifer contamination. In terms of piling plant, an Odex piling rig is typically used for piling through karst. A reinforced concrete pile cap or ground beams (located just below ground level) will be built on top of the piles to support the plant or building above. In terms of reinforced concrete foundation footprint (on plan), Solution 1 and Solution 2 will be virtually identical with the only varying item being the introduction of local piling at any karst voids encountered.
- **Site Access Road**
  - The site access road construction will typically comprise granular 6F2 capping material (founded on competent subgrade confirmed via on-site CBR testing) with a Clause 804 granular sub-base and hot-rolled asphalt wearing and surface courses as is typical for standard road construction. The access road crosses a suspected karst feature identified as part of the site investigation work and again a robust karst protocol shall be adapted here as follows.
  - The formations in the vicinity of the suspected karst feature will be proof rolled and observed for signs of weakness with CBRs taken to confirm capacity. In any areas of low CBRs the top soil and overburden clay will be removed to expose the weathered rock surface. Any dips in the limestone rock surface will be infilled with granular 6F2 capping material laid and compacted in accordance with the TII specification for roadworks. The road construction above any karst features will incorporate a high strength geotextile. This geotextile shall have a 100-year design life.
  - The above measures hence present a robust engineering solution to mitigate any risks associated with the presence of karst (AtkinsRealis, 2026).
  - In the event that subsurface karst features (caverns, caves etc.) are identified during the construction phase, the onsite Environmental Manager will be notified immediately and will ensure the above karst protocol is implemented, in consultation with the Engineer, Site Manager and Client.

- The following mitigation measures will be undertaken specifically with regard to horizontal directional drilling:
  - A geotechnical assessment shall be carried out prior to horizontal directional drilling and drilling shall only be carried out at locations where conditions are suitable for the control of drilling materials.
  - All works will be supervised by the Environmental Manager.
  - Stockpiling of construction materials, refuelling of machinery and overnight parking will take place elsewhere in the temporary compound on the proposed Athenry Peaker Plant site. Concrete truck chute cleaning will take place in a separate appropriate location.
  - The area around the bentonite batching, pumping, and recycling plants shall be bunded using terram and sandbags in order to contain any spillages.
  - Silt fencing will be erected 5m from the reception and launch pits used for directional drilling.
  - Horizontal directional drilling works shall not take place at periods of high rainfall and shall be scaled back or suspended if heavy rain is forecast.
- Invasive species can be introduced into a location by contaminated plant, machinery, and equipment that were previously used in locations that contained invasive species. Good site organisation and hygiene management will be maintained always on-site, and best practice measures will be implemented, as follows:
  - The contractor will prepare an Invasive Species Action Plan to be implemented during construction, and all personnel will be made aware of the requirements contained within.

- Plant and machinery will be inspected upon arrival and departure from site and cleaned/washed as necessary to prevent the spread of invasive aquatic/ riparian species such as Japanese knotweed *Fallopia japonica* and Himalayan Balsam *Impatiens glandulifera*. A sign off sheet will be maintained by the contractor to confirm the implementation of measures.
- Site hygiene signage will be erected in relation to the management of non-native invasive material. Waste Management.

- Further mitigation measures for the prevention of soil / bedrock contamination during construction are proposed below. The contractor will be responsible for ensuring these measures are fully implemented. Mitigation measures outlined in Chapter 12- Water are also applicable to the protection of soils and geology during the construction phase:
  - Health and safety risk assessments, method statements (RAMS) and appropriate Personal Protective Equipment (PPE);
  - Temporary onsite groundwater monitoring wells will be either suitably protected for the duration of the works and / or appropriately decommissioned in accordance with best practice guidance (SEPA guidance document “Good Practice for Decommissioning Redundant Boreholes and Wells“).
  - Earthworks / piling plant and vehicles delivering construction materials to site will be confined to predetermined haul routes around the site for each phase of the Proposed Project;
  - The need for vehicle wheel wash facilities will be assessed by the Contractor depending on the phasing of works and onsite activity and will be installed as needed, near any site entrances and road sweeping implemented as necessary to maintain the road network in the immediate vicinity of the site;
  - Dust suppression measures (e.g., dampening down) will be implemented as necessary during dry periods;
  - All excavated materials will be stored away from the excavations / immediate works area, in an appropriate manner at a safe and stable location. The maximum height of temporary stockpiles will be 3m;
  - A comprehensive monitoring and supervisory regime including monitoring of all excavations and stability assessments as required will be put in place to ensure that the proposed construction works do not constitute a risk to the stability of the site;
  - In the unlikely event that ground contamination is encountered beneath the site during the construction works, all works will cease. Advice will be sought from an experienced contaminated land specialist and a phased environmental risk assessment (specifically to assess any associated potential environmental and/ or human health risks) will be undertaken in accordance with relevant EPA guidance ‘Guidance On The Management Of Contaminated Land And Groundwater At EPA Licensed Sites’ (EPA, 2013) and UK Environment Agency Guidance ‘Land contamination risk management (LCRM)’ (UK EA, 2025);
  - The employment of good construction management practices will serve to minimise the risk of pollution from construction activities at the Proposed Project in line with the Construction Industry Research and Information Association (CIRIA) publication entitled, Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, CIRIA - C532 (2001) which are also detailed in Chapter 12– Water;
  - All fill material imported to the site for the Proposed Project will be clean, uncontaminated, suitable engineering grade fill material;
  - Specifically, regarding pollution control measures, the following will be adhered to; - Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents, oils, and paints will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice;
  - Waste oils and hydraulic fluids to be managed in accordance with best practice requirements and pollution measures as detailed in the CEMP;
  - Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be

permitted for use within the site. This will minimise the risk of soils and bedrock becoming contaminated through site activity; and,

- The highest standards of site management will be maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. The Environmental Manager will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively.

The above mitigation measures will be incorporated (as required) during Detailed Design Stage and will form part of a site-specific CEMP which will be implemented during the Construction Stage (including initial Site preparatory / enabling works).

11.6.1.1 Reinstatement Post Construction

All temporary construction compounds and site entrances will be removed upon completion of the construction phase. Such areas will be reinstated in accordance with the landscape site layout plan and engineer's drawings. All construction waste and / or scrapped building materials will be removed from site on completion of the construction phase. Oil, fuel etc. storage areas will be decommissioned on completion of the construction phase. Any remaining liquids will be removed from site and disposed of at an appropriately licenced waste facility.

11.6.2 Operational Phase

The Proposed Project will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques and pollution prevention. An Industrial Emissions (IE) Licence will be required from the EPA to operate the facility.

Furthermore, it should be noted that the proposed design, the proposed design, from concept through to design as clearly demonstrated in Section 11.4.2, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environmental, and water (groundwater) environment is negligible. Pollution prevention measures, such as engineered drainage, double bunded tanks, hardstanding and designated waste storage incorporated within the design will mitigate the risk of ground contamination. Further details of design mitigation measures are provided in Chapter 2 Project Description.

11.6.3 Decommissioning Phase

In the event that the Cashla Peaker Plant and AGI is no longer required, decommissioning will be carried out in accordance with EPA requirements and GNI's established procedures and prevailing best practice at the time of closure. All decommissioning works will be carried out in accordance with the Environmental Liabilities Risk Assessment (ELRA) and a Closure, Restoration and Aftercare Management Plan (CRAMP) which will be subject to approval from the EPA prior to commencement of the operational phase. Further details of design mitigation measures are provided in Chapter 2 Project Description.

11.7 Monitoring Requirements

11.7.1 Construction Phase

A comprehensive monitoring and supervisory regime including monitoring of all excavations and stability assessments as required will be put in place to ensure that the proposed construction works do not constitute a risk to the stability of the site.

11.7.2 Operational Phase

The Peaker Plant will operate under an IE licence issued by the EPA, ensuring that all emissions are strictly controlled. These regulatory safeguards will ensure that the plant operates safely, minimising environmental impact. The plant's performance data will be accessible via. a Licence & Enforcement Access Portal (LEAP), the EPA's public-facing interface. Routine monitoring in relation to land, soils and geology will not be required once the plant is operational, unless specific conditions arise or unless requested by the EPA.

11.8 Residual Impacts

11.8.1 Construction Phase

The impact on land take is likely to have a negative slight impact on the environment as there is no mitigation for long-term land take of fertile soils. As a result, there will be no significant effects to land during the construction phase as a result of the Proposed Project.

The impact to land contamination, overall soils and geology is likely to have a negative imperceptible impact resulting in no significant effects during the construction phase.

11.8.2 Operational Phase

The impact to land contamination is likely to have a negative imperceptible impact resulting in no significant effects during the operational phase.

11.8.3 Decommissioning Phase

The impact on soils is likely to have a positive slight impact resulting in no significant effects during the decommissioning phase.

11.9 'Do Nothing Scenario'

The Do Nothing / 'likely evolution of the baseline' scenario will have a neutral and imperceptible effect on the site with regards to land, soils and geology.

12. Water

This chapter of the Environmental Impact Assessment Report (EIAR) addresses the potential effects of the Proposed Project on the surrounding water environment. The overarching objective of this chapter is to assess the impacts of construction, operation and decommissioning of this Proposed Project upon the water environment. Specifically, it considers potential impacts of the Proposed Project on hydrology (i.e. surface water), surface water quality, flood risk, hydro-ecology, hydrogeology (groundwater quality and quantity) and drainage together. Mitigation measures that will be employed to eliminate or reduce any potential impacts within the study area are also identified. The Proposed Project Site location and proposed layout plan are presented in Chapter 2 Project Description.

12.1 Study Assessment and Methodology

12.1.1 Study Area

The study area for the purposes of this assessment is defined as all lands denoted by the project boundary and within a 2km buffer, which is a suitably conservative approach, taking account of relevant best practice guidance (TII, 2008)[87].

The Proposed Project does not include any large-scale earthworks/dewatering or works within a surface water feature. As such 2 km is deemed sufficient to identify and assess all potential impacts to the Water Environment.

12.1.2 Methodology

A desk-based study was done including a review of available historical information. The purpose of the desk-based study was to characterise the current hydrological and hydrogeological setting of the Proposed Project. Relevant background information was compiled, specifically from the following data sources:

- Bing Maps Aerial photography (consulted 27/05/2025);
- Environmental Protection Agency (EPA) web mapping (consulted 27/05/2025);
- Geological Survey of Ireland (GSI) Datasets Public Viewer and Groundwater web mapping (consulted 27/05/2025)
- Google Maps Aerial photography (consulted 27/05/2025);
- Office of Public Works National Flood Hazard mapping web Site (consulted 27/05/2025);
- Ordinance Survey of Ireland (OSI) web mapping (consulted 27/05/2025);
- National Parks and Wildlife Service (NPWS) Map Viewer (consulted 27/05/2025);
- Water Framework Directive (WFD) Ireland web mapping (consulted 27/05/2025)
- Topographic-map.com (consulted 31/05/2023 and 09/04/2025);

[87] Relevant TII 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (NRA, 2008) states that *'when undertaking geological, hydrological and hydrolgeological studies… It is recommended that the study area should encompass an overall width of 500m, i.e. 250m from the centre line of each route corridor. The study area may need to be extended where the footprint of the proposed road scheme extends outside of this area... Notwithstanding this, some professional judgement must be applied in assessing whether the study area around a particular road corridor needs to be extended to take account of potentially significant impacts which could arise a greater distance away…'*. Accordingly a conservative study area has been identified as all lands denoted by the project boundary and within a 2km buffer zone.

- Catchments.ie, consulted for National Water Monitoring Stations (data period 2016-2023) (consulted 10/04/25).
- Water Action Plan (consulted 21/05/25) River Basin Management Plan 2022 – 2027.

12.1.2.1 Site Walkover

A Site Walkover Survey by an experienced Hydrogeologist was carried out on 27th February 2025, during the geophysical survey and site investigation works, and has informed the preparation of this assessment.

12.2 Legislation and Guidance

This EIAR has been prepared in accordance with European Union (Environmental Impact Assessment Directive (2011/92/EU of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU and Planning and Development Regulations 2001 (as amended) and with due regard to the following EIAR guidance:

- Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports', published in 2022
- EPA 'Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)', published in September 2003
- European Commission (EC) 'Environmental Impact Assessment of Projects Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU)', published in 2017
- EC 'Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)', published in 2017, and,
- Department of Housing, Local Government and Heritage (DoHPLG) 'Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment', published in August 2018.
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes https://www.tii.ie/media/llvnszei/guidelines-on-procedures-for-assessment-and-treatment-of-geology-hydrology-and-hydrogeology-for-national-road-schemes.pdf
- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (2013) 50 pg. https://igi.ie/assets/files/Codes%20and%20Guidelines/IGI%20Enviro%20Impact%202013.pdf
- Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (2025) https://claire.co.uk/home/news/2083-piling-and-penetrative-ground improvement-methods-on-land-affected-by-contamination-guidance-on-pollution-prevention

Specifically, EPA Guidelines (2022) with respect to magnitude, character, duration and significance of the likely effects has been applied to this assessment. According to the EPA Guidelines (2022) 'significance of effects is usually understood to mean the importance of the outcome of the effects (the consequences of the change)'. The significance of likely effects is described within this assessment in accordance with Table 12-4.

12.2.1 Impact Assessment Criteria and Significance of Effects

The following methodology has been used to assess the impacts to the water environment as per IGI (2013) guidance. These tables have been obtained from IGI guidance.

Table 12-1 - Impact Classification Terminology (IGI, 2013)

Impact Characteristic	Term	Description
Quality	Positive	A change which improves the quality of the environment
	Neutral	A change which does not affect the quality of the environment
	Negative	A change which reduces the quality of the environment
Significance	Imperceptible	An impact capable of measurement but without noticeable consequences
	Slight	An impact which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate	An impact that alters the character of the environment in a manner consistent with existing and emerging trends
	Significant	An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
	Profound	An impact which obliterates sensitive characteristics
Duration	Short-term	Impact lasting one to seven years
	Medium-term	Impact lasting seven to fifteen years
	Long-term	Impact lasting fifteen to sixty years
	Permanent	Impact lasting over sixty years
	Temporary	Impact lasting for one year or less
Type	Cumulative	The addition of many small impacts to create one larger, more significant impact
	'Do Nothing'	The environment as it would be in the future should no development of any kind be carried out
	Indeterminable	When the full consequences of a change in the environment cannot be described
	Irreversible	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost
	Residual	Degree of environmental change that will occur after the proposed mitigation measures have taken effect
	Synergistic	Where the resultant impact is of greater significance than the sum of its constituents
	'Worst Case'	The impacts arising from a development in the case where the mitigation measures may substantially fail

Table 12-2 - Criteria for Rating Site Importance of Hydrological/Hydrogeological Features (IGI, 2013)

Importance	Criteria	Typical Example
Extremely High	Attribute has a high quality or value on an international scale	▪ Groundwater supports river, wetland or surface water body ecosystem protected by EU legislation e.g. Special Protection Areas (SAC) or Special Areas of Conservation (SPA) status. ▪ Surface Water: supporting wetland or ecosystem protected by EU legislation e.g. SAC or SPA status. ▪ Flood Risk: Floodplain or defence protecting more than 100 residential properties from flooding
Very High	Attribute has a high quality or value on a regional or national scale	▪ Regionally Important Aquifer with multiple wellfields. Groundwater supports river, wetland or surface water body ecosystem protected by national legislation – e.g. NHA status. Regionally important potable water source supplying >2500 homes. Inner source protection area for regionally important water source. ▪ Surface Water: wellfields, or rivers, wetland or surface water body ecosystem protected by national legislation – e.g. NHA status. ▪ Flood Risk: Floodplain or defence protecting between 50 and 100 residential properties or industrial premises from flooding
High	Attribute has a high quality or value on a local scale	▪ Regionally Important Aquifer. Groundwater provides large proportion of baseflow to local rivers. Locally important potable water source supplying >1000 homes. Outer source protection area for regionally important water source. Inner source protection area for locally important water source. ▪ Surface Water: WFD class good ▪ Flood Risk: Floodplain or defence protecting between 1 and 50 residential properties or industrial premises from flooding
Medium	Attribute has a medium quality or value on a local scale	▪ Locally Important Aquifer. Potable water source supplying >50 homes. Outer source protection area for locally important water source. ▪ Surface water: WFD class moderate ▪ Flood Risk: Floodplain or defence protecting 10 or fewer industrial properties from flooding
Low	Attribute has a low quality or value on a local scale	▪ Poor Bedrock Aquifer. Potable water source supplying <50 homes. ▪ Surface water: WFD class poor. ▪ Flood risk: Floodplain with limited constraints and a low probability of flooding.

Table 12-3 - Criteria for Rating Impact Significance at EIS Stage - Estimation of Magnitude of Impact on Hydrogeology Attribute (IGI, 2013)

Magnitude of Impact	Criteria	Typical Examples
Large Adverse	Results in loss of attribute and /or quality and integrity of attribute	Removal of large proportion of aquifer. Changes to aquifer or unsaturated zone resulting in extensive change to existing water supply springs and wells, river baseflow or ecosystems. Potential high risk of pollution to groundwater from routine run-off. Calculated risk of serious pollution incident >2% annually.
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Removal of moderate proportion of aquifer. Changes to aquifer or unsaturated zone resulting in moderate change to existing water supply springs and wells, river baseflow or ecosystems. Potential medium risk of pollution to groundwater from routine run-off. Calculated risk of serious pollution incident >1% annually.
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Removal of small proportion of aquifer. Changes to aquifer or unsaturated zone resulting in minor change to water supply springs and wells, river baseflow or ecosystems. Potential low risk of pollution to groundwater from routine run-off. Calculated risk of serious pollution incident >0.5% annually.
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	Calculated risk of serious pollution incident <0.5% annually.

Table 12-4 - Rating of Significant Environmental Impacts at EIS Stage (IGI, 2013)

Importance of Attribute	Magnitude of Impact			
	Negligible	**Small Adverse**	**Moderate Adverse**	**Large Adverse**
Extremely High	Imperceptible	Significant	Profound	Profound
Very High	Imperceptible	Significant/Moderate	Profound/Significant	Profound
High	Imperceptible	Moderate/Slight	Significant/Moderate	Profound/Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight/Moderate

12.2.2 Assumptions and Limitations

With regards to the water quality assessment, a number of limitations are presented:

The Proposed Project is described in the Chapter 2 Project Description in detail. Chapter 11 Land Soils and Geology details the site conditions as they are currently understood. For the purposes of the assessment on the Water Environment, the construction works for the Proposed Project consist of the following:

- Below-ground earthworks will typically extend to bedrock (up to an approximate 4 m bgl) and consist primarily of trenches for foundations/cabling/drainage; and
- Foundation solutions, as detailed further within Chapter 11- Land, Soils and Geology, i.e. the engineering solutions that will respond to the presence of karst and, at construction stage, the robust karst protocols identified will be implemented to control and respond to any karst features encountered.

The Proposed Project includes the following features:

- The Site will be covered with hard-standing post-construction.
- During operation, pollution prevention measures will be implemented such that any spills will not be discharged to the environment. These will consist of the following:
  - Bypass separators will be utilised on the storm water network to collect hydrocarbons and silts from runoff. Any potential oil spills will be collected in these bypass separators.
  - Silt will be collected in catchpit manholes at the attenuation tanks and also in the silt trapping road gullies.
- Storm water discharges will be discharged as per the Engineering design solutions, detailed previously within Chapter 11- Land, Soils and Geology.
- The underground gas pipeline and AGI do not exceed the chemical storage thresholds set out in the COMAH Regulations (2015) for either Lower or Upper tier.

These engineering design solutions (including secure onsite containment (fuel, waste water, contaminated storm water / firewater run-off), and offsite disposal of all associated waste streams) as detailed fully within Chapter 11- Land, Soils and Geology, have been developed in response to assumed karst conditions present across the project site. These solutions will ensure that there will be no discharge of contaminated water or potentially contaminated water to ground beneath the project site during the operational phase.

Potential risks to the soil, bedrock and therefore groundwater environment from contaminated land, during the construction, operational and decommissioning stages are assessed in Chapter 11 (Land, Soil and Geology) and therefore have not been considered in this Chapter.

12.3 Receiving Environment

Karst features are reflected in the place names of the area, as with many karst regions in Galway. The words associated with these are tobair (well, spring), poll (hole, cave), cuas (cave) and others. Pollnagroagh, which is one of the two townlands in which the Proposed Project is situated, in Irish is Poll na gCruach. Poll is translated to hole, cave, pool, (tidal or stream) and Cruach [cruachán] translates to a stack, or peak (Rubicon, 2025).

12.3.1 Hydrology

There are no reported surface water features within the Proposed Project. There are two rivers located 5 km from the Proposed Project including the Clarinbridge (European Code: IE_WE_29C020400); a 4th order waterbody, located ca. 2.9 km southeast, flowing in a generally southwest direction to the Inner Galway Bay South where it outfalls and the Clare [Galway] (European Code: IE_WE_30C011200); a 5th order waterbody,

located ca. 4km northwest, flowing in a generally west direction to the Corrib Lower (Lough) where it outfalls (EPA, 2025; Figure 12-1). There are numerous smaller streams within the 10 km of the Proposed Project (Table 12-5).

Table 12-5 – Surface Waterbodies within the general vicinity of the Proposed Project

Waterbody Name	European Code	Distance from Site	Flow Direction/Connectivity
Carrowmoneash	(IE_WE_29C050400)	ca. 7.54km southwest	Flowing in a general southwest direction to outfall to the Oranmore Bay and subsequently to Inner Galway Bay North. No direct connectivity to Proposed Project.
Innplot	(IE_WE_29C050400)	ca. 6.3km southwest	Flowing in a general west direction to outfall to the Oranmore Bay and subsequently to Inner Galway Bay North. No direct connectivity to Proposed Project.
Mulpit	(IE_WE_29C020400)	ca 3.5km southeast	Flowing in a general southwest direction to outfall to the Oranmore Bay and subsequently to Inner Galway Bay North. No direct connectivity to Proposed Project.
Kingsland_south	(IE_WE_29C020300)	ca. 4km east	Flowing in a general southwest direction to outfall to the Oranmore Bay and subsequently to Inner Galway Bay North. No direct connectivity to Proposed Project.
Ballygarraun_south	(IE_WE_29C050400)	ca. 3.96km east	Flowing in a general southwest direction to outfall to the Oranmore Bay and subsequently to Inner Galway Bay North. No direct connectivity to Proposed Project.
Kingsland_north	(IE_WE_29C020200)	ca. 4.5km northeast	Flowing in a general southwest direction to outfall to the Oranmore Bay and subsequently to Inner Galway Bay North. No direct connectivity to Proposed Project.
Kilcolgan	(IE_WE_29K010600)	ca. 8.7km south	Flowing in a generally western direction to where it outfalls to Dunbulcaun Bay. No direct connectivity to Proposed Project.

12.3.1.1 Transitional, Coastal and Lake Water bodies

The Oranmore Bay (European Code: IE_WE_170_0500) transitional waterbody is located ca. 9.2 km southwest of the Proposed Project. The Corrib Estuary (European Code: IE_WE_170_0700) and Dunbulcaun Bay (European Code: IE_WE_160_0800) both transitional waterbodies are located ca. 13.2 km west and 10 km

southwest of the Proposed Project respectively. The Inner Galway Bay North (Code: IE_WE_170_0000) coastal waterbody is located ca. 11.9 km southwest of the Proposed Project. The Corrib Lower lake (Code: IE_WE_30_666a) is located ca. 13.2 km west of the Proposed Project (EPA, 2025). Refer to Figure 12-1.

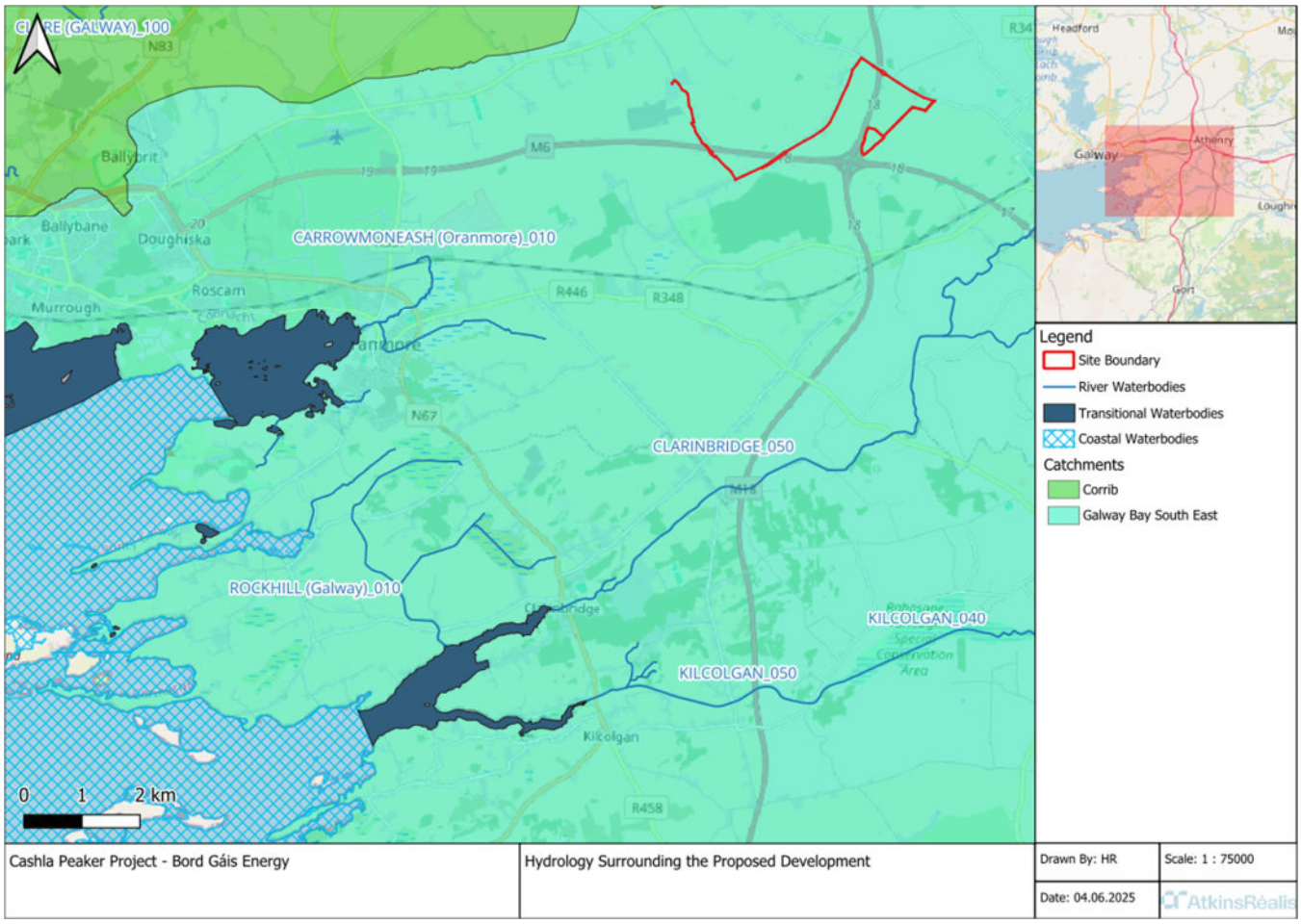


Figure 12-1 - Surface water features and transitional waterbodies in vicinity of the Proposed Project (EPA, 2025).

12.3.1.2 Geological Heritage Area

Lough Corrib Geological Heritage area (GHA) (Site Code: GY093) is located ca. 13 km west of the Proposed Project. It is described by GSI (2025) as '*A large lake situated between County Galway's western acidic uplands and the limestone lowlands – Lough Corrib is of international conservation importance, for its lakeshore karst assemblages*'. The Proposed Project will not have any significant impact on Lough Corrib geological heritage area, given the location of the geological heritage area, and the fact that there is no direct or indirect hydraulic connectivity between the GHA and the proposed project.

12.3.1.3 Surface Water Quality

The EPA maintains a database of surface water features including rivers and lakes as well as water quality and risk status in accordance with the Water Framework Directive (WFD). The purpose of the WFD is to protect and enhance all waters including rivers, lakes, estuaries, coastal waters and groundwater as well as water dependent wildlife and habitats. This involves improving or maintaining current water quality status with the aim of achieving '*Good'* status for all waters; and mitigating against the risk of a decline in the water body quality status.

The Proposed Project is located within the Galway Bay South East catchment area (ID Code: 29) and the CARROWMONEASH [Oranmore]_SC_010 sub catchment area (EPA, 2025). The Clare [Galway] has been assigned a WFD Status 2016-2021 of Moderate and is 'At Risk' of failing to achieve 'Good' status by 2027. The CLARINBRIDGE_040 has been assigned a WFD Status of 'Poor' and is 'At Risk' of failing to achieve 'Good' status by 2027 and the CLARINBRIDGE_030 has been assigned a WFD Status of 'Poor' and is 'At Risk' of failing to achieve 'Good' status by 2027.

The Oranmore Bay (Code: IE_WE_170_0500 has been classified as 'Not at risk' of failing to meet 'Good' quality standard under the WFD by 2027. The Inner Galway Bay North (Code: IE_WE_170_0000) has been classified as 'Not at risk' of failing to meet 'Good' quality standard under the WFD by 2027. The Corrib Lower lake (Code: IE_WE_30_666a) has been classified as 'Not at risk' of failing to meet 'Good' quality standard under the WFD by 2027 (EPA, 2025).

No Water Framework Directive assessment has been completed. It is noted that the proposed design, from concept through to design, as clearly demonstrated in Chapter 11 Land, Soils and Geology, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environment, and water (groundwater) environment is negligible. Pollution prevention measures, such as engineered drainage, double bunded tanks, hardstanding and designated waste storage (as detailed fully in Chapter 11 - Land, Soils and Geology) incorporated within the design (in response to assumed karst conditions present across the project site) will mitigate the risk of ground contamination. Further details of design mitigation measures are also provided in Chapter 2 Project Description.

No surface water features were identified within the study area. Therefore given the nature of the Proposed Project, the receiving hydrological and hydrogeological environment, along with the 'design in' mitigation measures which have been applied to the final project design, the need for a WFD assessment has been screened out.

12.3.2 Hydrogeology

12.3.2.1 Geology

The geology of the area is described in detail in the Land Soils and Geology Chapter (Chapter 11). The site is located over Burren Formation, composed of Limestone. The limestone is known to form karst features which would have an impact of the local hydrogeology.

Based on regional mapping, there are 5no. identified potential karst features located within 20m of the proposed access road, and 2no. within 20m of the UGC route according to GSI regional mapping. Given the regional karst site setting, a geophysical survey and geotechnical investigation was conducted. The Terra Survey Geophysical Report (Terra Survey, 2025) identified 18no. anomalies, which were interpreted as potential karst features underlying the Proposed Project site. A risk rating was assigned based on the likelihood of encountering karst features, and subsequent potential engineering and structural issues. High resistivity indicates greater risk of encountering voids or cavities, while low resistivity indicates high risk of encountering presence of infill materials, such as clay or water-saturated sediments. Based on the results of the desk based review, site specific geophysical survey and site specific ground investigation, there is potential for subsurface karst features beneath the Proposed Peaker Plant and access road, and accordingly engineering design solutions have been developed. Refer to the Land Soils and Geology Chapter (Chapter 11) for further details.

12.3.2.2 Aquifer Characteristics

The GSI provides a methodology for aquifer classification based on resource value (regionally important, locally important and poor) and vulnerability (extreme, high, moderate or low). Resource value refers to the scale and

production potential of the aquifer, whilst vulnerability refers to the ease with which groundwater may be contaminated by human activities (vulnerability classification is primarily based on the permeability and thickness of subsoils and is detailed in GSI, 1999).

Groundwater vulnerability is an indication of how easily the aquifer can become contaminated by human activity. It is dependent on the thickness and permeability of the overlying soils and depth to the water table. For example, a bedrock aquifer with minimal thickness of overburden or with a thin layer of permeable overburden will be more vulnerable to contamination than a bedrock aquifer which has a thick layer of low permeability overburden. Extreme groundwater vulnerability is also associated with karst landforms as these are a direct pathway for water and contaminants to enter the aquifer from the surface.

The Project Site is underlain by a Regionally Important Aquifer – Karstified (Rk) (conduit). There are areas of Locally Important Aquifer – bedrock which is moderately productive only in local zones to the immediate north and south of the Proposed Project (Figure 12-2).

Aquifers in which karst features are more significant are classed as Rk. Within the range represented by Rk, two sub-types are distinguished, termed Rkc and Rkd.

- Rkc are those aquifers in which the degree of karstification limits the potential to develop groundwater. They have a high 'flashy' groundwater throughput, but a large proportion of flow is concentrated in conduits, numerical modelling using conventional programs is not usually applicable, well yields are variable with a high proportion having low or minimal yields, large springs are present, storage is low, locating areas of high permeability is difficult and therefore groundwater development using bored wells can be problematical.
- In contrast, Rkd aquifers are those in which flow is more diffuse, storage is higher, there are many high yielding wells, and development of bored wells is less difficult. These areas also have caves and large springs, but the springs have a more regular flow[88].

Groundwater vulnerability (in the bedrock aquifer) is predominantly Rock at or near Surface or Karst underlying the site, with sections of 'Moderate', 'High', and 'Extreme' along the access track and underground cable route as presented in Figure 12-2 (GSI, 2025).

[88] Aquifer categories and types

Figure 12-2 - Groundwater Vulnerability underlying the vicinity of the Proposed Project. Project Boundary outlined in red.

12.3.2.3 Groundwater Recharge

Recharge is the amount of rainfall which infiltrates to ground and replenishes groundwater levels in the bedrock and gravel aquifers. It is dependent on the following key factors: effective rainfall (i.e. total rainfall less evaporation and surface water run-off), transpiration (i.e. uptake by vegetation) and aquifer characteristics (i.e. how easily the aquifer can accept water and store it). Additionally, not all effective rainfall will contribute to recharge due to impermeable materials in urbanised areas and associated drainage and water management infrastructure.

The average recharge[89] rate to aquifer underlying the Cashla Peaker Plant site is 626.55mm/yr, while the average recharge along the access route and underground cable route is 448.75mm/yr with small portions of 200mm/yr (GSI, 2025).

[89] Recharge is the amount of rainfall which infiltrates to ground and replenishes groundwater levels in the bedrock and gravel aquifers. It is dependent on the following key factors: effective rainfall (i.e. total rainfall less evaporation and surface water run-off), transpiration (i.e. uptake by vegetation) and aquifer characteristics (i.e. how easily the aquifer can accept water and store it). Additionally, not all effective rainfall will contribute to recharge due to impermeable materials in urbanised areas and associated drainage and water management infrastructure.

12.3.2.4 Groundwater Bodies

12.3.2.4.1 Clarinbridge

The Clarinbridge GWB as delineated by the GSI is a large groundwater body that extends from Galway City eastwards past Galway Airport to Athenry and then south from Athenry to Clarinbridge and as far south as Ardrahan. Groundwater flow line indicates flows just south of Athenry are to Lavally Estuary Spring[90]. A groundwater body in this context is described as: *"a distinct volume of groundwater within an aquifer or aquifers"*. The WFD current status and risk status of this groundwater body is discussed in Section 12.3.6.

The conceptual model for the Clarinbridge Groundwater Body is described by GSI (2004[91]) as:

- The GWB occupies the area between Galway, Athenry, Kinvara and Loughrea, with Clarinbridge at a central location along the coastline. The land surface is low lying and relatively flat, with elevations ranging from sea level to 60 mAOD.
  - The GWB is bounded to the west by the coastline, to the east by the poor aquifer lithologies of the Loughrea GWB, and to the north and south by surface water divides.
- A large number of known karst features occur, including turloughs, caves, dolines, swallow holes and springs.
- The GWB is composed primarily of high transmissivity karstified limestone (Rkc). Transmissivity and well yields are variable. Storativity is low. Gradients tend to be steeper inland. A zone of higher transmissivity stretches inland from Kilcolgan.
  - Rapid groundwater flow velocities have been recorded through groundwater tracing.
- Recharge occurs via point and diffuse mechanisms. Point recharge occurs via swallow holes and via discrete sinks located in the beds of the main rivers. The majority of the sinks in the rivers tend to be in the eastern side of the GWB.
- The large springs located at the head of the main estuaries are the main groundwater discharge points. The two main rivers (Lavally and Dunkellin) drain much of the area and prior to the arterial drainage of the nineteenth century they never maintained an overland course to the sea. In winter groundwater discharges to the many turloughs and transmitted via the artificial channels that were installed to alleviate flooding.
  - In general, the degree of interconnection in karstic systems is high and they support regional scale flow systems.
  - Surface water catchments are often bypassed by groundwater flowing beneath surface water channels and across surface water catchment divides.
- Most of the groundwater flow occurs in the upper epikarstic layer and in a zone of interconnected solutionally enlarge bedding planes and fissures, generally extending to a depth of 30 m.
- Groundwater storage in karstified bedrock is low and the potential for contaminant attenuation in such aquifers is limited.
- There is a high degree of interaction between surface water and groundwater. Prior to drainage, streams sank underground via the sinks within turloughs, approximately 5-15 km from the coast, before being discharged as springs on the coast. Artificial channels link the lower part of the catchments to the sea which conduit water during wet periods.
- In addition, there are notable large springs and yielding wells in Athenry with excellent wells identified:

  1,855 m^3 /day, 2,180 m^3 /day (2), 8000 m^3 /day. 420 m^3 /day (2), 523 m^3 /day (2), 545 m^3 /day (5), 545.5 m^3 /day (3), 654 m^3 /day, 740 m^3 /day, 811 m^3 /day, 873 m^3 /day.

[91] Microsoft Word - Clarinbridge.doc

- The following rivers have been identified within the wider hydrological setting: Ballynamanagh, Dunkellin, Craughwell/Dooyertha, Clarinbridge, Kilcolgan, Toberdoney, Corrib, Raford, and Streams: Carra
- The following lakes have been identified within the wider hydrological setting: Ballinderreen, Cloghballymore, Derreen, Fingall, Kinlea, Loughaunagarraun, Loughaunrone, Parkatleva, Pollnacirca, Stillhouse, Toberawoneen, Tullaghnafrankagh
- Groundwater dependent terrestrial ecosystems associated with this groundwater body are: Castletaylor Complex (000242), Greganna Marsh (000253), Galway Bay Complex (000268), Kiltiernan Lough (001285), Lough Fingall Complex (000606), Monivea Bog (000311) and Rahashane (000322).

12.3.2.4.2 GWDTE Galway Bay

Groundwater Dependent Terrestrial Ecosystems Galway Bay Complex Fens (SAC000268) which is classified as 'Good' and is 'Not at risk' of failing to achieve good status by 2027 (EPA, 2025; Figure 12-3) is located within the site boundary. The National Parks & Wildlife Service details this GWDTE and its associated flora and fauna and states that it is connected to a Special Area of Conservation (SAC). As per Table 12-2 this receptor has been given an extremely high importance.

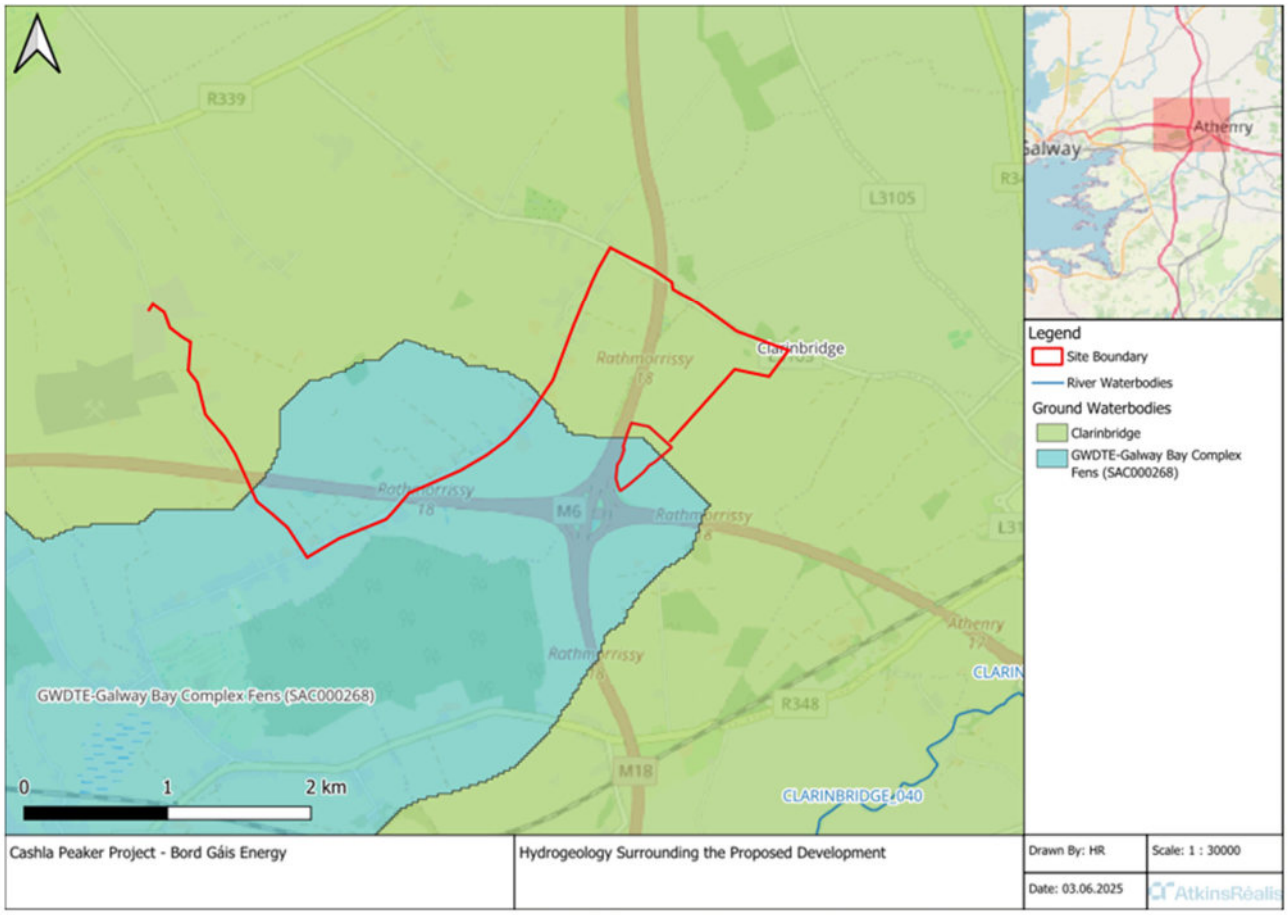


Figure 12-3 - Groundwater Bodies underlying the Proposed Project (EPA, 2025).

12.3.3 Groundwater Levels

At the time of reporting groundwater monitoring data from the 3rd June 2025 were available (as well as groundwater strikes recorded during ground investigation) (Priority Geotechnical Ltd, 2025).

Groundwater strikes were encountered in the rotary cored boreholes (RC01 to RC04) at depths ranging from 5.0 m to 6.5 m below ground level (m bgl). Standpipes were installed within the boreholes (RC01 to RC04) for future monitoring within the proposed Peaker Plant site, where measured groundwater levels ranged from 5.9 to 7.3 m bgl .

No groundwater was encountered during the excavation of trial pits or cable percussion boreholes, as it is likely they were too shallow to encounter groundwater. TP03 was excavated (to a depth of 3.1 m bgl) in close proximity to an area of onsite surface water ponding, yet no groundwater ingress was reported.

These observations and monitoring data suggest that groundwater is unlikely to be present in the superficial deposits though is present within the bedrock at an approximate depth of 5–7 m bgl. Groundwater strike and monitoring data are presented in Table 12-6.

Table 12-6 - Groundwater monitoring data from ground investigation works. Source: Priority

Borehole Name	**Groundwater Strike (m bgl)**		**Groundwater Monitoring (m bgl)**
	28/02/2025	**03/03/2025**	**03/06/2025**
RC01	5.2		NR
RC02	6.5		7.3
RC03	6.0	5.0	7.1
RC04	5.9		5.9

It is envisaged that groundwater is not expected to impact the excavation of either roads or plant and building foundations. Groundwater levels are expected to remain well below excavation depths based on the ground water monitoring results received as part of the Site Investigation (AtkinsRealis, 2026).

Notably, the Land Soils and Geology Chapter (Chapter 11) of this document outlines potential sources of contamination on site. This is a greenfield site and no major contamination has been identified to date. Refer also to soils testing results presented in Appendix 11-2, Volume 3 of the EIAR.

12.3.4 Groundwater Use & Available Resource

The GSI maintains a record of groundwater abstractions consisting of wells and springs, in addition to designated drinking water protection zones (referred to as Source Protection Areas). According to the GSI database, there are no group water scheme or public water supply abstraction points, or designated group water scheme or public water supply Source Protection Areas within the vicinity of the Site (GSI, 2025). The closest Groundwater Scheme is the Carheenlea GWS (Code: IE_GSI_ZOC_53) located ca. 4.4km north of the Proposed Project.

Based on the GSI database, there are 6no. wells and springs located within the general vicinity of the Site, as summarised in the following Table (Table 12-7).

Table 12-7 - GSI Groundwater Abstractions Within Study Area (GSI, 2025)

Abstraction ID	Abstraction Type	Location Accuracy (m)	Approximate Location (relative to the Site)	Depth (m)	Yield (m^3/day)	Use
1421SWW019	Borehole	1000	Within the project site	31.1	21.8	Agricultural & Domestic
1421NWW017	Borehole	2000	Crosses the western border of the proposed site	76.2	N/A	Agricultural & Domestic
1421NWW020	Unknown	2000	Crosses the western border of the proposed site	78.1	545.50	Agricultural & Domestic
1421NWW016	Borehole	50	Located along the UGC cable route	79.3	545.00	Agricultural & Domestic
1421NWW037	Borehole	50	0.12km east of underground cable route	87.5	218.20	Group Scheme
1421NWW026	Borehole	1000	Crossed by underground cable route	42.7	N/A	Agricultural & Domestic

12.3.5 Public Water Supply & Reservoirs

Uisce Eireann have requested to consider:

"Any and all potential impacts on the nearby reservoir as public water supply water source(s) are assessed, including any impact on hydrogeology and any groundwater/ surface water interactions.

The closest public reservoir is Ballydavid which is over 4km in a direct line from the Proposed Development. A public water supply such as this is assigned a very high importance, though the large distance from the site and the projects general lack of interaction with groundwater means that the risk to this receptor is negligible and thus has not been considered further. Additionally, reservoirs are typically hydraulically disconnected from the local groundwater regime thus it is considered extremely unlikely that changes to groundwater quality and flow would have the potential to impact the reservoirs.

12.3.6 Groundwater Quality

The European Communities Environmental Objectives (Groundwater) Regulations, (S.I. 9 of 2010) came into effect on 27th January 2010. The aim of the Regulations is to achieve the environmental objectives established for groundwater by Article 4 (1) (b) of the Water Framework Directive (2000/60/EC), as amended. The 2010 Regulations, as amended, set down groundwater quality standards for nitrate (50mg/L) and active substances in pesticides in Schedule 4 and also established threshold values for pollutants or indicators of pollutants in Schedule 5. Under these regulations the EPA must assign a status of '*Good*' or '*Poor*' to those bodies of groundwater where available data and knowledge allows.

The Proposed Project is within two ground waterbodies including: Clarinbridge (European Code: IE_WE_G_0008) which is classified as 'Good' and is 'Not at risk' of failing to achieve good WFD status by 2027

and Groundwater Dependent Terrestrial Ecosystems Galway Bay Complex Fens (SAC000268) (European Code: IE_WE_G_0087) which is classified as 'Good' and is 'Not at risk' of failing to achieve good status by 2027 (EPA, 2025; Figure 12-3).).

12.3.7 Flood Risk

A review of the OPW (2025) flood maps shows that there is no risk of either pluvial or fluvial flooding within the vicinity of the Proposed Project. There are no past flood events associated with the area of the Proposed Project. The closest past flood event is located ca. 240m from the proposed UGC Route – Recurring Event: Lisheenkyle East Galway Recurring. No risk of Groundwater or winter flooding were identified by the OPW Floodmaps (2025).

12.4 Potential Impacts of the Proposed Project

An impact assessment has been carried out in line with IGI guidance and is presented below.

12.4.1 Baseline

Based on the baseline assessment the identified receptors have been given an importance rating in line with the methodology in Section 12.1.2 and presented in Table 12-8.

Table 12-8 - Baseline Importance Assessment

Receptor	Importance
Surface Water	There are no surface waterbodies in the direct vicinity of the site (within 2 km). There are therefore no surface water receptors within the assessment area and no perceived linkages. Based on this, surface water has been given a low importance as surface water receptors are not present. In accordance with IGI (2013) and EPA (2022) guidance, receptors at this distance are not considered likely to experience significant effects from the Proposed Project. Furthermore, the site design includes appropriate Sustainable Drainage Systems (SuDS[92]) measures and pollution prevention controls, ensuring that any potential runoff is managed on-site. Therefore, surface water has been scoped out of further assessment.
Groundwater	The bedrock aquifer beneath the site is classified as a Regionally Important Aquifer Karstified (Rk) (conduit). Local zones to the immediate north and south of the Proposed Project are classified as Locally Important Aquifers which are moderately productive. The vulnerability of the bedrock groundwater beneath the site is typically classified as Rock at or 'Near Surface/Karst', though the access track and underground cable route section is 'Moderate', 'High' and 'Extreme' (Figure 12-2). Groundwater in the vicinity of the site is not used for public water supply, though there are six groundwater abstractions at or near to the site using water for 'Agricultural & Domestic' purposes. Groundwater quality at and near to the site has been designated as good.

[92] Sustainable Drainage or SuDS is a way of managing rainfall that minimises negative impacts on the quantity and quality of run-off while maximising tbe benefits of amenity and biodiversity for people and the environment. dcc-suds-de-guide-2021.pdf

Receptor	Importance
	There is currently no evidence that groundwater is present in the superficial deposits. Based on the above, groundwater within the bedrock has been given a **very high** importance. There is no evidence of groundwater in the superficial deposits, therefore there is no superficial groundwater receptor at this site.
GWDTE Galway Bay	Part of the site, access track and underground cable route is underlain by the GWDTE which is connected to the – Galway Bay Complex Fens groundwater body, and is assumed to feed into this groundwater dependent terrestrial ecosystem directly. This GWDTE is connected to a Special Area of Conservation (SAC). Due to this, this receptor has been given an **extremely high** importance.
Flood Risk	The OPW (2025) flood maps show that there is no risk of either pluvial or fluvial flooding within the vicinity of the site. A recurring flood event is located approximately 0.4 km from the Proposed Project. The Stage 1 flood risk assessment (AtkinsRéalis, 2026; Appendix 2, Volume 3 of the EIAR) has been completed in accordance with *The Planning System and Flood Risk Management – Guidelines for Planning Authorities* and the following conclusions can be drawn: ▪ Historic risk of flooding is not identified in the proposed site ▪ Alluvium deposits were not identified on the site. ▪ The OPW Flood Maps and the general viewer indicate that the proposed site is in Flood Zone C In relation to the Proposed Project, based on the Stage 1 – Flood risk identification findings discussed above, the flood risk study will not need a Stage 2 Initial flood risk assessment as the proposed site is not at risk of flooding. Flood risk has been given a **low** importance.

12.4.2 Construction Phase

There is a potential for impact to the water environment as a result of this Proposed Project during the construction phase, this has been assessed and is presented in Table 12-9.

Table 12-9 - Construction Impact Assessment

Receptor	Importance	Summary of potential impacts	Impact with mitigation as detailed in Section 12.5.1	Quality	Significance	Duration
Surface Water	Low	There are no surface waters on site so potential impacts are negligible.	Negligible	Negative	Imperceptible	Temporary
Groundwater including the GWDTE Galway Bay which is connected to SAC, and the Regionally Important Aquifer	Extremely High	Based on the design, no major groundworks below groundwater level are expected as part of this development. A maximum depth of an approximate 4 m bgl is anticipated, which is above monitored groundwater levels. Additionally, concrete working platforms are expected, though they will be constructed above groundwater level and are therefore assumed to have no major interactions with groundwater. In the event that the targeted proof coring exercise (as detailed fully in Chapter 11 – Land Soils and Geology) identifies a Karst feature under the footprint of a heavy item of plant, a piled foundation solution will be required locally at the karst feature. This piled foundation solution will comprise cased Odex drilled piles. Piles will be cased to mitigate the risk of grout loss and negate the risk of aquifer contamination, and is therefore not expected to impact groundwater significantly. Groundwater dewatering is not expected to be required for this development. If during detailed design dewatering is deemed necessary, further risk assessment and any requisite permits will be acquired. It is understood that Karst features maybe present beneath the site, mitigation to ensure stability of the ground may impact groundwater as a consequence	Negligible with mitigation Impacts have been identified, to reduce them the following mitigation is proposed: Piling risk assessments Dewatering risk assessment if required Dewatering permits if required Implementation of best practice during construction to protect groundwater (outlined in CIRIA C532, C750 and C741). Hydrogeological assessment to consider impacts from ground stabilisation in response to karst features.	Negative	Imperceptible	Temporary

		the GWDTE Galway Bay which is connected to the SAC. Impact resulting from potential pollution caused by construction activities including cement handling. Disposal of rainfall / surface water runoff is to be captured and pumped to infiltration lagoons. Contaminated firewater being released to the environment.			
Flood Risk	Low	There is no flood risk on site so potential impacts are negligible.	Negligible	Negative	Temporary

12.4.3 Operational Phase

There is a potential for impact to the water environment as a result of this Proposed Project during the operational phase, this impact has been assessed and is presented in Table 12-10 below.

Table 12-10 - Operational Impact Assessment

Receptor	Importance	Summary of potential impacts	Impact with mitigation as detailed in Section 12.5.2	Quality	Significance	Duration
Surface Water	Low	No impacts anticipated at the closest surface water body is more than 2km away from the site.	N/A	N/A	N/A	N/A
Groundwater	Extremely High	Construction of the Cashla Peaker Plant is considered unlikely to result in a reduction of infiltration to the local groundwater body, all run off will be discharged to ground via SuDS. It is possible that natural gas could leak from the pipeline, or propane gas could leak from the tank (located adjacent to the gas turbine) into the ground. Impact resulting from potential pollution caused by general power plant activities. Release of contaminated firewater to ground, which could impact groundwater and downstream receptors.	Negligible with mitigation Mitigation measures include: **SuDS** Implementation of best practice with regard to on-site drainage No discharge of wastewater drainage to ground. The gas pipeline and tank are all subject to regular maintenance (to check for and fix any leaks) as well as general good practice for contaminant handling. The pipeline is designed according to the relevant design code, fully welded and tested as per the code, it is then wrapped and incorporated into the cathodic protection system for the wider network. Thereafter it is regularly inspected internally using a PIG device. It is noted that the proposed design, from concept through to design, as clearly demonstrated in Chapter 11 – Land, Soils and Geology, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environment, and water (groundwater) environment is negligible. Pollution prevention measures, such as engineered drainage, double bunded tanks, hardstanding and designated waste storage (as detailed fully in Chapter 11 - Land, Soils and Geology) incorporated within the design (in response to assumed karst conditions present across the project site) will mitigate the risk of ground contamination. Further details of design mitigation measures are also provided in Chapter 2 Project Description. Contaminated fire water will be contained in a tank constructed from sealed GRP or reinforced concrete. Wastewater will be removed as required by tanker for off-site disposal. The tank will be inspected at regular intervals according to best practice.	Negative	Imperceptible	Permanent
Flood Risk	Low	A Stage 1 Flood Risk Assessment (AtkinsRéalis, August 2025) was undertaken in accordance with The Planning System and Flood Risk Management Guidelines for Planning Authorities (DOEHLG, 2009). The assessment confirms that the Proposed Peaker Plant site lies within Flood Zone C, indicating a low probability of flooding and that the development is appropriate	Negligible		Imperceptible	

	from a flood risk perspective. No significant risk was identified from coastal, fluvial, groundwater, overland flow, estuarial flooding, artificial drainage systems, or infrastructure failure. OPW Flood Maps and historical records show no evidence of flooding at the site, and Geological Survey of Ireland mapping indicates no alluvium deposits. The Galway County Development Plan (2022–2028) also confirms a low level of flood risk for Athenry, with no structural flood relief schemes proposed. Based on these findings, a Stage 2 FRA is not required. Design measures will incorporate stormwater drainage in accordance with the Greater Dublin Strategic Drainage Study Volume 2 – New Developments and Sustainable Urban Drainage Systems (SuDS) as per CIRIA C753 to manage surface water runoff effectively.	

12.4.4 Decommissioning Phase

It is understood that the Peaker Plant and gas pipeline will be decommissioned in accordance with prevailing best practice. As a minimum this will include degassing and isolating at the inlet and outlet, the gas pipeline will then be filled with grout in line with standard GNI procedures. The gas transmission property, plant and equipment will be decommissioned in line with transmission decommissioning process AM/BP/107. Based on this there are considered no impacts to groundwater and GWDTE Galway Bay during decommissioning. As there are no Surface Water features or Flood Risk present within the study area there remains no impact during Decommissioning Phase.

12.5 Mitigation Measures

The mitigation factors and measures for the control of pollution and protection of surface water and groundwater quality are described below. Mitigation has been built into the design such as the incorporation of SuDS and rainfall infiltration basin, as detailed fully in Chapter 2 Project Description, and Chapter 11 Land Soils and Geology. Flood risk has been effectively designed out of the Proposed Project through embedded drainage and water management measures. The site is located within Flood Zone C (low probability of flooding), and the Stage 1 Flood Risk Assessment confirmed that no further detailed assessment is required. A construction environmental management plan will be developed and approved by the planning authority prior to commencement of construction (see CEMP presented in Appendix 2-10, Volume 3 of the EIAR).

12.5.1 Construction Phase

With regard to groundwater and surface water quality effects the following mitigation measures are proposed. The Contractor will be responsible for ensuring these measures are fully implemented:

- The construction management of the Site will take account of the recommendations of the Construction Industry Research and Information Association (CIRIA) guidelines '*Control of water pollution from construction sites. Guidance for consultants and contractors (C532)'* and *'Groundwater control: design and practice (second edition) (C750)'* and CIRIA 2015 '*Environmental good practice on site guide (fourth edition) (C741)'* to minimise as far as possible the risk of pollution. Design measures will incorporate stormwater drainage in accordance with the Greater Dublin Strategic Drainage Study Volume 2 – New Developments and Sustainable Urban Drainage Systems (SuDS) as per CIRIA C753 to manage surface water runoff effectively.
- All of the mitigation measures (for the protection of soils and geology) listed in Chapter 11 Land, Soils and Geology will be implemented onsite during the construction phase.
- During construction, surface water run-off from excavations will be captured in sumps and pumped to a temporary soakaway lagoon with non-permeable berms and a geotextile filtration layer, allowing controlled infiltration to ground. This approach prevents uncontrolled runoff and minimises any risk of localised flooding.
- A suitably experienced and qualified Environmental Manager will have a presence onsite during the construction phase.
- The Construction Environmental Management Plan (CEMP) will include specific provisions for vibration monitoring, setting appropriate threshold values based on site-specific conditions and relevant standards. The construction methodology and vibration management measures will ensure that any areas identified as being of higher karst sensitivity are subject to appropriate controls, such as the use of low vibration piling (if needed) techniques, controlled excavation, and monitoring and alert systems will enable immediate action should vibration levels approach the agreed limits. This approach ensures that karst conditions will

be fully managed prior to construction, allowing targeted and effective vibration management measures to be applied.

- A robust **karst protocol** will be adapted during foundation construction comprising the following:
  - Soil strip across each foundation footprint to expose the bedrock surface.
  - Targeted closely spaced proof coring to confirm the presence of any possible Karst within 15 to 20m of the bedrock surface.
  - If no significant voids or Karst features are encountered during the proof coring process then Foundation Solution 1 will be adapted.
  - If a significant Karst feature is encountered during the proof coring process then Foundation Solution 2 will be adapted.
  - **Foundation Solution 1 -** In the event the targeted proof coring confirms no significant Karst features are present it is envisaged that traditional reinforced concrete raft and strip foundations (founded directly on the limestone bedrock) will be adequate for the proposed plant and single storey buildings. For the single storey buildings a traditional reinforced concrete strip foundation will be founded directly on the weathered bedrock. For the heavier items of plant / tanks we expect the top surface of weathered bedrock will be 'ripped' down to unweathered bedrock with the reinforced concrete foundations founded on this un-weathered rock. These reinforced foundations will be designed to span over any minor surface karst fissures encountered at the bedrock formation level (exposed as part of the local soil strip at the foundation locations).
  - **Foundation Solution 2 -** In the event that the abovementioned targeted proof coring exercise identifies a Karst feature under the footprint of a heavy item of plant it is envisaged that a piled foundation solution will be required locally at the karst feature. This piled foundation solution will comprise cased Odex drilled piles. The piles will be cased to mitigate the risk of grout loss and negate the risk of aquifer contamination. In terms of piling plant, an Odex piling rig is typically used for piling through karst. A reinforced concrete pile cap or ground beams (located just below ground level) will be built on top of the piles to support the plant or building above. In terms of reinforced concrete foundation footprint (on plan), Solution 1 and Solution 2 will be virtually identical with the only varying item being the introduction of local piling at any karst voids encountered.
  - **Site Access Road -** The site access road construction will typically comprise granular 6F2 capping material (founded on competent subgrade confirmed via on-site CBR testing) with a Clause 804 granular sub-base and hot-rolled asphalt wearing and surface courses as is typical for standard road construction. The access road crosses a suspected karst feature identified as part of the site investigation work and again a robust karst protocol shall be adapted here as follows.

    The formations in the vicinity of the suspected karst feature will be proof rolled and observed for signs of weakness with CBRs taken to confirm capacity. In any areas of low CBRs the top soil and overburden clay will be removed to expose the weathered rock surface. Any dips in the limestone rock surface will be infilled with granular 6F2 capping material laid and compacted in accordance with the TII specification for roadworks. The road construction above any karst features will incorporate a high strength geotextile. This geotextile shall have a 100-year design life.

  The above measures hence present a robust engineering solution to mitigate any risks associated with the presence of karst (AtkinsRealis, 2026).

- In the event that subsurface karst features (caverns, caves etc.) are identified during the construction phase, the onsite Environmental Manager will be notified immediately and will ensure the above karst protocol is implemented, in consultation with the Engineer, Site Manager and Client. A Hydrogeological assessment to consider impacts from ground stabilisation in response to karst features will be carried out, if required.
- The Contractor will be responsible for ensuring that the existing drainage network will be suitably protected (via. the use of physical barriers and / or the implementation a Site-specific water run-off management plan as required).

- In order to prevent any potential surface water / groundwater impacts via. release of hydrocarbon / chemical contaminants the following standard measures will be implemented:
  - Fuels, lubricants and hydraulic fluids for equipment used on the construction Site, as well as any solvents, oils, paints and chemicals (a full list of chemicals stored and used on site is given in Chapter 2, the Project Description) will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice;
  - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Proposed Project for disposal or re-cycling.
- A site Environmental Manager responsible for implementing the response procedure to deal with any accidental pollution events and training all operatives will be in place. Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the Proposed Project and properly disposed of in accordance with all relevant waste management legislation;
  - All Site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area.
  - An on-site Environmental Manager will be present at all times and be tasked with site management during construction as well ensuring trained operatives adhere to spill control procedures.
  - Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-Site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. This will minimise the risk of groundwater becoming contaminated through Site activity.
  - All oil stored on Site for construction vehicles will be kept in a locked and bunded area;
  - Generators, pumps and similar plant will be placed on drip-trays to prevent contamination;
  - All Site vehicles used will be refuelled in bunded areas;
  - All temporary construction fuel tanks will also be located in a suitably bunded area and all tanks will be double skinned. Relevant Material Safety Data Sheets along with oil absorbent materials will be kept on Site in close proximity to any fuel storage tanks or bowsers during proposed Site development works; and,
  - All fuel / oil deliveries to on-Site oil storage tanks will be supervised, and records will be kept of delivery dates and volumes.
- In order to prevent any potential surface water / groundwater impacts via. release of cementitious materials the following measures will be implemented where poured concrete is being used on Site;
  - The production, transport and placement of all cementitious materials will be strictly planned and supervised. Site batching/production of concrete will not be carried out on Site and therefore these aspects will not pose a risk to the waterbodies present, namely any temporarily exposed perched water;
  - Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed;
  - Any spillages will be cleaned up and disposed of correctly;
  - Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening;
  - Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete;
  - Mixer washings and excess concrete will not be discharged directly into the drainage network, or any drainage ditches, surface water bodies or exposed groundwater; and,
  - Surplus concrete will be returned to batch plant after completion of a pour.
- Foul drainage from Site offices and Site compounds will be contained and disposed of off-site in an appropriate manner and in accordance with the relevant statutory regulations.

- In the event that ground contamination is encountered beneath the site during the construction works, all works will cease. Advice will be sought from an experienced contaminated land specialist and a phased environmental risk assessment (specifically to assess any associated potential environmental and/ or human health risks) will be undertaken in accordance with relevant EPA guidance '*Guidance On The Management Of Contaminated Land And Groundwater At EPA Licensed Sites'* (EPA, 2013) and UK Environment Agency Guidance *'Land contamination risk management (LCRM)*' (UK EA, 2021).
- If piling is required then consideration will be given to good practice within piling with regards to preventing pollution. The mitigation measures outlined in the CL:AIRE guidance *'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention'* (2025) will be applied where appropriate. This includes:
  - Isolating contamination around piles from groundwater flow and infiltration
  - Using bentonite during boring/driving
  - Grouting pile or stone columns after installation
  - Coating of pile with protective product
  - Using a permanent or temporary casing
  - Using piles with pointed or convex butt end or driving shoes
- Given the water environment present any change in groundwater systems could have an impact upon the GWDTE, a GWDTE Assessment will be completed during detailed design to ensure this ecosystem is not negatively impacted.
- All temporary construction compounds and site entrances will be removed upon completion of the construction phase. Such areas will be reinstated in accordance with the landscape site layout plan and engineers drawings. All construction waste and / or scrapped building materials will be removed from Site on the completion of the construction phase. Oil, fuel etc. storage areas will be decommissioned on completion of the construction phase. Any remaining liquids will be removed from Site and disposed of at an appropriately licenced waste facility.
- Piling risk assessments will be completed in advance, if piling is required.
- Dewatering risk assessments will be completed in advance, if dewatering is required.

12.5.1.1 Underground Cable

Mitigation measures specific to the underground cable route are given below (TLI Cables Methodology Report, 2025).

12.5.1.1.1 Cable Installation

- If dewatering is required as part of the works e.g. in trenches for underground cabling or in wet areas, water will be treated prior to discharge
- For smaller volume dewatering requirements, a standard Hi-flow silt dewatering bag can be used. For large volume dewatering requirements settlement tanks will be used.
- Excavations will be left open for minimal periods to avoid acting as a conduit for surface water flows.
- Measures will be taken to avoid concrete or concrete contaminated water run-off from entering any watercourses. Any pouring of concrete (delivered to site ready mixed) will only be carried out in dry weather. Washout of concrete trucks shall be strictly confined to a designated and controlled wash-out area within the temporary construction compound at the substation site, remote from watercourses, drainage channels and other surface water features;
- A designated trained operator experienced in working with concrete will be employed during the concrete pouring phase;
- Concrete wastewater will be pumped into a skip to settle out; settled solids will be appropriately disposed of off-site;

- Wash-down water from exposed concrete surfaces will be trapped to allow sediment to settle out and reach neutral pH before clarified water is released to the drain system or allowed to percolate into the ground.

12.5.1.1.2 Horizontal Directional Drilling

Mitigation measures undertaken specifically with regard to horizontal directional drilling relevant to the Water Chapter are:

- A geotechnical assessment shall be carried out prior to horizontal directional drilling and drilling shall only be carried out at locations where conditions are suitable for the control of drilling materials.
- The drilling process will be constantly monitored to detect any possible leaking of bentonite into the surrounding geology and possible breakout. This will be gauged by monitoring pumping rates and pressures as well as observing for a bentonite plume. If any of these signs appear, then drilling and bentonite pumping will be stopped immediately, and an attempt made to bypass the affected section by using a higher viscosity bentonite mix. If this fails, then an alternative crossing alignment or an alternative crossing method will be considered. This will only arise in cases where the soil through which the HDD was directed is unsuitable for this process.
- Stockpiling of construction materials, refuelling of machinery and overnight parking will take place elsewhere in the temporary compound on the proposed main project site. Concrete truck chute cleaning will take place in a separate appropriate location.
- The area around the bentonite batching, pumping, and recycling plants shall be bunded using terram and sandbags in order to contain any spillages.
- Spills of bentonite or bentonite contaminated with drill arisings from any aspect of the bentonite handling process will be cleaned up immediately and transported off site for disposal at a licensed facility.
- Any bentonite spills on the road will be immediately visible and be removed to secure skips on site.
- Silt fencing will be erected 5m from the reception and launch pits used for directional drilling.
- Horizontal directional drilling works shall not take place at periods of high rainfall and shall be scaled back or suspended if heavy rain is forecast.
- The area around the bentonite batching, pumping and recycling plant will be bunded using terram (as it will clog) and sandbags in order to contain any spillages;
- Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area; Spills of drilling fluid will be cleaned up immediately and contained in an adequately sized skip before been taken off-site;
- If rainfall events occur during the works, there will be a requirement to collect and treat small volumes of surface water from areas of disturbed ground (i.e. soil and subsoil exposures created during site preparation works).
- Fracture Blow-out (Frac-out) Prevention and Contingency Plan will be prepared.
    - The drilling fluid will be non-toxic and naturally biodegradable (i.e., Clear Bore Drilling Fluid or similar will be used);
    - The area around the drilling fluid batching, pumping and recycling plants will be bunded using terram and/or sandbags to contain any potential spillage;
    - One or more lines of silt fencing will be placed between the works area and the adjacent river; Spills of drilling fluid will be cleaned up immediately and transported off-site for disposal at a licensed facility;
    - Adequately sized skips will be used where temporary storage of arisings are required;
    - The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse; This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur then drilling will be immediately stopped;

- Any frac-out material will be contained and removed off-site; The drilling location will be reviewed, before re-commencing with a higher viscosity drilling fluid mix; and, If the risk of further frac-out is high, a new drilling alignment will be sought at the crossing location.

Altogether, the above mitigation measures will form part of the Construction Environmental Management Plan (CEMP, refer to Appendix 2-10, Volume 3 of the EIAR), which is to be updated at each stage of the project.

12.5.2 Operational Phase

The Proposed Project will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques and pollution prevention. An Industrial Emissions (IE) Licence will be required from the EPA to operate the facility.

Furthermore, it should be noted that the proposed design, from concept through to preliminary design, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environmental, and water (groundwater) environment is negligible. Pollution prevention measures, such as engineered drainage, double bunded tanks, hardstanding and designated waste storage incorporated within the design will mitigate the risk of ground contamination. Further details of design mitigation measures are provided in Chapter 2 Project Description, and Chapter 11 Land Soils and Geology.

With regard to groundwater and surface water quality effects the following mitigation measures are proposed;

- All plant and equipment utilised onsite during maintenance works will be checked and in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. Relevant maintenance contractors will be responsible for ensuring that these measures are fully implemented.
- All discharges to the environment beyond rainwater runoff will have appropriate consent via. EPA licence.
- Any minor volumes of fuel, oil or chemicals required during routine maintenance works will be brought to and from Site by the maintenance contractor. While temporarily onsite all chemicals will be kept in secure and bunded areas, with relevant Material Safety Data Sheets available onsite. Any fuel / oil tanks temporarily stored on Site will be located in a suitably bunded area and all tanks will be double skinned, with oil / chemical absorbent materials held onsite in close proximity to the tanks. Relevant maintenance contractors will be responsible for ensuring that these measures are fully implemented.
- Hazardous chemicals and their anticipated volumes to be stored are detailed in Chapter 2. These chemicals will be stored in sealed containers in a store room of the plants workshop building. The exception being sulphuric acid which will be stored in the demineralised water treatment plant in a double walled or bunded Intermediate Bulk Container (IBC).
- In the unlikely event of a fuel / oil or chemical spill / leak during routine maintenance works, emergency spill response measures will be implemented with the aim of limiting the volume spilled and recovering as much of the lost product as possible (relevant maintenance contractors will be responsible for ensuring that these measures are fully implemented);
- A maintenance programme for the proposed surface water drainage system should be implemented. The Contractor, in consultation with the Client and the design team, will be responsible for ensuring that these measures are fully implemented.
- The gas pipeline and tank are all subject to regular maintenance (to check for and fix any leaks) as well general good practice for contaminant handling. Additionally, the pipeline and tankers will be constructed above the groundwater level, therefore even in the event of a leak it is unlikely for significant interaction with groundwater.

- Wastewater from both the foul water tanks and the contaminated fire water tanks will be removed as required by tanker for off-site disposal, no discharge to ground at the site. All tanks will be inspected as per the management plan.
- For the operational phase, the site drainage system incorporates Sustainable Urban Drainage Systems (SuDS) including filter drains, sealed permeable paving, and a soakaway pond sized for the 1 in 100-year storm event plus 20% climate change allowance. Stormwater will pass through hydrocarbon interceptors before infiltration. The drainage network is zoned with actuator valves to isolate contaminated firewater during an emergency, diverting it to a dedicated containment tank (1,087 m³ capacity) for off-site disposal. These measures ensure that flood risk remains negligible throughout the lifecycle of the project.

12.5.3 Decommissioning Phase

With regard to the groundwater and surface water effects during decommissioning of the Peaker Plant and the associated underground transmission gas pipeline the following is noted:

Full decommissioning of the plant and pipeline will be done in accordance with prevailing best practice and undertaken by GNI. It is not anticipated that best practice decommissioning will adversely impact the water environment and requires no specific mitigation.

All decommissioning works will be carried out in accordance with the Environmental Liabilities Risk Assessment (ELRA) and a Closure, Restoration and Aftercare Management Plan (CRAMP) which will be subject to approval from the EPA prior to commencement of the operational phase.

Once decommissioning works are completed, the site will be reinstated and returned to a condition compatible with the surrounding land use, including the application of suitable soils and reseeding where required.

12.6 Residual Effects

12.6.1 Construction phase

The impact on the Water Environment is likely to be imperceptible, temporary and not significant as a result of the Proposed Project.

12.6.2 Operational Phase

The impact on Water Environment during operation is likely to have an imperceptible, permanent and not significant,.

12.6.3 Decommissioning Phase

With regard to the groundwater and surface water effects during decommissioning of the Peaker Plant and the associated underground transmission gas pipeline the following is noted:

- Full decommissioning of the plant and pipeline will be done in accordance with prevailing best practice and undertaken by GNI. It is not anticipated that best practice decommissioning will adversely impact the water environment and presents no specific residual impacts.
- All decommissioning works will be carried out in accordance with the Environmental Liabilities Risk Assessment (ELRA) and a Closure, Restoration and Aftercare Management Plan (CRAMP) which will be subject to approval from the EPA prior to commencement of the operational phase.

- Once decommissioning works are completed, the site will be reinstated and returned to a condition compatible with the surrounding land use, including the application of suitable soils and reseeding where required.

12.7 Monitoring Requirements

12.7.1 Construction Phase

Regular checks and maintenance of the Proposed Project will be implemented as per the Project Description in Chapter 2. Groundwater monitoring may be required pending completion of a Detailed Piling Risk Assessment and Hydrogeological Assessment.

12.7.2 Operational Phase

The Peaker Plant will operate under an IE licence issued by the EPA, ensuring that all emissions are strictly controlled. These regulatory safeguards will ensure that the plant operates safely, minimising environmental impact. The plant's performance data will be accessible via. a Licence & Enforcement Access Portal (LEAP), the EPA's public-facing interface. Routine monitoring in relation to groundwater will be determined by the EPA.

12.8 'Do Nothing' Scenario

If the Proposed Project is not undertaken the baseline water environment would remain unchanged. The 'Do Nothing' /' likely evolution of the baseline' scenario would result in neutral effects with regards to hydrology and hydrogeology.

13. Cultural Heritage

This chapter of the EIAR details the archaeological, architectural and cultural heritage considerations that need to be addressed in respect of the project as described in Chapter 2 Project Description of this EIAR.

This study aims to assess the baseline archaeology and cultural heritage environment, to evaluate the likely effects that the Proposed Project will have on this environment, and to provide mitigation measures to avoid, reduce or offset these effects in accordance with the policies of the Department of Housing, Local Government and Heritage (DoHLGH 2004; 2011; 2018), the Galway County Council Development Plan 2022-2028 the National Monuments Acts 1930-2014, (as amended) (Government of Ireland, 1930), Historic and Archaeological Heritage and Miscellaneous provisions Act 2023: and best practice guidelines.

13.1 Project Background

Bord Gáis Energy Limited intend to apply for a 10-year permission for development of a gas-fired power plant (named 'Cashla Peaker Plant'). The Cashla Peaker Plant will function as a balancing asset, operating intermittently during periods of low renewable energy generation and high electricity demand. The proposed operational life is up to and including the 31st of December 2050, which is tied to Ireland's Climate Action Plan 2025.

The Proposed Project is described fully in Chapter 2 Project Description of this EIAR. The Proposed Project will consist of a 325 MW or 334 MW open cycle gas turbine (OCGT) plant at Pollnagroagh, Rathmorrissy and adjacent townlands, Athenry, Co. Galway[93] which will be primarily fueled by natural gas. The project will include for an emission stack and balance of plant with a proposed height of 30m and width of 7m, a 220 kV electrical transformer, secondary fuel storage and transfer facilities, workshop, stores, car park and administration buildings, above ground gas installation (AGI), ancillary grid connection infrastructure, and ancillary infrastructure including internal roads, external lighting, security fencing, utilities and drainage, along with soft landscaping, within the administrative area of Galway County Council.

13.1.1 Site Description and Location

The Proposed Project is situated c. 2 km west of the town of Athenry, in the parish of Athenry, Co. Galway. The Proposed Project crosses the townlands of Rathmorrissy, Pollnagroagh, Castlelambert, Caraunduff, Caherbriskaun, Lisheenkyle East, Barrettspark and Cashla.

The Proposed Project site, named the 'Cashla Peaker Plant Site' is approximately 19.17 hectares and is located within the townlands of Pollnagroagh and Rathmorrissy, Athenry, Co. Galway. The Site is agricultural in nature and generally surrounded by agricultural lands, with the M18 motorway bounding the west of the Site, and agricultural lands to the north, east and south of the Site, with the M6 motorway slightly further south. Access to the site will be provided via a newly proposed ca. 1.15km long access road connecting to the L3103, ca. 1km east of the M17 motorway. Sporadic rural houses and agricultural properties are located within the vicinity of the proposed access point off the L3103.

[93] The full address is the townlands of Rathmorrissy, Pollnagroagh, Castlelambert, Caraunduff, Caherbriskaun, Lisheenkyle East, Barrettspark and Cashla, Athenry, Galway

A detailed description of the Proposed Project is presented in Chapter 2 Project Description of this EIAR.

13.1.2 Study Area

The Study Area for this assessment has been defined in respect of two factors:

- The ability of sites/information sources to provide information pertaining to the archaeological potential of the Proposed Project site, and
- The potential physical effects, as well as effects on setting, that the proposed works may have on sites of cultural heritage significance.

A 2 km study area was chosen (based on professional judgement) for the upstanding proposed Peaker Plant as the potential effects may cover a much wider area while a 250 m study area was chosen for the proposed grid connection as its linear nature, underground nature means that the potential effects are reduced.

Taking these factors into account the Study Area has been defined in Table 13-1.

Table 13-1 - Dimensions of Study Area

Subject	Study Area
National Monuments and Recorded archaeological monuments (Record of Monuments and Places (RMPs))	Within 2 km of Proposed Project site and within 250 m of the proposed grid connection
Protected Structures and/or their curtilage	Within 2 km of Proposed Project site and within 250 m of the proposed grid connection
Architectural Conservation Areas (ACAS)	Within 2 km of Proposed Project site and within 250 m of the proposed grid connection
Structures recorded in the National Inventory of Architectural Heritage (NIAH)	Within 2 km of Proposed Project site and within 250 m of the proposed grid connection
Zones of Archaeological Potential	Within the Proposed Project site
Unregistered features of cultural heritage	Within the Proposed Project site
Areas of archaeological potential; Unregistered Cultural Heritage Receptors (UCH)	Within the Proposed Project site
Previous Excavations and National Museum Topographical Files	Within 2 km of Proposed Project site

13.2 Objectives and Methodology

13.2.1 Objectives

This study aims to assess the baseline archaeological, architectural and cultural heritage environment, evaluate potential effects that the proposed works will have on this environment, and provide mitigation measures in accordance with the policies of the National Monuments Service, the Department of Housing, Local Government and Heritage (DoHLGH) and Galway County Council, the National Monuments Act 1930–2014, as amended, and best practice guidelines, to avoid, reduce or offset these effects.

Cultural heritage (CH) includes artefacts, monuments, groups of buildings, sites, and museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance. It includes tangible heritage (movable, immobile and underwater), intangible cultural heritage

(ICH) embedded into cultural, and natural heritage artefacts, sites or monuments. The definition excludes ICH related to other cultural domains such as festivals, celebration etc. It includes industrial heritage and cave paintings (UNESCO 2009).

In order to provide a comprehensive assessment, an extensive desktop study in addition to a field inspection of the Proposed Project area was undertaken.

The scope and methodology for the baseline assessment has been devised with reference to the following guidelines:

- Chartered Institute for Archaeologists (CIfA 2020) Standard and Guidance for Commissioning Work or Providing Consultancy Advice on Archaeology and the Historic Environment
- Department of Housing, Local Government and Heritage (2022) Heritage Ireland 2030 A framework for Heritage
- Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) (1999) Frameworks and Principles for the Protection of the Archaeological Heritage
- Department of the Environment, Heritage and Local Government (2011) Architectural Heritage Protection Guidelines for Planning Authorities
- Department of Housing Local Government and Heritage (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment
- Eirgrid (2015) Cultural Heritage Guidelines for Electricity Transmission Projects. A Standard Approach to Archaeological, Architectural and Cultural Heritage Impact Assessment of High Voltage Transmission Projects.
- Environmental Protection Agency (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports'
- Environmental Protection Agency (2003; Draft 2015) Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements)
- Galway County Council (2022) Galway Development Plan 2022–2028
- Historic England (2008) Conservation Principles – Policies and Guidance for the Sustainable Management of the Historic Environment. English Heritage, London.
- Historic England (2016) Understanding Historic Buildings: a guide to good practise. English Heritage, London.
- Historic England (2017) Good Practice Advice in Planning Note 3: The setting of heritage assets, 2nd Edition. English Heritage, London.
- TII (2025) Guidelines for Cultural Heritage Impact Assessment of TII National Road and Greenway Projects.

13.2.2 Desktop Study Methodology

The present assessment of the archaeological, architectural, and cultural heritage of the proposed project area is based on a desktop study of a number of documentary and cartographic sources. The desktop study was further augmented by an examination of aerial photography as well as a field survey. The main sources consulted in completing the desktop study are listed here:

- List of National Monuments in State Care: Ownership & Guardianship
- List of Preservation Orders and the Register of Historic Monuments
- Record of Monuments and Places (RMP)
- Files of the Sites and Monuments Record (SMR)
- Updated SMR available at www.archaeology.ie

- National Inventory of Architectural Heritage (NIAH) Building Survey
- County and Town Development Plans
- Irish Antiquities Division, National Museum of Ireland Topographical Files
- Urban Archaeological Surveys
- Ordnance Survey first and subsequent editions, www.osi.ie
- National Folklore Collection
- Early maps and estate maps
- Aerial photographs
- Excavations Bulletin (www.excavations.ie)
- www.loganim.ie (for townland names)

13.2.3 Field Inspection Methodology

13.2.3.1 Site Visit Methodology

A field inspection of the proposed project site was undertaken by Dr. Enda O'Flaherty, of Rubicon Archaeology Ltd. on 24 February 2025 (Plates 1–20; Section 3.3.4). Dr O'Flaherty holds a BA in Heritage Studies from GMIT, a Post-Graduate Diploma in Archaeology from NUIG and a PhD from NUIG. His PhD specialised in Landscape Archaeology and Cultural Landscapes of Historical Ireland. Mr O'Flaherty has worked as a professional archaeologist since 2006, and is a license-eligible archaeologist.

The primary purpose of a field inspection is to assess the site in order to identify any potential low-visibility archaeological and/or historical sites or other elements that are not currently recorded, and which may be impacted upon negatively by the Proposed Project . It is also the purpose of the field inspection to survey any known monuments or sites and to consider the relationship between them and the surrounding landscape, all of which need to be considered during the assessment process.

The methodology used during the field inspection involved recording the present land use as well as the existing topography for the entire area comprising the Proposed Project site. A photographic record and written description were compiled for any known and/or potential sites of archaeological, architectural and/or cultural significance.

13.2.3.2 Geophysical Survey Methodology (after Dowling 2025)

The geophysical survey (Licence No. 25R0081) was undertaken by Dr. Ger Dowling (PHD, MIAI) on the 26th of February 2025. Dr. Dowling is a geophysics specialist and consultant that Rubicon Archaeology Limited has collaborated with before on a broad range of projects. He has over 20 years' experience in archaeology, and has also worked with a wide range of organisations and specialists on various projects, including large-scale geophysical surveys at such high-profile sites as the Hill of Tara (Co. Meath), Glendalough (Co. Wicklow) and Drumanagh (Co. Dublin).

The survey involved a high-resolution magnetic gradiometric survey. This technique measures changes in the magnetic properties of the soil and is widely used in modern investigations due to its ability to detect a broad range of sub-surface archaeological remains, including ditches and pits, and industrial features associated with metalworking and pottery production (Dowling 2025, 10).

The magnetic survey was conducted using a five-channel fluxgate magnetometer system, combining two Foerster Ferex 4.034 dataloggers and Foerster MG-10-550 probes, with cm-precision GPS (Trimble R12 antenna and TSC5 controller) georeferenced to Irish Transverse Mercator and Ordnance Datum. Mounted on

a cart and pulled by a quad bike, the system records magnetometer and GPS data simultaneously into a single data file. The data capture strategy involved logging readings every 0.10m intervals along transects spaced 0.5m apart, with a maximum traverse width of 2.5m (Dowling 2025, 10).

The highly accurate positioning of the survey data provides strong confidence when integrating the geophysical results with other datasets such as aerial imagery in GIS, and also ensures repeatability should further investigation of anomalies (e.g., test excavation) be required (Dowling 2025, 10).

13.2.3.3 Test Excavation

The test excavation (Licence No. 25E0549) was carried out under the direction of Dermot G. Moore (BA, MPhil) of Rubicon Archaeology Limited, between and including 7–14 July 2025. Mr Moore is a license-eligible archaeologist with over 20 years' experience in field archaeology, project management and lithic analysis.

The investigation complied in full with the Policy and Guidelines on Archaeological Excavation (DAHG 1999).

The excavation crew consisted of one director, one supervisor and three archaeological assistants.

Twenty-five targeted trial trenches were excavated within the substation area and four additional trenches along the associated cable route running north-eastwards from the substation area. A tracked excavator equipped with a flat grading bucket was utilised to excavate the trial trenches.

All recording followed the Rubicon Archaeology Ltd standard methods and was undertaken on standardised recording sheets. Any contexts found were given unique numbers. Survey recording of all excavation locations was related to the Ordnance Survey grid and completed using a GEOMAX RTK GNSS Rover kits (Zenith60 and X-PAD Ultimate survey software). Photographs were taken using a 12 MP digital camera. Registers were included in the report appendices.

13.2.4 Methodology Used for Assessing Baseline Value of Sites

In order to categorise the baseline environment in a systemised manner, 'baseline values' have been assigned to each identified site of cultural heritage significance and/or potential within the Study Area (described in Section 13.1.2). The baseline value of a site is determined with reference to the 'importance' and 'sensitivity' of the site.

The importance of a site is determined based on the following criteria: legal status, condition, historical associations, amenity value, ritual value, specimen value, group value and rarity.

The sensitivity of a site is determined based on the presence of extant remains and/or the potential for associated sub-surface remains of the feature to be present *in situ*.

It should be noted that the National Monuments Act 1930–2014, as amended does not differentiate between recorded archaeological sites on the basis of relative importance or sensitivity. In addition, the Planning and Development Act 2000 (as amended) does not differentiate between Protected Structures or Areas of Architectural Conservation on the basis of relative importance or sensitivity either. Consequently, professional judgement has been exercised to rate these features based on their perceived importance and sensitivity in relation to physical effects and effects on setting.

Taking the above factors into consideration, the criteria that have been defined are provided in Table 13-2.

Table 13-2 - Baseline Values of Sites

Subject	Baseline Value
Recorded Archaeological Monuments Protected Structures Architectural Conservation Areas (ACAs)	Very High
Sites listed in the NIAH that are not Protected Structures Unregistered built heritage sites that comprise extant remains which are in good condition and/or which are regarded as constituting significant cultural heritage features Unrecorded features of archaeological potential	High
Unregistered built heritage sites that comprise extant remains which are in poor condition Unregistered cultural heritage sites (not including built heritage sites) that comprise extant remains Townland boundaries that comprise extant remains Marshy/wetland areas	Medium/High
Unregistered cultural heritage sites for which there are no extant remains but where there is potential for associated subsurface evidence Townland boundaries for which there are no extant remains	Medium/Low
Unregistered cultural heritage sites for which there are no extant remains and where there is little or no potential for associated subsurface evidence	Low

Caution should be exercised when assessing the perceived significance of an archaeological, architectural or cultural heritage site as such categorisation is open to subjectivity. In addition, the perceived levels of importance as identified in this report are liable to future revision in the instance where new information, through the undertaking of further archaeological investigations, is provided.

13.2.5 Type of Effects

Table 13-3 lists the type of effects that a proposed project may have on the cultural heritage resource (after Environmental Protection Agency 2022):

Table 13-3 - Types of Effects that a Proposed Project may have on the cultural heritage resource

Type of Effects	Definition
Direct	Direct effects arise where an archaeological, architectural and/or cultural heritage feature or site is physically located within the footprint of the proposed project, or its associated physical effect zone, whereby the removal of part, or all of the feature or site is thus required.
Indirect	Indirect effects arise when an archaeological, architectural or cultural heritage feature is not located within the footprint of the proposed project, or its associated physical effect zone, and thus is not affected directly. Such an effect could include an effect on setting or an effect on the zone of archaeological potential of site whereby the actual site itself is not physically affected.
Do Nothing effects	The environment as it would be in the future should the subject project not be carried out.
Worst-case Effects	The effects arising from a project in the case where mitigation measures substantially fail.
Cumulative	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects
Indeterminable	Whereby the full consequence that the proposed project may have on the cultural heritage resource is not known
Irreversible Effects	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Residual	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents

13.2.6 Methodology Used for Assessing Magnitude of Effects

The methodology used to assess the magnitude of potential pre-mitigation effects, as well as residual effects, of the Proposed Project on the baseline environment is presented in Table 13-4.

Table 13-4 - Criteria used for rating magnitude of effects

Effect Magnitude	Criteria
Profound	An effect which obliterates sensitive characteristics Applies where mitigation would be unlikely to remove adverse effects. Reserved for adverse effects only. These effects arise where an archaeology site is completely and irreversibly destroyed. An effect that obliterates the architectural heritage of a structure or feature of national or international importance. These effects arise where an architectural

Effect Magnitude	Criteria
	structure or feature is completely and irreversibly destroyed by the proposed project. Mitigation is unlikely to remove adverse effects.
Very Significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
Significant	An effect which, by its magnitude, duration or intensity, alters an important aspect of the environment. An effect like this would be where part of a site would be permanently affected, leading to a loss of character, integrity and data about an archaeological feature/site. An effect that by its magnitude, duration or intensity alters the character and/or the setting of the architectural heritage. These effects arise where an aspect or aspects of the architectural heritage is/are permanently affected leading to a loss of character and integrity in the architectural structure or feature. Appropriate mitigation is likely to reduce the effect. A beneficial or positive effect that permanently enhances or restores the character and/or setting of a feature of archaeological or cultural heritage significance in a clearly noticeable manner.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. A medium effect arises where a change to a site/monument is proposed which though noticeable, is not such that the archaeological integrity of the site is compromised, and which is reversible. This arises where an archaeological feature can be incorporated into a modern-day project without damage and that all procedures used to facilitate this are reversible. A medium effect to a site/monument may also arise when a site is fully or partly excavated under license and all recovered data is preserved by record. An effect that results in a change to the architectural heritage which, although noticeable is not such that alters the integrity of the heritage. The change is likely to be consistent with existing and emerging trends. Effects are probably reversible and may be of relatively short duration. Appropriate mitigation is very likely to reduce the effect. A beneficial or positive effect that results in partial or temporary enhancement of the character and/or setting of a feature of archaeological or cultural heritage significance in a clearly noticeable manner.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities An effect which causes changes in the character of the environment, such as visual effect, which are not high or very high and do not directly affect an archaeological feature or monument. An effect that causes some minor change in the character of architectural heritage of local or regional importance without affecting its integrity or sensitivities. Although noticeable, the effects do not directly affect the architectural structure or feature. Effects are reversible and of relatively short duration. Appropriate mitigation will reduce the effect. A beneficial or positive effect that causes some minor or temporary enhancement of the character of an architectural heritage significance which, although positive, is unlikely to be readily noticeable.

Effect Magnitude	Criteria
Not-significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Imperceptible	An effect on archaeological features or monument capable of measurement but without significant consequences. An effect on architectural heritage of local importance that is capable of measure merit but without noticeable consequences. A beneficial or positive effect on architectural heritage of local importance that is capable of measurement but without noticeable consequences.

Positive significance level of a construction or operation effect on a feature may also be expressed.

- **Significant positive**: a beneficial effect that permanently enhances or restores the character and/ or setting of the architectural heritage in a clearly noticeable manner;
- **Moderate positive**: a beneficial effect that results in partial or temporary enhancement of the character and/ or setting of the architectural heritage and which is noticeable and consistent with existing and emerging trends;
- **Slight positive**: a beneficial effect that causes some minor or temporary enhancement of the character of architectural heritage or local or regional importance which, although positive, is unlikely to be readily noticeable; and,
- **Imperceptible positive**: a beneficial effect on architectural heritage of local importance that is capable of measurement but without noticeable consequences.

13.2.7 Assessing the Duration and Frequency of Effect

'Duration' is a concept that can have different meanings for different topics. The EPA (2022) has issued the below guideline definitions (Table 13-5) when discussing duration in the context of environmental impact assessment.

Table 13-5 - Duration and Frequency of effect

Term	Criteria
Momentary Effects	Effects lasting from seconds to minutes
Brief Effects	Effects lasting less than a day
Temporary Effects	Effects lasting less than a year
Short-term Effects	Effects lasting 1–7 years
Medium-term Effects	Effects lasting 7–15 years.
Long-term Effects	Effects lasting 15–60 years.
Permanent Effects	Effects lasting over 60 years.
Reversible Effects	Effects that can be undone, for example through remediation or
Frequency of Effects	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).

13.2.8 Methodology Used for Assessing Significance Level of Effects

The significance level of a construction or operation effect on a feature is assessed by combining the magnitude of the effect and baseline value of the feature. The matrix in Table 13-6 provides a guide to decision-making but is not a substitute for professional judgement and interpretation, particularly where the baseline value or effect magnitude levels are not clear or are borderline between categories. The permanence of the effects is also taken into account, with irreversible effects being more significant while temporary or reversible changes are likely to be less significant.

Table 13-6 - Criteria for assessing significance levels of effects

Magnitude of Effect	Baseline Value				
	Very High	**High**	**Medium/High**	**Medium/Low**	**Low**
Profound	Very significant	Very significant	Significant	Moderate	Slight
Very Significant	Significant	Significant	Moderate	Slight	Slight
Significant	Significant	Moderate	Moderate	Slight	Slight
Moderate	Moderate	Moderate	Slight	Slight	Negligible
Slight	Moderate	Slight	Slight	Negligible	Negligible
Not Significant	Slight	Slight	Imperceptible	Imperceptible	Imperceptible
Imperceptible	Imperceptible	Imperceptible	Imperceptible	Imperceptible	Imperceptible

13.2.9 Assessing Effects on Setting

The definition of setting follows the guidance set by Historic England as they have developed a range of comprehensive guidance on this subject specific to heritage assets (Historic England; 2008; 2017). Hence, setting is not simply the visual envelope of the asset in question. Rather, it is those parts of the asset's surroundings that are relevant to the significance of the asset and the appreciation thereof, and in which a heritage asset is experienced.

In most instances, setting will relate to the historical value of the asset, where an appreciable relationship between the asset and an element of its surroundings helps the visitor understand and appreciate the asset. This may be in terms of a physical relationship, such as between a castle and the natural rise that it occupies, or a more distant visual relationship, such as a designed vista or the view from, for example, one ringfort to another. The former is referred to as immediate setting and the latter as landscape setting. Many assets will only have an immediate setting. Some assets will have aesthetic value that relates to the surrounding landscape, such as in the case of a designed view incorporating a distant hill, or that relates to the contribution the asset makes to the local landscape, for example a church spire providing a focal point in a view down a valley.

Historic England has provided a list of factors to be considered when assessing effects upon setting. These are broad factors and have been taken into consideration when assessing magnitude of effect and sensitivity. They are summarised in Table 13-7.

Table 13-7 - Factors to be considered when assessing effects upon setting (after Historic England 2017)

Factor	Discussion
Visual dominance	Where an historic feature (such as a hilltop monument or fortification, a church spire, or a plantation belonging to a designed landscape) is the most visually dominant feature in the surrounding landscape, adjacent construction of the proposed project may be inappropriate.
Scale	The extent of a proposed project and the number, density and disposition of its associated elements will also contribute to its visual effect.
Intervisibility	Certain archaeological or historic landscape features were intended to be seen from other historic sites. Construction of a proposed project should respect this intervisibility.
Vistas and sightlines	Designed landscapes invariably involve key vistas, prospects, panoramas and sightlines, or the use of topography to add drama. Location of a proposed project within key views, which may often extend beyond any designated area, should be avoided.
Movement, sound or light effects	The movement associated with a proposed project may be a significant issue in certain historic settings. Adequate distance should always be provided between important historic sites and proposed projects to avoid the site being overshadowed or affected by noise.
Unaltered settings	The setting of some historic sites may be little changed from the period when the site was first constructed, used or abandoned. Largely unaltered settings for certain types of sites, particularly more ancient sites, may be rare survivals and especially vulnerable to modern intrusions such as wind turbines. This may be a particular issue in certain upland areas.

The following are guides to the assessment of magnitude of effect on setting:

- Obstruction of or distraction from key views. Some assets have been sited or designed with specific views in mind, such as the view from a country house with designed vistas. The obstruction or cluttering of such views would reduce the extent to which the asset could be understood and appreciated by the visitor. Projects outside key views may distract from them and make them difficult to appreciate on account of their prominence and movement. In such instances the magnitude is likely to be greatest where views have a particular focus or a strong aesthetic character. Sympathetic development may improve key views by removing features that obstruct or distract from key views and hence preserve or enhance the importance of the asset.
- Changes in prominence. Some assets are deliberately placed in prominent locations in order to be prominent in the surrounding landscape, for example prehistoric cairns are often placed to be silhouetted against the sky and churches in some areas are deliberately placed on ridges in order to be highly visible. Developments can reduce such prominence and therefore reduce the extent to which such sites can be appreciated or the contribution that they make to the local landscape. Similarly, sympathetic development can enhance the setting of such sites by, for example, removing modern forestry that would otherwise compromise the setting of a cairn that had been placed on a skyline.

- Changes in landscape character. A particular land use regime may be essential to the appreciation of an asset's function, for instance the fields surrounding an Improvement period farmstead are inextricably linked to its appreciation. Changes in land use can leave the asset isolated and reduce its value. In some instances, assets will have aesthetic value or a sense of place that is tied to the surrounding landscape character. Conversely, sympathetic development may restore or preserve the relevant land use and hence preserve or enhance the relevant value of the asset.
- Duration of effect. Effects that are long term or permanent are generally of greater magnitude than those that are short term.

Readily reversible effects are generally of lesser magnitude than those that cannot be reversed. Effects upon the defined setting will be of greater magnitude than those that affect unrelated elements of the asset's surroundings or incidental views to or from an asset that are unrelated to the appreciation of its value. The magnitude of effects can be rated from Negligible to Major using a similar scale to that for physical effects.

13.2.10 Legislation, Planning Policy and Guidance

A review of the applicable legislation, as well as national, strategic and local planning policies and guidance was undertaken as part of this study. The relevant sections addressing archaeological, architectural and cultural heritage in the Galway County Development Plan (2022–2028) are included in Appendix 13-2, Volume 3 of the EIAR. Any mitigation measures proposed in Section 13.5 take account of the current legislation, policies and guidelines so as to avoid, reduce or offset effects on the archaeological, architectural and cultural heritage environment, in line with the aforementioned legislation, local planning policies and guidance.

13.2.11 Limitation of this Assessment

There were no difficulties or limitations encountered during the compilation of this report.

13.3 Baseline/Receiving Environment

13.3.1 Designated Archaeological Sites

13.3.1.1 Known or Suspected Archaeological Monuments (The SMR and RMP)

A Sites and Monuments Record (SMR) was issued for all counties in the State between 1984 and 1992 and is continually updated and supplemented as additional monuments are discovered. The SMR is an inventory containing a numbered list of known or suspected monuments accompanied by 6-inch Ordnance Survey maps (at a reduced scale). The SMR formed the basis for issuing the Record of Monuments and Places (RMP) - the statutory list of recorded monuments established under Section 12 of the National Monuments (Amendment) Act 1994. Under this Act, each site recorded in the RMP is granted statutory protection. When the owner or occupier of a property, or any other person, proposes to carry out, or to cause, or to permit the carrying out of any work at or in relation to a recorded archaeological monument, they are required to give notice in writing to the Minister for Housing, Local Government and Heritage two months before commencing that work.

In total, there are 28 no. RMPs and 8 no. SMRs located within the Study Area (Table 13-8). None of the RMPs are located within the redline boundary for the proposed Peaker Plant and proposed UGC (See Figure 13-1). The closest monument to the proposed Peaker Plant is the ringfort, CH036, which is located c. 100 m west. This monument was partially excavated under licence no. E004024. The proposed UGC crosses the Zone of Notification for 2 no. RMPs: CH019 and CH020.

Table 13-8 – Known or suspected monuments located within the Study Area

CH ID	Monument No;	RMP	Short Description	Townland
CH001	GA083-044----	Yes	Enclosure	Knocknacreeva
CH002	GA083-045----	Yes	Ringfort - cashel	Knocknacreeva
CH003	GA083-029----	Yes	Ringfort - cashel	Castlelambert
CH004	GA084-060----	Yes	Enclosure	Castlelambert
CH005	GA084-061----	Yes	Enclosure	Castlelambert
CH006	GA084-062----	No	Country house	Castlelambert
CH007	GA084-064----	Yes	Ringfort - unclassified	Castlelambert
CH008	GA083-083----	No	Well	Toberroe (Athenry Bypass)
CH009	GA084-008----	Yes	Ringfort - rath	Ballygarraun North
CH010	GA084-009----	Yes	Enclosure-large enclosure	Ballygarraun North
CH011	GA084-009001-	Yes	Souterrain	Ballygarraun North
CH012	GA084-010----	Yes	Enclosure	Ballygarraun North
CH013	GA084-011----	Yes	Ringfort - rath	Ballygarraun North
CH014	GA084-012----	Yes	Ringfort - rath	Ballygarraun North
CH015	GA084-017----	Yes	Designed landscape - folly	Ballygarraun South, Ballygarraun West
CH016	GA084-018----	Yes	Designed landscape - folly	Ballygarraun West
CH017	GA084-019----	No	Redundant record	Ballygarraun West
CH018	GA084-095----	No	Redundant record	Moanbaun
CH019	GA084-096001-	Yes	Castle - unclassified	Moanbaun
CH020	GA084-096002-	Yes	Earthwork	Moanbaun
CH021	GA084-097----	Yes	Barrow - ring-barrow	Moanbaun
CH022	GA084-098----	Yes	Standing stone	Moanbaun
CH023	GA084-108----	Yes	Ringfort - cashel	Pollnagroagh
CH024	GA084-121----	Yes	Ringfort - cashel	Ballygarraun West, Rathmorrissy
CH025	GA084-121001-	No	House - indeterminate date	Rathmorrissy
CH026	GA084-122----	Yes	Ringfort - rath	Rathmorrissy
CH027	GA084-123----	Yes	Ringfort - rath	Rathmorrissy
CH028	GA084-123001-	No	Souterrain	Rathmorrissy
CH029	GA084-124----	Yes	Fulacht fia	Rathmorrissy
CH030	GA084-125----	Yes	Fulacht fia	Rathmorrissy

CH ID	Monument No;	RMP	Short Description	Townland
CH031	GA084-129----	Yes	Fulacht fia	Toberroe (Athenry Bypass)
CH032	GA084-013----	No	Redundant record	Ballygarraun South
CH033	GA084-015----	Yes	Enclosure	Ballygarraun South
CH034	GA084-016----	Yes	Enclosure - large enclosure	Ballygarraun South
CH035	GA083-003----	No	Ringfort - cashel	Caherbriskaun
CH036	GA084-065----	Yes	Ringfort-rath	Castlelambert, Rathmorrissy

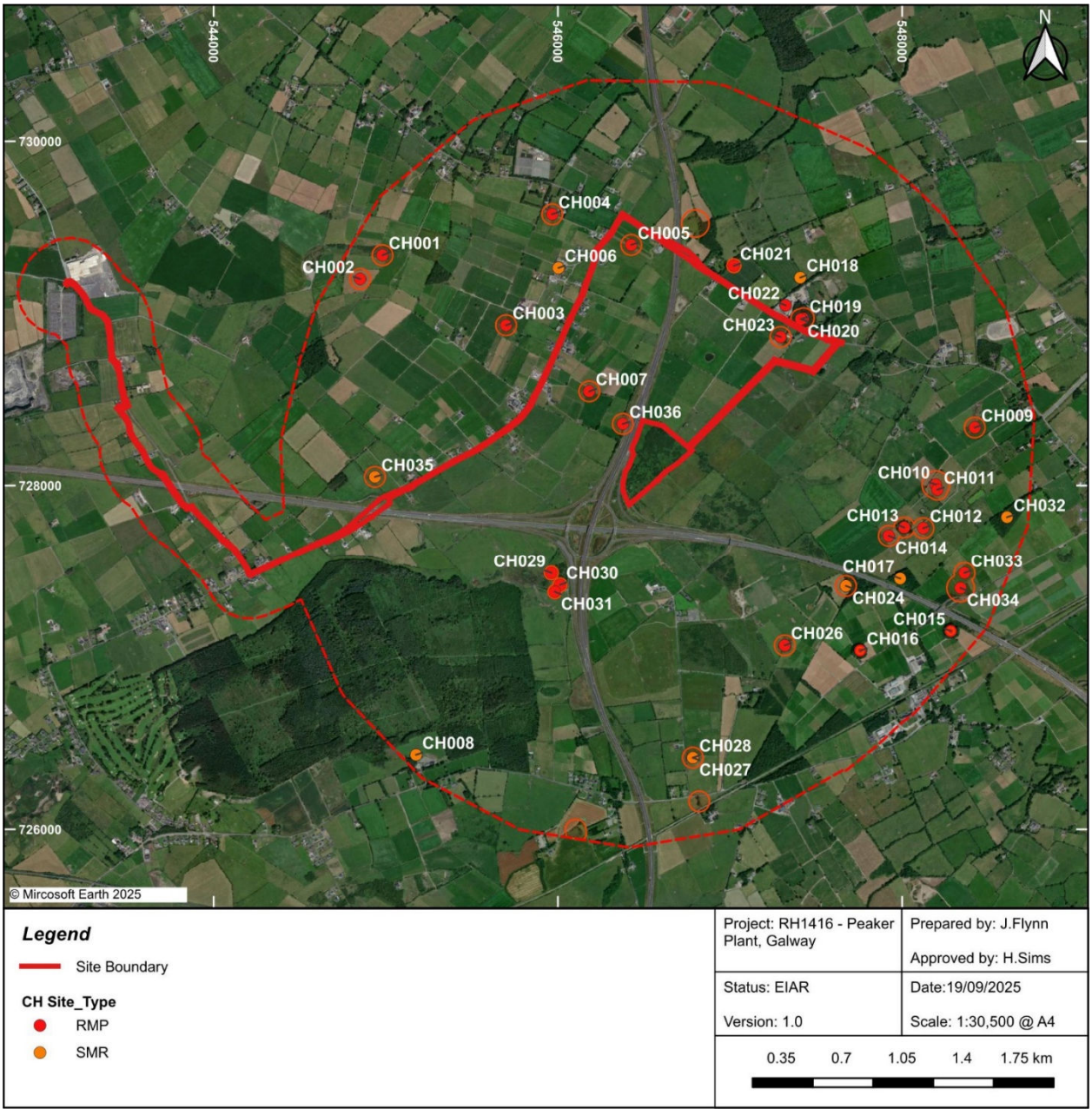


Figure 13-1 - Known or suspected monuments within the proposed project study area

13.3.1.2 National Monuments

National Monuments are broken into two categories; National Monuments in the ownership or guardianship of the state and National Monuments in the ownership or guardianship of a local authority. Section 8 of the National Monuments (Amendment) Act 1954 provides for the publication of a list of monuments, the preservation, of which, are considered to be of national importance. Two months' notice must be given to the Minister for Housing, Local Government and Heritage where work is proposed to be carried out at or in relation to any National Monument.

There are no National Monuments sites incorporated by the Study Area.

13.3.1.3 Sites with Preservation Orders

The National Monuments Act 1930–2014 as amended provide for the making of Preservation Orders and Temporary Preservation Orders in respect of National Monuments. Under Section 8 of the National Monument Act 1930 (as amended) the Minister for Housing, Local Government and Heritage, can place a Preservation Order on a monument if, in the Ministers' opinion, it is a National Monument in danger of being or is actually being destroyed, injured or removed or is falling into decay through neglect. The Preservation Order ensures that the monument shall be safeguarded from destruction, alteration, injury, or removal, by any person or persons without the written consent of the Minister.

There are no sites with preservation orders incorporated by the Study Area.

13.3.1.4 Record of Protected Structures

The Galway County Development Plan (2022-2028) was consulted for schedules of Protected Structures. These are buildings that a planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social, and/or technical point of view. Protected Structures receive statutory protection from injury or demolition under Section 57 (1) of the Local Government (Planning and Development) Act 2000. Protected structure status does not exclude development or alteration but requires the developer to consult with the relevant planning authority to ensure that elements which make the structure significant are not lost during development.

If a structure is included in the Records of Protected Structures (RPS):

- the protection extends to the interior of the structure
- The land in its curtilage. Curtilage means the land and outbuildings immediately surrounding a structure which is (or was) used for the purposes of the structure.
- Any other structures on that land and their interiors.
- All fixtures and features forming part of the interior and exterior of the protected structure or any structure on the grounds attached to it.

Inclusion of these structures in the RPS means that their importance is recognised, they are legally protected from harm and all future changes to the structure are controlled and managed through the development control process (e.g. planning permission) or by issuing a declaration under Section 57 of the Planning and Development Act 2000.

There is a single Protected Structure, which is also a NIAH registration, located within the Study Area (see Table 13-9). This site is located outside the Proposed Project, c. 1.9 km to the south-east (Figure 13-2).

Table 13-9 - Protected Structures located within the Study Area

CH ID	Type	RPS No;	Short Description	Townland
CH037	RPS	RPS. No. 130	Athenry Agricultural College	Ballygarraun West

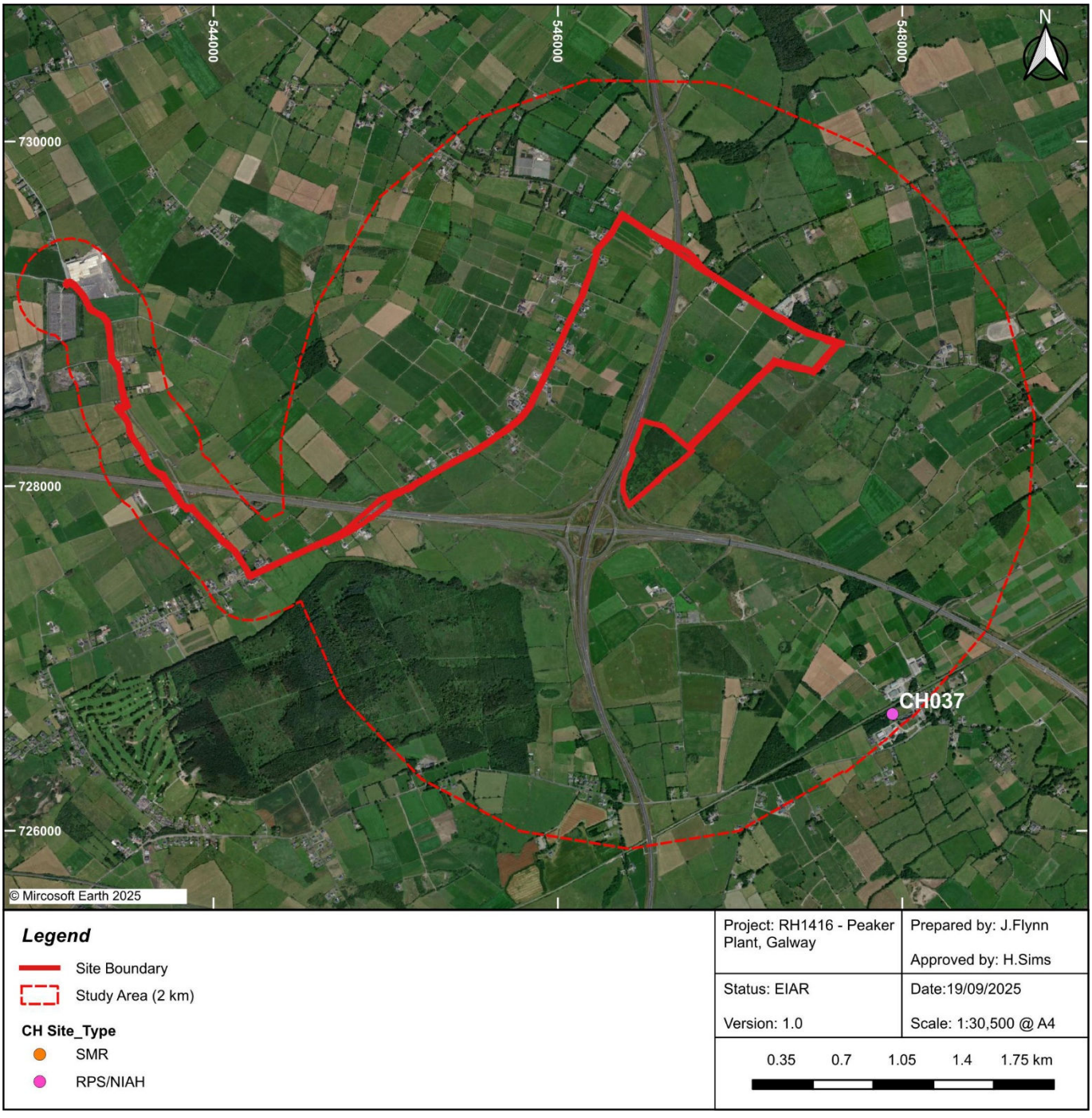


Figure 13-2 – Record of Protected Structures/NIAH Sites within the proposed project study area

13.3.2 Designated Architectural Heritage Sites

In 1997, Ireland ratified the Granada Convention on architectural heritage. This provided the basis for a national commitment to the protection of the architectural heritage throughout the country. The Local Government (Planning and Development) Act 2000, and the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999, made the legislative changes necessary to provide for a strengthening of the protection of architectural heritage.

13.3.2.1 Architectural Conservation Areas

The Galway County Development Plan (2022-2028) was consulted for records relating to Architectural Conservation Areas (hereinafter 'ACAs'). The stated objective of ACAs is to conserve and enhance the special character of the area, including traditional building stock and material finishes, spaces, streetscapes, landscape and setting.

There are no ACAs within the Study Area (Section 0) but the closest ACA is Athenry Town Centre located c. 2 km east (see Figure 13-13). Galway County Council (2022) states that the principal significance of the Athenry Town Centre ACA 'lies in its degree of survival as a medieval fortified town, embracing a number of fine monuments and archaeological remains. The street pattern, plot sizes, buildings and architectural coherence visibly emerge directly from this historic role. The majority of town buildings spans the late 19th century and share many characteristics. Surviving traditional shop fronts are important features. The open fields within the walls are notable. The form, attractiveness and uniqueness of the town are of international significance and a potentially greater cultural attraction' (Galway County Council 2022).

The ZTV overlay shows that the proposed project is not visible from either the historic core of Athenry or the Architectural Conservation Area. There is a very small overlap (0.269ha) of the ZTV for the upper sections of the plant with the RMP Zone of Notification surrounding the town. However, in this area the Zone of Notification appears to be an amalgamation of the Zones of Notification for two other RMPs with that of the historic town. These are a Fair Green (GA084-110----), which is a redundant record, and a Road/trackway (GA084-113----) which lies under a modern housing development. Therefore, there should be no visual impact on the historic town. In terms of the impact on the general setting of the town, the site is in a largely rural, agricultural landscape, but 19th century mapping shows that the area of the proposed project was a wet, marshy landscape and not part of the agricultural hinterland which surrounded the town. The fields were improved during the 19th century which created the modern field pattern. This area was therefore unlikely to have been historically associated with the town. As such, the Proposed Project will have no predicted effect on the Athenry ACA or the historic character of the area.

13.3.2.2 National Inventory of Architectural Heritage (NIAH)

The National Inventory of Architectural Heritage (hereinafter the 'NIAH') is a state initiative under the administration of the DoHLGH and was established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. Its purpose is to identify, record and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently, as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for Housing. Local Government and Heritage to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS).

There is single site from the NIAH register, which is also a Protected Structure located within the Study Area (Table 13-10). This site is located outside the Proposed Project, c. 1.9 km to the south-east (Figure 13-2).

Table 13-10 - NIAH Registrations located within the Study Area

CH ID	Type	Reg No;	Short Description	Townland
CH037	NIAH	30408407	Athenry Agricultural College	Ballygarraun West

13.3.3 Undesignated Cultural Heritage Sites within the Proposed Project Site

This section deals with sites that are considered to be of cultural heritage value, but which do not fall within the above categories as they are not registered. Such sites may include lime kilns, dwellings/outhouses, trackways or townland boundaries etc. identifiable on the First Edition 6/25-inch OS maps and/or noted during the field visit.

13.3.3.1 Sites Identifiable on Cartographic Sources

The First Edition 6-inch Ordnance Survey Sheet (1840), First Edition 25-inch Survey (1894) and the First Edition 6-inch Cassini Survey (1933) were consulted to identify undesignated cultural heritage sites that may be impacted on by the Proposed Project (see Figure 13-5 –Figure 13-7).

The 6-Inch OS map depicts the Proposed Project site as an enclosed field comprising wet, marshy suggesting it is undeveloped. By the time of the 25-inch OS sheet, the field has merged with the surrounding fields to create a larger, rectangular field. This suggests that some land improvements were being carried out at the time. This map shows that this field was as rough pasture, which is unchanged by time of the 6-inch Cassini Sheet. One change to the Cassini Sheet is that the western half of the large field has been enclosed, creating the layout that exists today.

There were five undesignated cultural heritage sites identified from the cartographic record within the Proposed Project site (see Figure 13-3;Table 13-11).

Table 13-11 - Undesignated cultural heritage sites within the proposed project site.

CH ID	ID No.	Short Description	Townland
CH057	UCH01	Vernacular Structure	Pollnagroagh
CH058	UCH02	Vernacular Structures	Caherbriskaun
CH059	UCH03	Vernacular Structure	Lisheenkyle East
CH060	UCH04	Vernacular Structures	Lisheenkyle East
CH061	UCH05	Vernacular Structures	Barrettspark

13.3.3.2 Townland Boundaries

A townland is the smallest official land unit in the country. Ireland is made up of approximately 60,000 townlands. As a result, townland boundaries are ubiquitous in the Irish countryside and have been incorporated into the modern agricultural landscape. Many townlands predate the arrival of the Anglo Normans, and Irish historical documents consistently use townland names throughout the historic period to describe areas and locate events accurately in their geographical context. This suggests that many the boundaries of many of these territorial units preserve landscape divisions from the medieval period and perhaps earlier. The townland names and boundaries were standardised in the nineteenth century when the Ordnance Survey began to produce large-

scale maps of the country. Research into the name of these land units frequently provides information relating to its archaeology, history, folklore, ownership, topography or land use.

The First Edition 6-inch Ordnance Survey was consulted in order to identify the location of townland boundaries that may be impacted on by the Proposed Project (see Figure 13-4). The proposed Peaker Plant and UGC crosses a single townland boundary (CH046) (Table 13-12). The proposed cable route crosses an additional eight townland boundaries (Table 13-12). However, all of these are either formed or broken by the existing road network, meaning that they will not be effected by the proposed cable route.

Table 13-12 - Townland Boundaries located within the Study Area

CH ID	ID No.	Short Description	Townland
CH046	TB01	Townland Boundary	Rathmorrissy/Pollnagroagh
CH062	TB02	Townland Boundary	Pollnagroagh/Moanbaun
CH063	TB03	Townland Boundary	Castlelambert/Pollnagroagh/Moanbaun
CH064	TB04	Townland Boundary	Castlelambert/ Caraunduff /Knocknacreeva
CH065	TB05	Townland Boundary	Caraunduff /Knocknacreeva
CH066	TB06	Townland Boundary	Caherbriskaun/Caraunduff
CH067	TB07	Townland Boundary	Caherbriskaun/Lisheenkyle East
CH068	TB08	Townland Boundary	Lisheenkyle East/Barrettspark
CH069	TB09	Townland Boundary	Cashla/Barrettspark

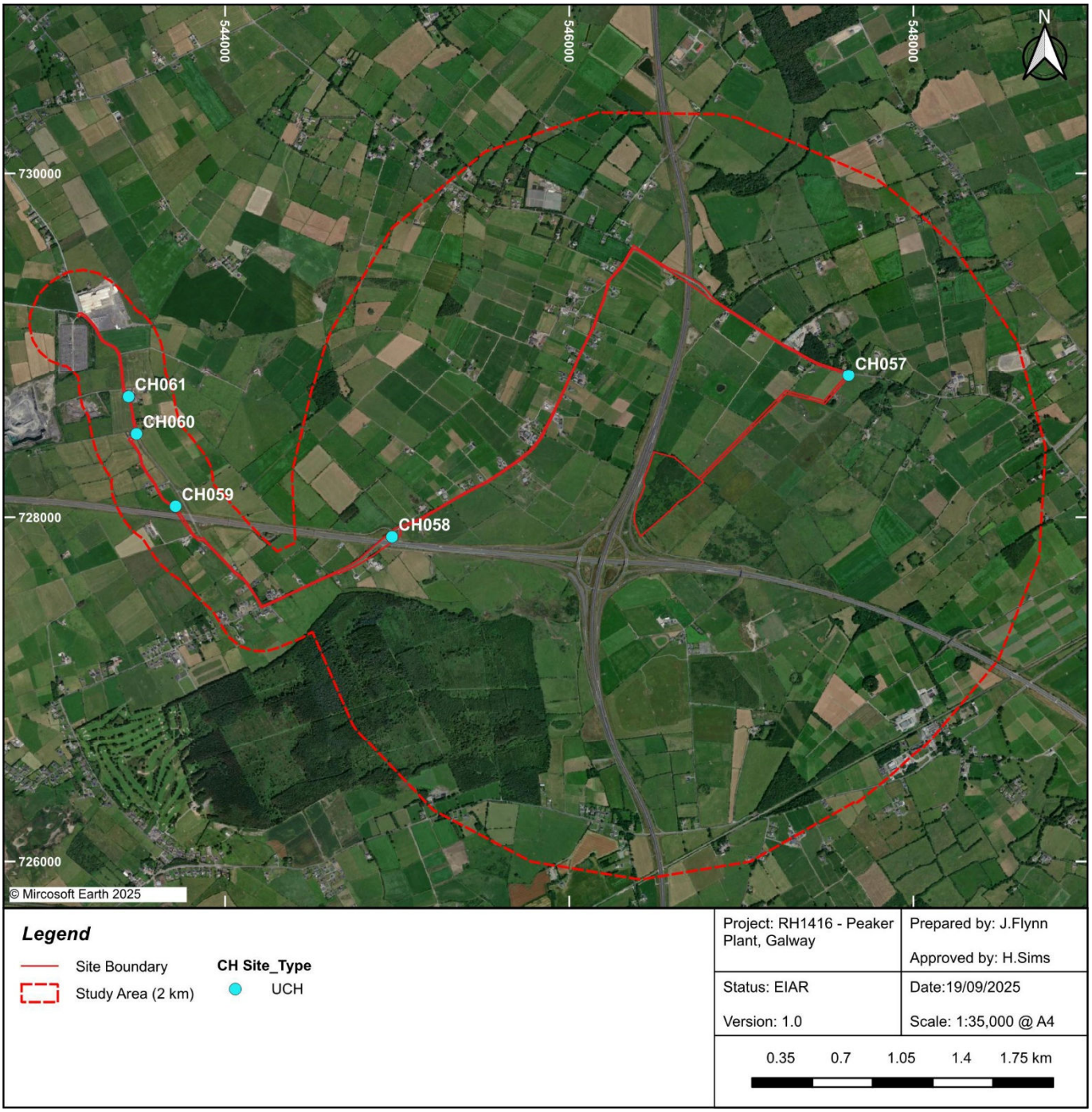


Figure 13-3 - Undesignated Cultural Heritage within the proposed project study area

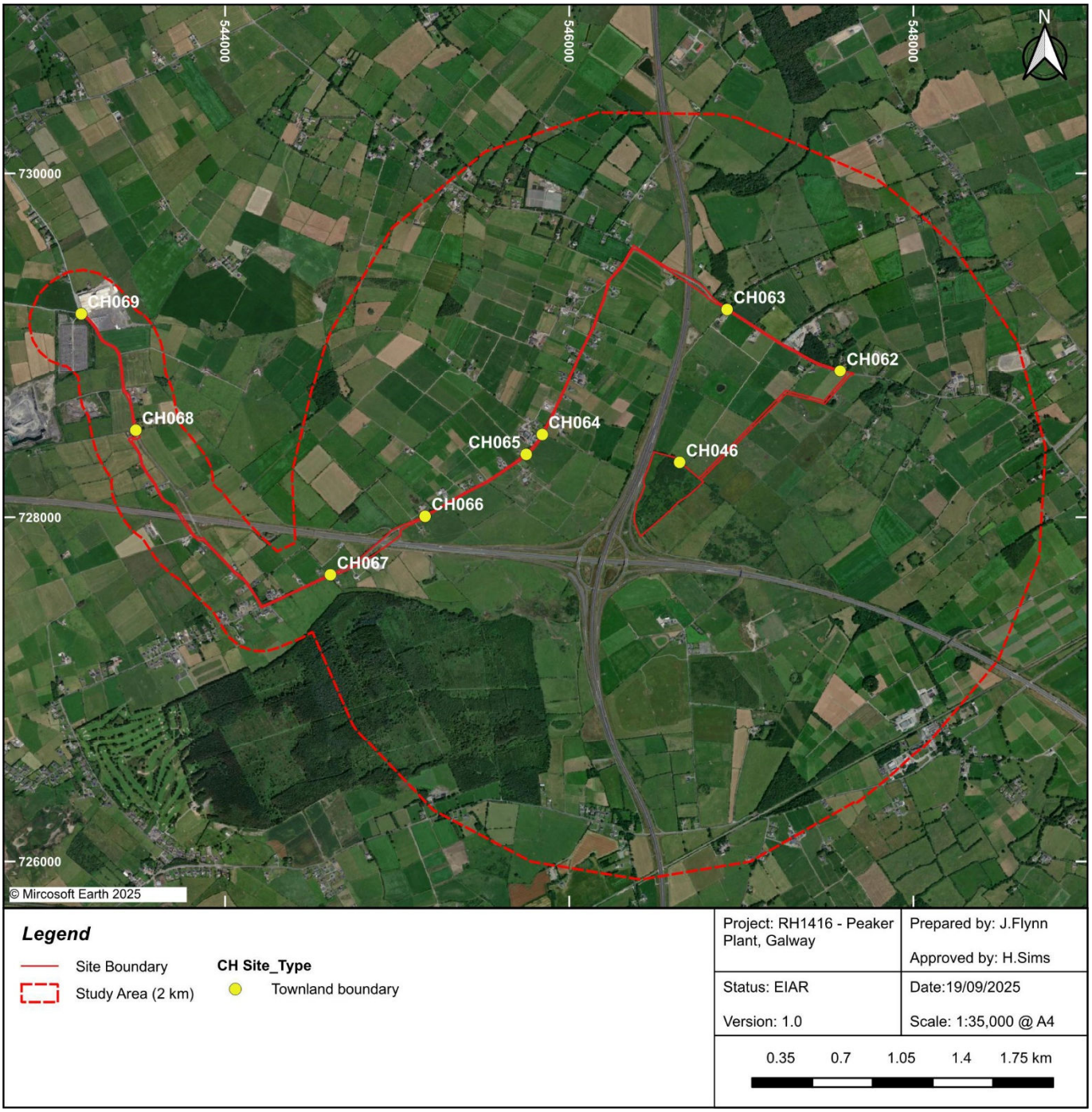


Figure 13-4 – Townland boundaries crossed by the proposed project site

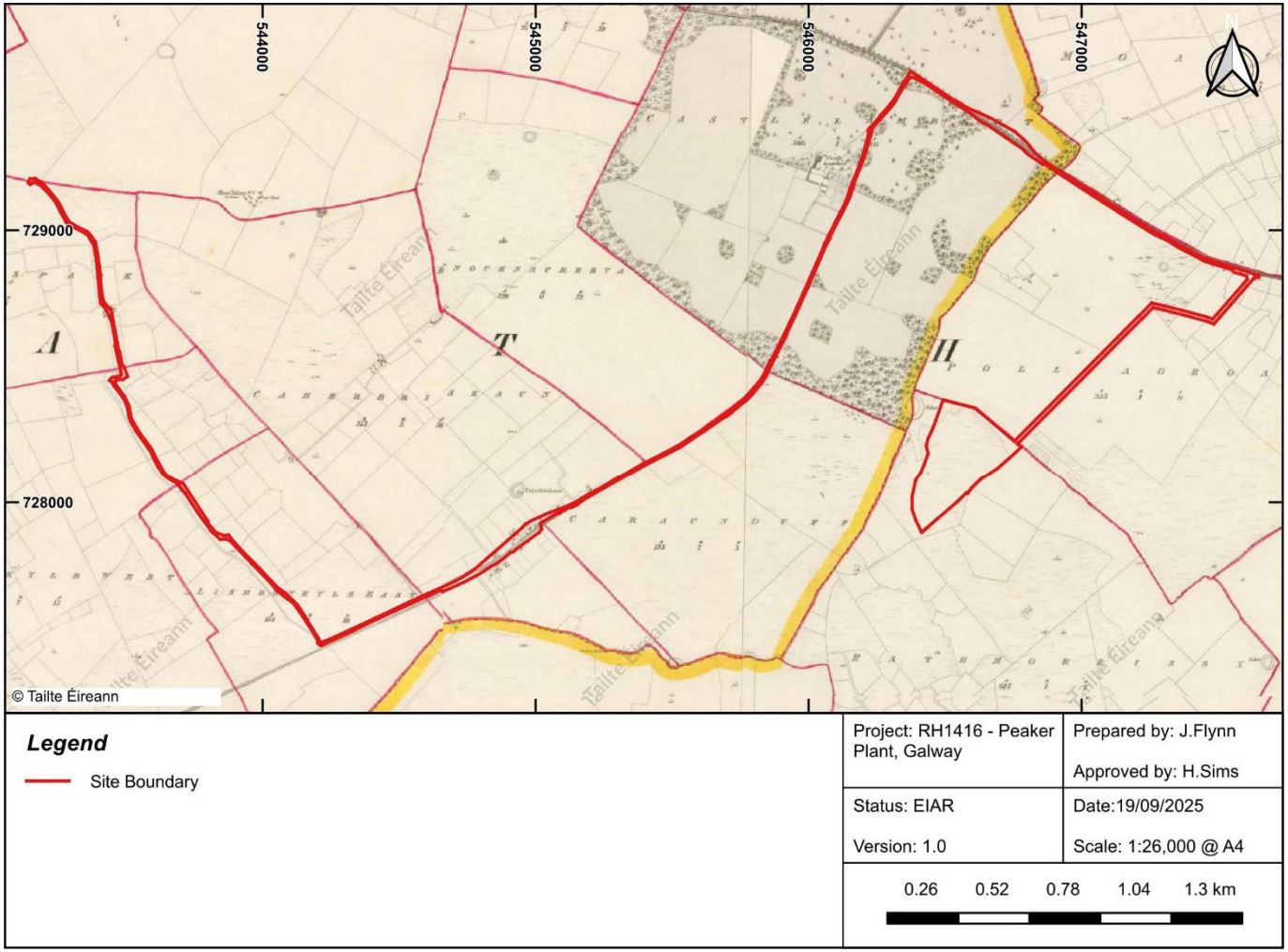


Figure 13-5 - First Edition 6-inch OS map with the proposed project site

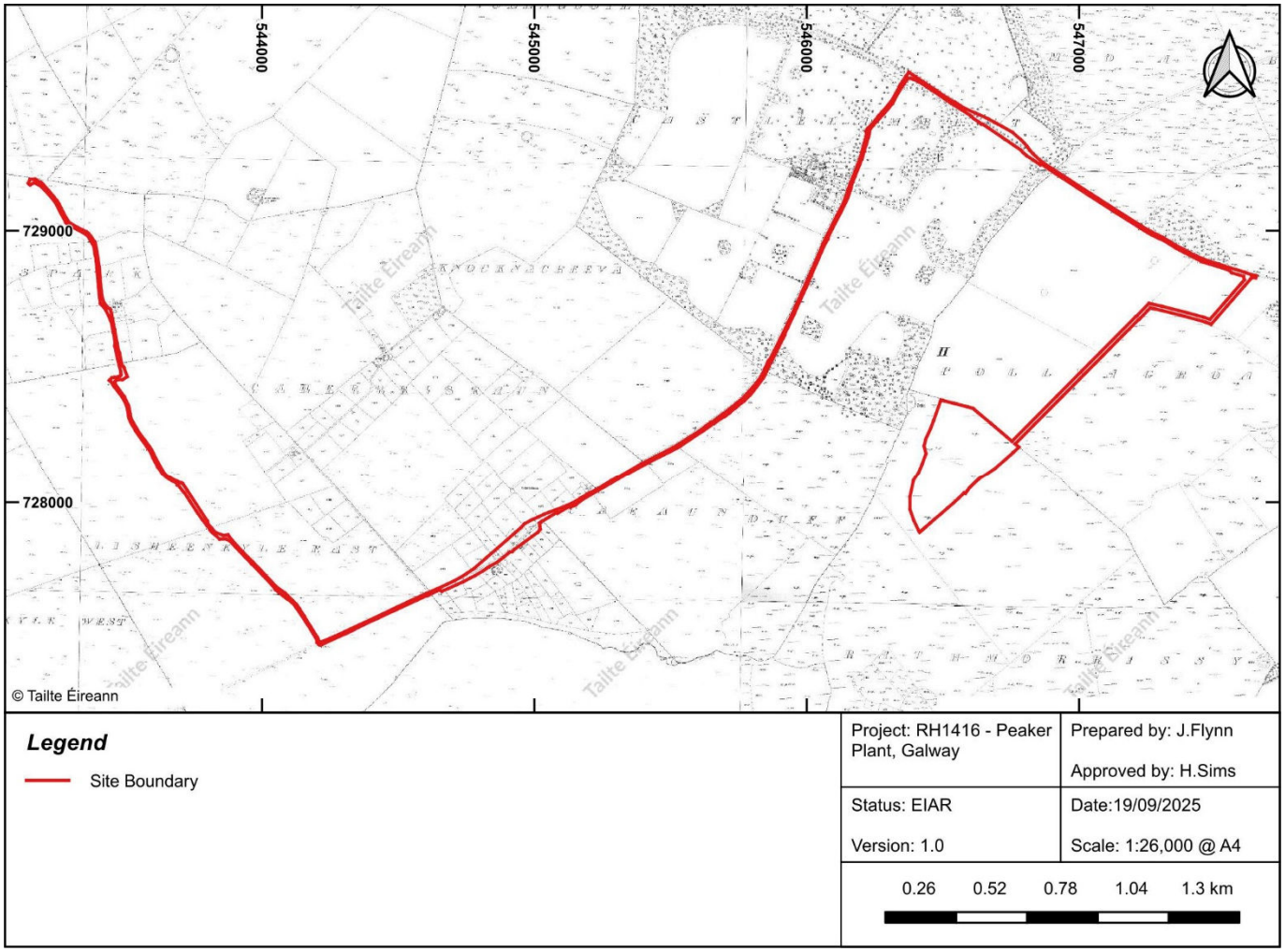


Figure 13-6 - First Edition 25-inch OS map with the proposed project site

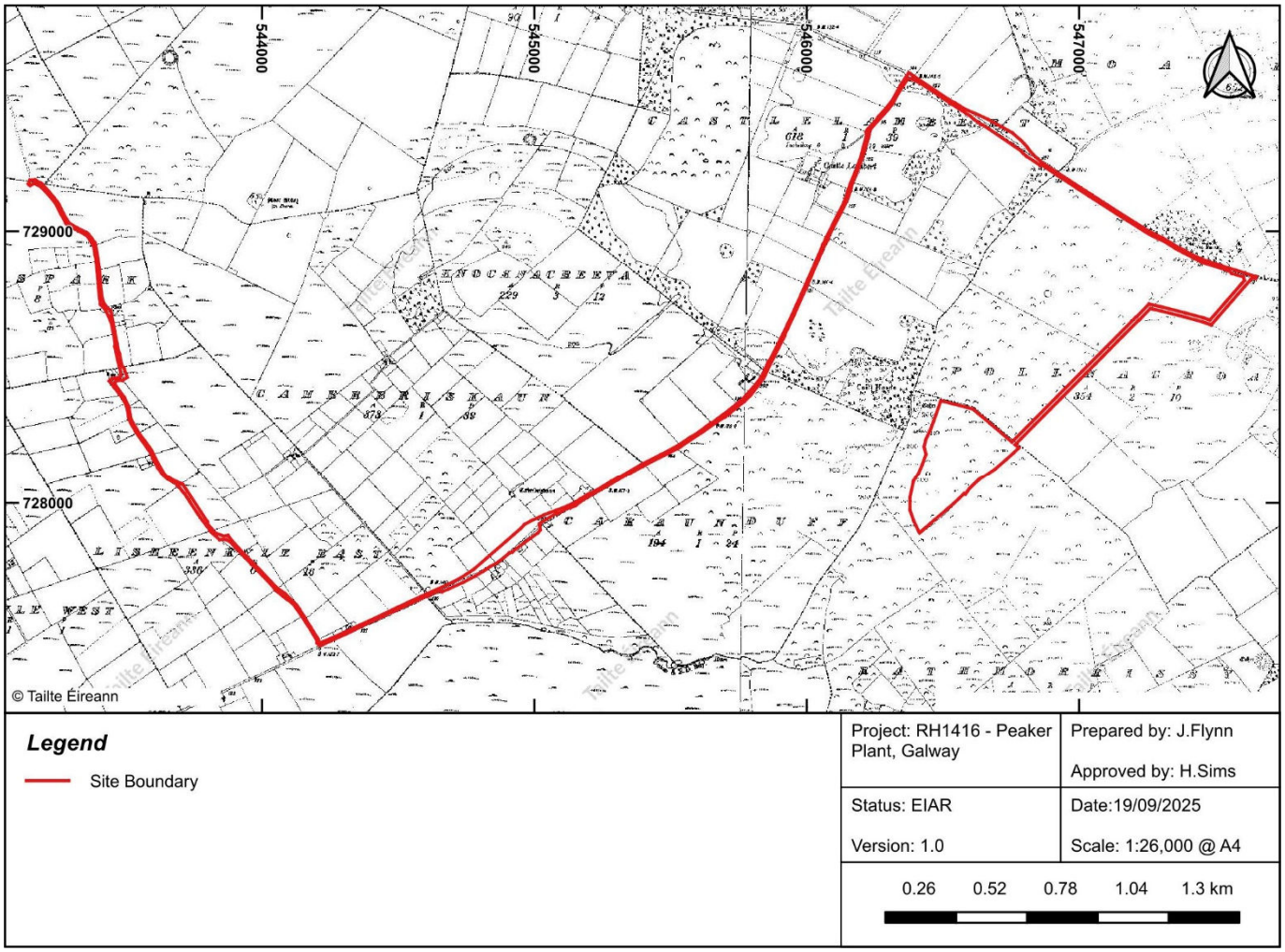


Figure 13-7 - First Edition 6-inch Cassini OS map with the proposed project site

13.3.3.3 Sites Identifiable on Aerial Photography and Satellite Imagery

Ortho-rectified aerial photography available from the Ordnance Survey of Ireland was inspected in order to identify possible features of cultural and heritage significance. Aerial photography from the 1995, 2000, and 2005 fly-overs was inspected, as well as the latest Tailte Éireann images, LiDAR imagery (where available), Google Earth and Bing Maps satellite imagery.

No additional undesignated cultural heritage sites were identified on other aerial photography and satellite imagery within the Proposed Project site.

13.3.3.4 Sites Identified during Site Visit

The proposed project site and surrounding lands were inspected on the 26th of February by Dr. Enda O'Flaherty (BA, Hdip, PhD), previously of Rubicon Archaeology Limited (See Plates 1–20). Mr O'Flaherty has worked as a professional archaeologist since 2006, and is a license-eligible archaeologist (Section 13.2.3.1).

The methodology of the site visit is described in Section 13.2.3.1. There were no additional sites or features of Archaeological, Architectural and Cultural Heritage significance identified during the site inspection.

Plate 1 - View of a 20th century shuttered concrete animal shelter and water tank (2no. structures), facing west

Plate 2 - View of drystone walling enclosing the field, facing south

Plate 4 - View of proposed development site, facing south-west.

Plate 3 - View of proposed development site, facing west.

Plate 5 - View of proposed development site, facing north-west.

Plate 6 - View of proposed development site, facing south-west.

Plate 8 - View of proposed development site, facing south-east.

Plate 7 - View of proposed development site, facing east.

Plate 9 - View of proposed development site, facing east.

Plate 10 - View from proposed development site towards the Rathmorrissy Excavation (CH036 & CH042), facing west.

Plate 11 - View of field boundary on top of glacial deposit at the northern development boundary, facing east.

Plate 12 - View of Townland Boundary (CH046) between Rathmorrissy and Pollnagroagh, facing north.

Plate 11 - View of field boundary along the eastern possible access route, facing east.

Plate 12 - View from eastern proposed access route to CH023 (Cashel), facing north.

Plate 14 - View along western proposed access route, facing south south-west

Plate 13 - View along western proposed access route by the M17, facing south south-west.

Plate 15 - View along western proposed access route by the M17, facing south.

Plate 16 - View of proposed development site facing south along the western boundary.

Plate 18 - View of proposed development site facing south-west along the south-western boundary.

Plate 17 - View of field boundary along the eastern possible access route, facing south-west

13.3.3.5 Areas of Archaeological Potential

Areas of Archaeological Potential (AAPs) are additional areas or locations whose landscape characteristics suggest a higher potential for unknown archaeological features to be present e.g. riverine, estuarian or peatland environments. There is a single area of archaeological potential (CH056) based on natural features identified within the Proposed Project site (see Figure 13-8; Table 13-13).

In addition, the proposed project site was the subject of a geophysical survey carried out by Dr. Ger Dowling (2025) under Licence No. 25R0081. The methodology employed by Dowling (2025) is outlined in Section 13.2.3.2. This survey covered an area of 9.76 hectares and identified 9 no. areas/features of archaeological potential within the Proposed Peaker Plant site (See Figure 13-8–Figure 13-9).

This survey recorded several areas of enhanced magnetic responses, Anomalies 1–6 (CH047–CH052), which may reflect spreads of burnt/fired material. These anomalies are concentrated in the northern half of the field, with CH051 (Anomaly 4) located in an area that was flooded at the time of investigation. One of these anomalies, CH047 (Anomaly 1), is suggested to be possible pit/s deposits which may contain burnt/fired material (Dowling 2025, 15). Furthermore, multiple 'pit-type responses', such as CH053, were also mapped by the geophysical survey.

The geophysical survey also mapped an area of increased response, CH055, situated in approximately the centre of the field. Dowling (2025, 14) suggests that this may reflect imported material for land reclamation and/or dumping or represent disturbance. No archaeological origin was found by the test excavation for this area of increased response.

The geophysical survey also revealed evidence of agricultural activity in form of plough lines, which respect former field system/s. There were also indications of modern ground disturbances, including the line of the modern gas pipeline (Dowling 2025, 14).

The test excavation carried out under Licence No. 25E0549 by Rubicon Archaeology Limited found that none of these anomalies were of archaeological significance. The results of this test excavation are summarised in Section 13.3.3.5 and Appendix 13-6, Volume 3 of the EIAR .

Table 13-13 - Areas of Archaeological Potential located within the proposed project site

CH ID	ID No.	Short Description
CH047	Anomaly 1	Possible pits/deposits. May contain burnt/fired material in their fills. Anomalies extend over an area measuring about 14 m NE–SW by 13 m NW–SE. Interpretation is cautious. Natural origin also possible.
CH048	Anomaly 2	Possible spread of burnt/fired material (c.19 m NW–SE by 11 m NE–SW). Interpretation is cautious. Natural origin also possible.
CH049	Anomaly 3	Possible spread of burnt/fired material (c.19 m NE–SW by 15 m NW–SE). Tentative interpretation. Natural origin also possible.
CH050	Anomaly 4	Possible spreads of burnt/fired material. Extends over an area measuring about 37 m NE–SW by 24 m NW–SE. Tentative interpretation. Natural origin also possible.
CH051	Anomaly 5	Possible spread of burnt/fired material (c.13 m in diameter). Interpretation is cautious. Natural origin also possible.
CH052	Anomaly 6	Possible spread of burnt/fired material (c.17 m in diameter). Interpretation is cautious. Natural origin also possible.

CH ID	ID No.	Short Description
CH053	Anomaly 7	Potential pit/deposit (c. 3 m in diameter). Magnetic strength (up to 85 nT) suggests presence of burnt/fired material such as that potentially associated with an archaeological oven-type feature.
CH054	AAP01	Possible pits/deposits; most frequent in northern part of site. Some may contain burnt/fired material in their fill. Significance uncertain. Nature (soil) origin possible.
CH055	AAP02	May reflect imported material for land reclamation or dumping and/or ground disturbance. An archaeological origin cannot be discounted.
CH056	AAP03	Wet, marshy land on the First Edition 6-inch and 25-inch sheets

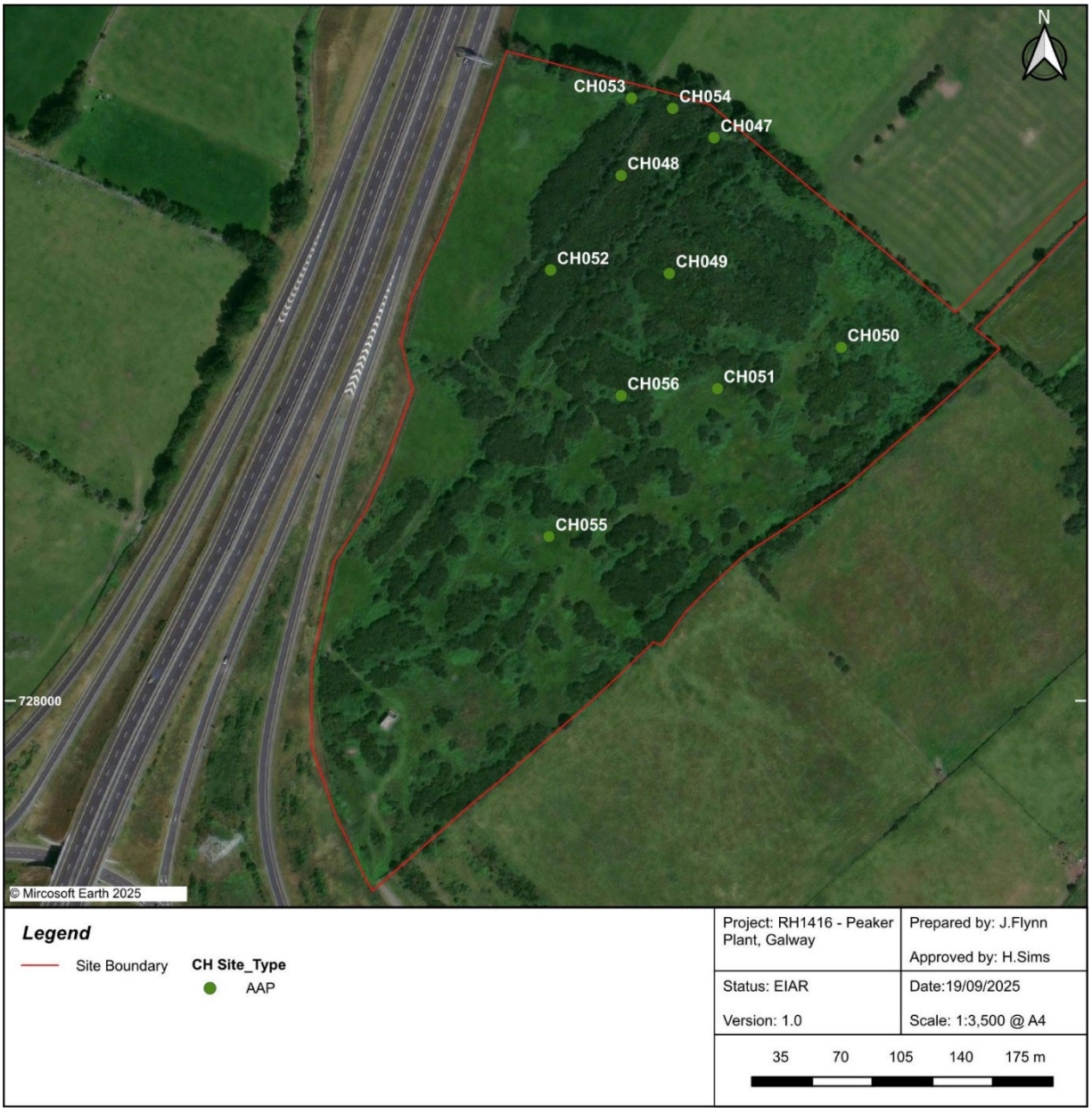


Figure 13-8 - Areas of Archaeological potential located within the proposed project site

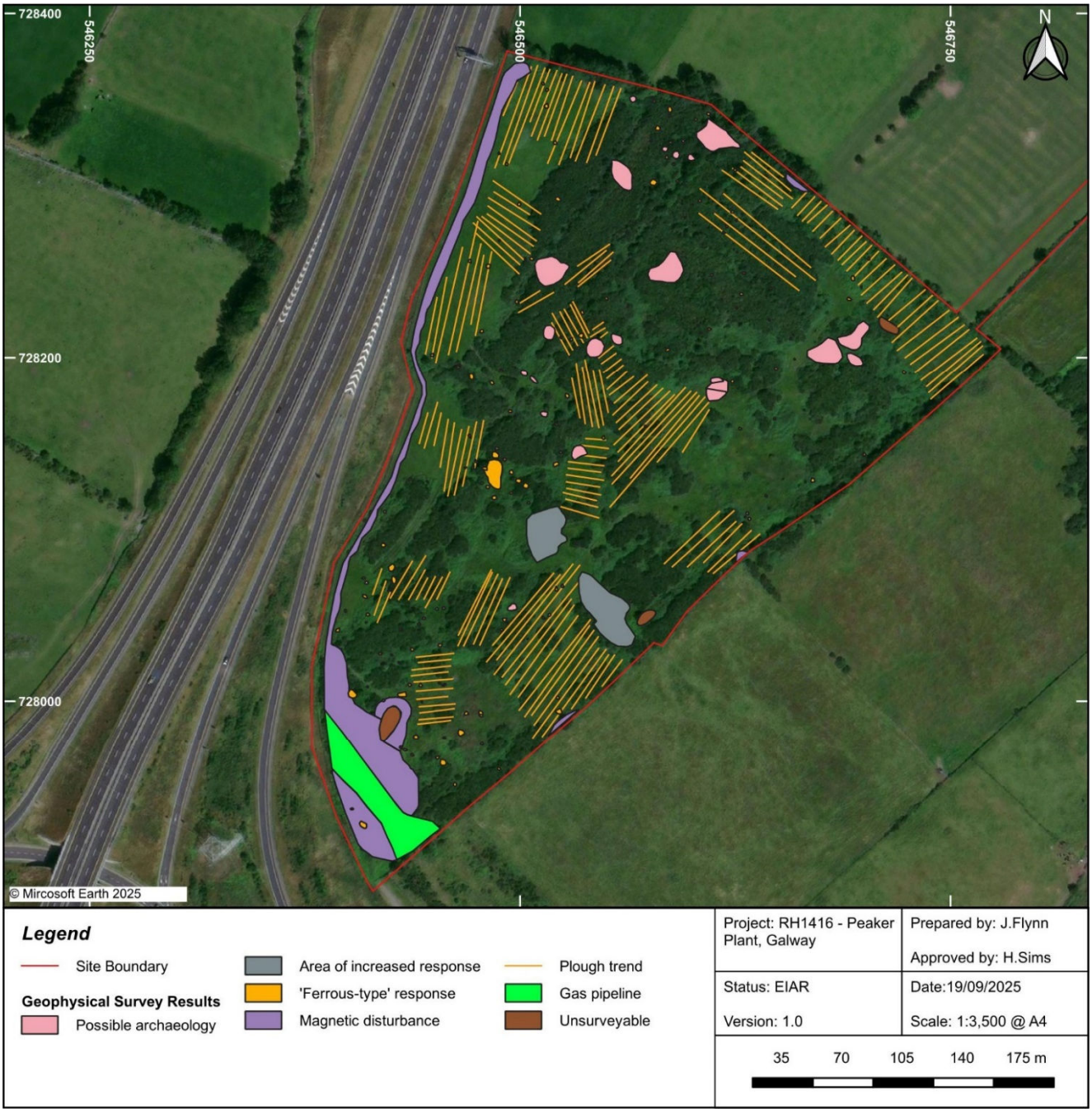


Figure 13-9 - Proposed project site with the preceding geophysical interpretation

13.3.4 Archaeological and Historical Background

The paragraphs below outline the archaeological and historical background for the Proposed Project site and the surrounding landscape.

13.3.4.1 Prehistoric Period

Prehistoric activity is indicated by three *fulachta fiadh*, CH029 to CH031, situated in close proximity to one another, c. 600 m south-west of the Proposed Project site. These monuments are the most numerous prehistoric sites in Ireland, with over 4,500 known examples (Power 1990, 13–17). *Fulachta fiadh* survive as low mounds, usually horseshoe shaped, of charcoal-enriched soil packed with fragments of heat-shattered stones (termed 'burnt mound'); when levelled, they are often noticeable as black spreads in ploughed fields. They were usually situated close to a water source, like a stream, or in wet marshy areas. It is generally accepted that they were probably used as cooking places (Ó Drisceóil 1988). Water was boiled in a regular pit (lined with wooden planks or stone slabs to form a trough) by the addition of hot stones from a fire close by. O'Kelly (1954, 105–55) showed by experiment that the large quantities of water can be boiled in this way in about twenty minutes. He also demonstrated that meat, wrapped in straw and immersed in the boiling water, cooked at a rate of twenty minutes per pound weight. When the cooking was over the remnants of heat-shattered stones in the trough were discarded to one side. Eventually, after many cookings, these would form a mound curving round three sides of the trough, hence the horse-shape mound (Powe*r et al*. 1997, 75). It is not certain whether *fulachta fiadh* were elements temporary hunting camps or of permanent settlements. The majority of radiocarbon dates place these monuments in the Bronze Age (Brindley and Lanting 1990, 55–6).

A review of the use of the term '*fulacht'* in early Irish literature and of references to 'activities that may have taken place at such sites', suggest associations with 'the cooking and eating of food, washing and bathing, music and sex' (Ó Drisceóil 1990, 157– 64). The word '*fulacht'* means a pit used for cooking. The second element can be interpreted as either '*fiadh'* meaning 'of the deer' or 'of the wild' or 'fian' meaning 'of a roving band of hunters or warriors' or 'of Fianna or Fionn Mac Cumhail' (Ó Drisceóil 1988, 671–80).

Other Bronze Age activity is indicated by the record of a standing stone (CH022) located 1 km north of the Proposed Project site. These stones were used variously as burial, territorial and route way markers. The Bronze Age saw a population explosion in Ireland that led to the development of a social hierarchy and a warrior elite. It was during this period that metalworking was introduced into the country, which appears to have made its way to Irish shores through trading and cultural contacts.

Iron Age activity may be indicated by a ring-barrow (CH021) located 1 km north in the townland of Moanbaun. Barrows were the most common funerary monument in the prehistory and ring-barrows are just one type of barrow which date principally to the Iron Age (O'Sullivan and Downey 2012, 34–35). The five undated enclosures located within the Study Area could also be prehistoric although this is difficult to prove without excavation.

13.3.4.2 Medieval Period (AD 400–1540)

The early medieval period (AD 400– c. 1169) was a time of rapid expansion of agriculture. Throughout this period Ireland was a predominantly rural society characterised by dispersed settlement. The economy was based on mixed agriculture though the rearing of cattle was seen as very important. Ringforts and enclosures are indicative of settlement at this time. Ringforts are undoubtedly the most widespread and characteristic archaeological field monument in the Irish countryside. There are seven known ringforts within the Study Area. However, it is possible that one of the five undated enclosures may also be early medieval in date. The ringfort is basically a circular or roughly circular area enclosed by an earthen bank formed of material thrown up from

concentric fosse (ditch) on its outside. Generally, the diameter of the enclosure is between 25 m and 50 m. A single bank and fosse (univallate) is the most usual form; double rings (bivallate) or triple rings (trivallate) are rarer. The number of rings of defence are thought to reflect on the status of the site, rather than the strengthening of its defences (Power 1992, 131). Cashels are the stone version of the earthen ringforts and are enclosed by a drystone wall (Edwards 2004, 14). There are five recorded cashels in the Study Area.

Archaeological excavation has shown that the majority of ringforts were enclosed farmsteads, built in the early medieval period. Though not forts in the military sense, the earthworks acted as a defence against natural predators like wolves, as well as human predators. Local warfare and cattle raiding were commonplace at this time. The construction of so many throughout the country, in a relatively short period (400–500 years), reflects on the stability and wealth of society at the time, and also its homogeneity. As well as farming-related activities like corn-grinding and animal husbandry, the ringfort was home to a wide variety of craft industries, including spinning, weaving, metal- and glass-working. (Power 1992, 131). Dwellings and outhouses were built on timber posts, with walls of wattle, mud or sods, which usually leave no trace above ground today. Excavation can trace the remains of these structures by revealing features like post-holes, stake-holes and sunken hearths. The favoured locations for ringforts are on the shoulder of ridges or at breaks of slopes. This is reflected in the excavation of one of the ringforts, CH036, within the Study Area under licence no. E004024 (CH042). This excavation revealed internal features including a house structure, an animal pen, a rough cobbled surface, a metalled surface, one large pit, two small pits and a small group of post-holes (Bartlett 2010). Many of the ringforts have level interiors created by scarping-up on the downslope and cutting into the upslope. The enclosing element can change dramatically from a downslope scarped edge to a well-defined bank and fosse on the upslope. Thus sited, they are often overlooked close-in on one side but otherwise command an extensive view (Power 1992, 131).

Other early medieval activity is indicated by two souterrain, CH011 and CH028, located within the Study Area. Souterrains are often found in association with ringforts but can be found in apparent isolation. In case of CH028, the souterrain is located within the ringfort (CH027) while CH011 is situated c. 20 m south of an enclosure (CH010). The term souterrain is antiquarian in origin and comes from the French sous (tr. under) terre (tr. ground) (Power and Lane *et al.* 2000, 367). According to O'Sullivan and Downey (2004), souterrains are artificially made underground structures comprising one or more chambers linked by tunnels called creepways, with a concealed entrance/s. Souterrains vary in complexity, with some simple in design, and others more complex, with two or more interlinked chambers (O'Sullivan and Downey 2004). A common myth surrounding souterrains is that they are tunnels linking one place with another, but all recorded souterrains so far have been self-contained, usually with a single entrance. By their nature, souterrains can go undetected for long periods and are often discovered dramatically when ground collapses during silage cutting, ploughing, and quarrying (Power and Lane *et al.* 2000, 367). Two functions have been suggested for souterrains. The first is a place of refuge in times of danger. The second is as a storage cellar where dairy and other food products were stored at cool temperatures (O'Sullivan and Downey 2004).

Later medieval activity is suggested by an unclassified castle (CH019) located in the townland of Moanbaun.

13.3.4.3 Post-Medieval (AD 1540–1700) & Early Modern Period (AD 1700–1850)

Located within the Study Area is Castlelambert (CH006), situated c. 968 m north-west of the proposed project site. This residence was built by the Lamberts in the 18th century when they acquired their estate in 1756 from the Blakes of Corbally in a settlement of debt. The estate had originally been known as the Aghrim or Moor estate (University of Galway 2025). In 1837, Castlelambert is recorded by Samuel Lewis (1837) as the principal residence of W. Lambert. During the 19th century, the Lamberts held an estate held of over 5,000 acres, mainly in the parish of Athenry, barony of Clare, Co. Galway. This family were a junior branch of the Lamberts Creg Clare (University of Galway 2025).

In 1855, the Lambert estate was offered for sale in the Encumbered Estate Court, and included lands in the baronies of Clare, Leitrim and Athenry. At this time, the Trousdells of Kilrush, county Clare, bought an interest in the estate. A connection between the families had been established through the marriage of Thomas Lambert to Sarah Trousdell in 1850. The estate was sold again in 1892 when Frank Shawe Taylor of Castle Taylor bought over 1,200 acres including two houses, Castle Lambert and Moor Park. In the 1870s, Captain Thomas Lambert owned 2621 acres in county Galway and 989 acres in county Mayo (University of Galway 2025).

Insight into the Proposed Project site in the mid-19th century is provided by the Griffith Valuation (1856). This records that the Proposed Project site was held by Jonathan Corbishley (Griffith 1856, 13). The term 'in fee' means that lands held were freehold tenures, derived from a grant from the Crown.

13.3.5 Toponomy of Townland/s

The Irish landscape is divided into approximately 60,000 townlands and the system of landholding is unique in Western Europe for its scale and antiquity. Many townlands predate the arrival of the Anglo Normans, and Irish historical documents consistently use townland names throughout the historic period to describe areas and locate events accurately in their geographical context. The townland names and boundaries were standardised in the nineteenth century when the Ordnance Survey began to produce large-scale maps of the country. The original Irish names were eventually anglicised to varying degrees, depending in part upon the linguistic skills of the surveyors and recorders. A study of the townland names can provide information on aspects of cultural heritage including descriptions of the use of the landscape by man and the potential presence of archaeological or cultural heritage sites or features.

There are 14 no. townlands within the Proposed Project study area (Section 13.1.1; Table 13-14).

Table 13-14 – Townland place name evidence after Irish placenames committee within in the Study Area

English Name	Irish Name	Glossary
Ballygarraun North	*Baile an Gharráin Thuaidh*	*Baile transl. townland, town, homestead* *Garrán transl, grove*
Ballygarraun South	Baile an Gharráin Theas	Baile transl. townland, town, homestead Garrán transl, grove
Ballygarraun West	Baile an Gharráin Thiar	Baile transl. townland, town, homestead Garrán transl, grove
Barrettspark	*Páirc an Bhairéadaigh*	*Páirc* trans. field
Caherbriskaun	*Cathair Bhrioscáin*	n/a
Caraunduff	*An Cárán Dubh*	*Dubh* transl. Black
Cashla	*Caisle*	n/a
Castlelambert	*Caisleán Lampart*	*Caisleán* transl. Castle
Knocknacreeva	*Cnoc na Craoibhe*	*Cnoc* transl. Hill *Craobh* transl. Tree, branch
Lisheenkyle East	*Lisín Coill Thoir*	*Coll* transl. hazel *Lisín* transl. small ring-fort
Moanbaun	*An Mhóin Bhán*	*Bán* transl. white; lea-ground, grassy *Móin*, mónaidh transl. bogland

Pollnagroagh	*Poll na gCruach*	*Poll* transl. hole, pool, (tidal-)stream? *Cruach*, cruachán transl. stack, peak
Rathmorrissy	*Ráth Mhuirisín*	Ráth, transl ring-fort
Toberroe (Athenry By.)	An Tobar Rua	Rua transl. red; red place Tobar transl. well

13.3.6 Intangible Heritage/ Irish Folklore Commission

Cultural Heritage is a broad term that includes Archaeological Heritage, Built Heritage, Portable Heritage, and other resources inherited from the past by contemporary society. It consists of the tangible and intangible traces of the interactions between people and places, people and nature and people and objects through time (TII 2024, 14). Folklore and local tradition are examples of intangible interactions between people and places where they live. In Ireland, work was done by the Irish Folklore Commission, and its successors, to collect and preserve Irish folklore. The Schools' Collection, for example, collected folklore and local traditions from pupils of 5,000 primary schools. The children collected this material from family members and neighbours (National Folklore Collection 2023) (Dúchas 2025).

Two schools within the vicinity of the Study Area took part in the school's collection. These are An Clochar in Athenry, and Carnaun school (see Ní Bhriain 1937, Ó Riagáin 1937). These collections contain local traditions, folklore and history of the locality. In addition, they also contain entries about monuments within landscape such as holy wells, castles and churches. However, there are no entries relating to monuments located within the Study Area. Despite this, the fact that other monuments are included indicate their importance within the landscape. They also preserve how people in the landscape would have interacted with them, including those who lived within the Study Area.

For example, one entry from *An Clochar* describes a holy well, known as Our Lady's Well, outside of Athenry (Ní Bhriain 1937, 76). This site could be the recorded holy well (GA084-022001) in the townland of Baunmore. The entry details the round and rituals which took place at the holy well during the pilgrimage which took place on the 15th of August. It says that the custom for people is to make 15 no. stations in honour of Our Lady. Each participant also collects 15 no. small stones and when they have completed a station, they drop one (Ní Bhriain 1937, 76). The entry is important that it provides an insight into rituals that may have formed part of the lived experienced of those lived within the Study Area.

13.3.7 Recent Excavations

The Excavations Bulletin is an annual account of all excavations carried out under license. The database is available online at www.excavations.ie and includes excavations from 1970 to 2024. This database was consulted as part of the desktop research for this report to establish if any archaeological investigations had been carried out within the Study Area. The database produced eight results for archaeological excavations (Appendix 13-6, Volume 3 of the EIAR) undertaken within the Study Area. Six of the results did not produce anything of archaeological significance (see Figure 13-10). One of these excavations (CH038) related to CH058, which is vernacular structures depicted on the 6-inch OS map. This test excavation found no evidence of the pre-famine structures or the associated field system.

Two of the eight results did produce evidence of archaeological activity. The first result was the excavation under licence No. A024/1.15 which was undertaken in advance of the N6 Galway–Ballinasloe Road scheme in 2005 (CH043). This revealed an inhumation, within a sub-rectangular grave, which was subsequently excavated (Lehane and Moore 2005). The second result was the partial excavation of a recorded ringfort (CH036) under licence no. E004024 (CH042). This site is located *c*. 100 m west of the proposed project site and was undertaken in 2010 in advance of the M17 Galway (Rathmorrissy) to Tuam Road scheme. The ringfort comprised the main

enclosing elements including the ditch, bank and entrance. The extent of ringfort within the Compulsory Purchase Order (CPO) was excavated revealing internal features including a house structure, an animal pen, a rough cobbled surface, a metalled surface, one large pit, two small pits and a small group of post-holes. Three inhumations were also found within shallow grave-cuts which abutted the interior face of the eastern section of the bank (Bartlett 2010). In addition, a geophysical survey was conducted on the extent of the ringfort located outside the CPO. This identified the full extent of the ditch of the ringfort, together with a number of anomalies, one of which corresponded to the location of a pit feature partially excavated within the CPO (Bartlett 2010).

The Proposed Project site was the subject of a preceding test excavation by Rubicon Archaeology Ltd. under Licence No. 25E0549 (CH070). A total of 25 no. test trenches were excavated at the site of the proposed Peaker Plant with a further 4 no. trenches excavated along the line of the proposed access route (see Figure 13-11). The test excavation targeted the anomalies identified by Dowling (2025), and the results of the test excavation are summarised in Table 13-15.

The test excavation found that none of the anomalies were of archaeological significance. The anomalies identified by Dowling (2025) corresponded to features associated with land clearance. This included areas of burning (CH052–CH054) and dumps of material such as field clearance stone (CH047–CH049, CH051, CH055). One anomaly, CH050 corresponded to the natural limestone bedrock (Moore 2025, 16–26). The 'plough trends; recorded by the geophysical survey were found to be the orientation of the underlying limestone bedrock, belonging to the Burren formation (Moore 2025, 26). The test excavation did not find any additional features of archaeological significance.

Table 13-15 - Summary of test excavation results of the geophysical anomalies.

CH ID	ID No.	Anomaly Description	Test excavation results
CH047	Anomaly 1	Possible pits/deposits	Anomaly 1 was identified by the test excavation to be a dump of stones, boulders and vegetation material (Moore 2025, 20).
CH048	Anomaly 2	Possible spread burnt/fired material	The test excavation showed that Anomaly 2 comprised a dump of modern field clearance, burnt deposits and vegetation material (Moore 2025, 18).
CH049	Anomaly 3	Possible spread burnt/fired material	The test excavation revealed that Anomaly 3 consisted of modern burnt debris and dumps of vegetation material (Moore 2025, 18).
CH050	Anomaly 4	Possible spread burnt/fired material	Anomaly No. 4 was found by the test excavation to be natural limestone bedrock (Moore 2025, 18).
CH051	Anomaly.5	Possible spread burnt/fired material	The test excavation showed the Anomaly 5 corresponded to a dump of field clearance stones and boulders (Moore 2025, 19).
CH052	Anomaly 6	Possible spread burnt/fired material	Anomaly 6 was revealed by the test excavation to be an area of burning associated with land clearance (Moore 2025, 21).
CH053	Anomaly 7	Potential pit/deposit	The test excavation revealed that Anomaly 7 corresponds to the remains of burning associated with land clearance (Moore 2025, 21).
CH054	AAP01	Possible pits/deposits	The test excavation found that these pits/deposits were areas of burning associated

CH ID	ID No.	Anomaly Description	Test excavation results
			with land clearance and bedrock (Moore 2025).
CH055	AAP02	Imported material	The test excavation found evidence of a dump of field clearance stones and boulders. This not of archaeological significance (Moore 2025, 17).

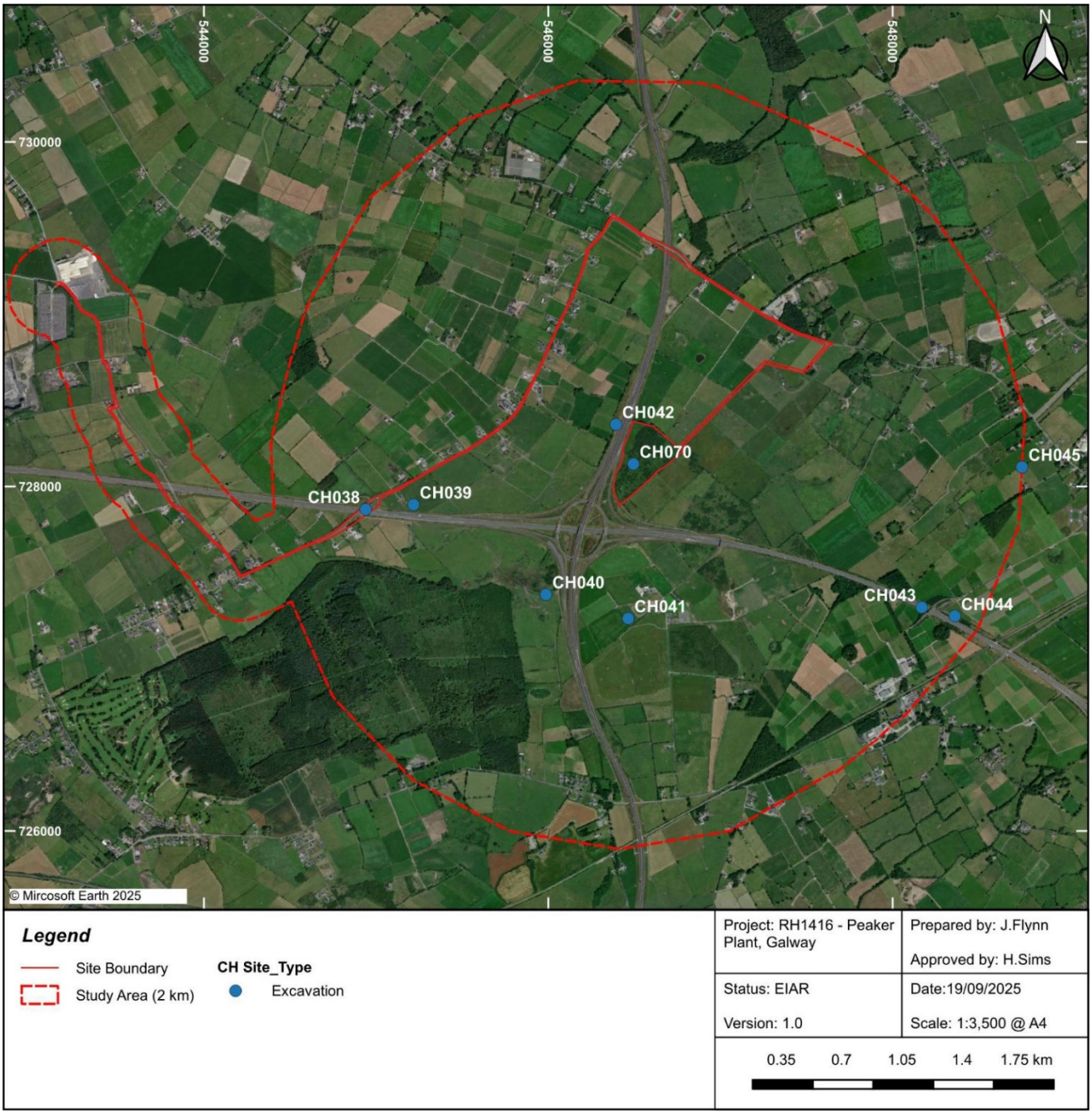


Figure 13-10 - Recent excavations within the proposed Study Area

Figure 13-11 - Proposed Project site with the test trench locations

13.3.8 Topography and Soils

According to the Teagasc Soil Information System (http://gis.teagasc.ie/soils/index.php), the main soil association to the north is Ballincurra, which is a fine loamy drift over limestone bedrock, which is the underlying geology. The main soil groups are deep, well drained grey-brown podzols and brown earths.

To the south, the main soils are renzinas and lithosols, which are shallow and well drained soils. The limestone bedrock is also close to the surface within this area (Teagasc *et al.* 2021).

13.4 Potential effect of the Proposed Project

13.4.1 Baseline Environment Summary

This archaeological assessment has identified 70 no. sites of archaeological, and/or cultural heritage significance within the Study Areas (Table 13-16).

Table 13-16 - Summary of Baseline Environment

Site Type	Summary
RMPs SMRs National Monuments Sites with Preservation Orders Sites listed in the Register of Historic Monuments	There are 28 no. RMPs and 8 no. SMRs located within the Study Area. None of the RMPs are located within the redline boundary for the Proposed Project site.
Protected Structures	There is a single Protected Structure (CH037), which is also a NIAH registration, located within the Study Area. This site is located outside the Proposed Project site, c. 1.9 km to the south-east.
Architectural Conservation Areas (ACAs)	There are no ACAs incorporated by the Study Area. The closest ACA is Athenry Town Centre located c.2.5 km east.
Sites Listed in the NIAH	There is single site (CH037) from the NIAH register, which is also a Protected Structure located within the Study Area. This site is located outside the Proposed Project site, c. 1.9 km to the south-east.
Unregistered Cultural Heritage Sites	14 no. UCH sites were identified from early cartographic sources CH046, CH057–CH069).
Areas/features of archaeological potential	9 no. areas/features of archaeological potential (CH047–CH055) were identified by geophysical survey. A single additional area of archaeological potential (CH056) relating to natural features.
Previous Archaeological excavation	There were 9 no. previous excavations (CH038–CH045) found within the Study Area. The Proposed Project was the subject of a preceding test excavation (CH070).

13.4.2 'Do Nothing' Scenario

If the Proposed Project were not to proceed, there would be no change to the existing environment. The 'Do Nothing' scenario will have no effect on archaeological, architectural or cultural heritage. There are currently no threats to the cultural heritage receptors identified, and maintaining the present environment would have no impact on this situation.

13.4.3 Potential Effects on Cultural Heritage During Construction Phase

Most effects during construction phase are likely to be direct effects as a result of sub-surface disturbance or construction works. Direct effect refers to a 'physical impact' on a monument or site. The construction phase of the project will involve subsurface groundworks, which can have a potential negative effect if unknown subsurface archaeology is present.

13.4.3.1 Proposed Peaker Plant

There were ten areas of archaeological potential, CH047–CH056, identified within the boundary of the proposed Peaker Plant. This includes a single area of archaeological potential, CH056, based on natural features, and the nine areas/features of archaeological potential, CH047–CH055, identified by geophysical survey (Section 13.3.3.5).

Concerns regarding potential direct, negative effects on the archaeology during construction phase were addressed by the preceding test excavation (CH070) by Rubicon Archaeology Limited (Section 13.3.7). The test excavation did not find anything of archaeological significance within the footprint of the proposed Peaker Plant. It also showed that none of the nine areas/features of archaeological potential, CH047–CH055, were of archaeological significance. Instead, they corresponded to features associated with land clearance (CH047–CH049, CH051–CH055) and natural limestone bedrock (CH050). In addition, the test excavation did not find any additional features of archaeological significance.

As archaeological concerns have been resolved, no further mitigations are required.

13.4.3.2 Proposed Gas Infrastructure

The proposed Gas infrastructure includes the Rathmorrisey above ground installation, which will be connected to the existing Mayo-Galway pipeline by an underground connection (GNI146 Rathmorrissy Gas Pipeline). The location of the proposed Rathmorrissy AGI was the subject of the preceding test excavation, which found nothing of archaeological significance. As archaeological concerns have been resolved, no further mitigations are required.

The proposed GNI46 Rathmorrissey Gas pipeline will have no direct effect on any CH sites, and no further mitigations are required.

13.4.3.3 Proposed Grid Connection Infrastructure

The proposed 220 kV underground cable will transport electricity from the proposed onsite 220 kV substation connecting the Peaker Plant to the existing 220 kV Cashla substation. The location of the on-site proposed substation was the subject of the preceding test excavation, which found nothing of archaeological significance. As a result, no further mitigations are required.

The proposed 220 kV Grid Connection will use horizontal directional drilling (HDD) section to cross the M6 motorway in two separate locations and the M17 motorway in one location. There will be no effect from the vibration of HDD on the known CH sites within the vicinity due to the distance. The closest sites to the crossing under M17 motorway are CH005 (Enclosure) and CH021 (Barrow - ring-barrow), which are located over c.228 m and c.290 m respectively from the proposed project. The closest site to the crossing under M6 in

Caherbriskaun is CH035 (Ringfort – cashel), which is located c. 171 m north-west. This is also the closest site to the second crossing under the M6 in Lisheenkyle East, although it is located c. 1. 8 km east.

The proposed UGC will have a direct effect on CH059, which is a vernacular structure identified from the cartographic record. The groundworks required for the proposed HDD exit pit under the M6 have direct, physical effect on the potential subsurface remains of the vernacular structure. There is the potential for unknown subsurface archaeology to be directly and physically effected. The proposed UGC also crosses the location of other vernacular structures (CH058). However, this area was resolved by a previous excavation (CH038) which found no evidence of the pre-famine structures or the associated field system.

The proposed 220 kV Grid Connection crosses the statutory Zone of Notification for two RMPs, a castle (CH019) and an earthwork (CH020) located adjacent to the north. The Proposed Project will have indirect effects on the two monuments by directly effecting potential unknown subsurface archaeology located within the Zone. However, this effect is reduced by the location of the L3103 within which the works will take place.

13.4.3.4 Proposed Access Route

As part of the preceding test excavation (CH070), four trenches were excavated along the line of the proposed access route (see Figure 13-12), which did not find anything of archaeological significance.

The proposed new site entrance and access road to the Peaker Plant will have a potential, direct effect on CH057, which is a collection of vernacular structures depicted on the 6-inch OS map. This section of the greenfield was not subject to the preceding test excavation, and there is the potential for the unknown subsurface remains of the structure. The Proposed Project will have a potential, permanent, direct effect on the unknown subsurface remains.

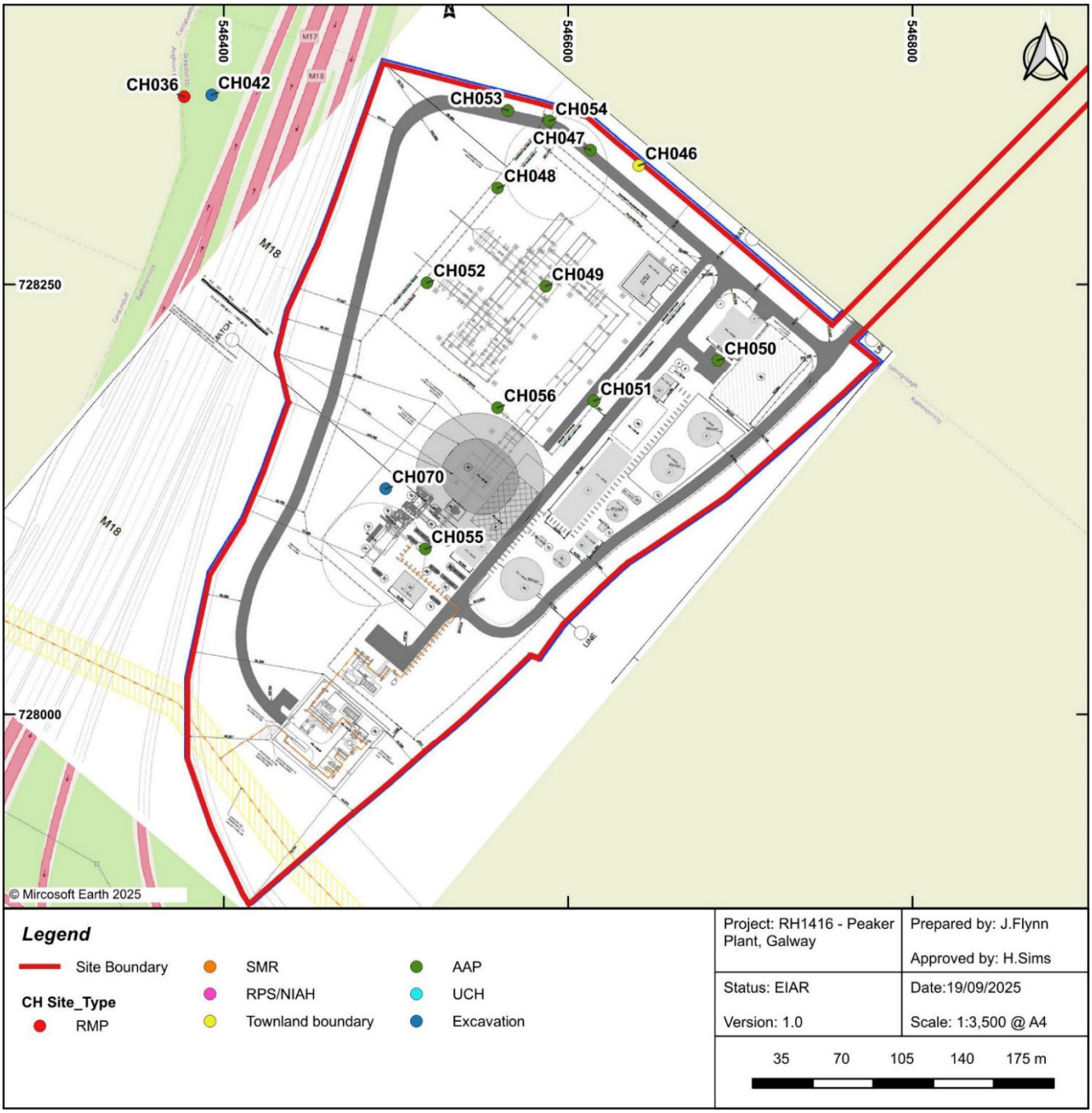


Figure 13-12 - Cultural heritage sites with the proposed Peaker Plant

13.4.4 Potential Effects on Cultural Heritage During Operational Phase

13.4.4.1 Proposed Peaker Plant

Operational activities includes the maintenance and repair of the proposed Peaker Plant infrastructure. Most effects occur during the construction phase of a project, and subject to the implementation of the appropriate archaeological mitigation measures during this phase, no direct effects are predicted during the routine operation of the plant and no further mitigation measures are required.

Potential indirect effects at the operation stage would largely occur as a result of effects on the setting of site (notably visual effects) and on the integrity and character.

A landscape and visual impact assessment of the proposed Peaker Plant is described in Chapter 6 Landscape & Visual Impact of this EIAR, which outlines which recorded monuments the proposed Peaker Plant is visible from. It does not include townland boundaries as they are not visual amenities. However, the Proposed Project will have an indirect effect on the setting of the townland boundary, CH046. Given that townland boundaries are so ubiquitous in the Irish countryside, and that they have been incorporated into the modern agricultural landscape they are subject to frequent changes in their surroundings. As the townland boundaries will remain unchanged, the effect is considered negligible, and no mitigations are required.

13.4.4.2 Proposed Gas Infrastructure

Operational activities includes routine maintenance and repair of the proposed AGI and the proposed gas pipeline. Most effects occur during the construction phase of a development, and subject to the implementation of the appropriate archaeological mitigation measures during this phase, no direct effects are predicted during the routine operation of the plant and no further mitigation measures are required.

13.4.4.3 Proposed 220 kV Grid Connection

Operational activities including routine maintenance and repair of underground cables arises in situations where there is an incident on the line or a need to undertake a cable patrol. In such incidents, work is likely to be carried out as much as possible within the cable joint bay (EirGrid 2015, 44). Much of the direct effects of the proposed underground cable would have been identified during the construction phase and appropriate archaeological mitigation measures put in place to resolve the impact on the cultural heritage sites. As a result, no further mitigation measures are required for this stage

13.4.4.4 Proposed Access Route

Most effects occur during the construction phase of a project, and subject to the implementation of the appropriate archaeological mitigation measures during this phase, no direct effects are predicted during the routine operation of the access route and no further mitigation measures are required. The summary of impacts and impact magnitude mitigation measures are provided in Table 13-17.

Table 13-17 - Summary of impacts and impact magnitude before mitigation measures

CH No.	Category	Summary	Baseline Value	Effect Type	Description of Effect	Effect magnitude	Significance of effect
CH019–CH020	RMPs x 2	RMPs located *c*.47 m north of the proposed 220 kV grid connection whose ZON is crossed.	Very High	Indirect	The proposed project will have indirect effect on the two monuments by directly effecting potential unknown subsurface archaeology located within the Zone. However, this effect is reduced by the location of the L3103.	Moderate	Moderate
CH046	Townland Boundary	Rathmorrissy/ Pollnagroagh	Medium/High	Indirect	The townland boundaries will remain unchanged, and as a result, the effect is considered negligible, and no mitigations are required	Negligible	Negligible
CH057	UCH	Vernacular structure	Low	Direct	The groundworks required for the proposed site entrance and access route will have direct, physical effect on the potential subsurface remains of the vernacular structure	Significant	Slight
CH059	UCH	Vernacular structure	Medium/ Low	Direct	The groundworks required for the proposed HDD exist pit under the M6 have direct, physical effect on the potential subsurface remains of the vernacular structure	Significant	Slight

13.4.5 Decommissioning Phase

13.4.5.1 Proposed Peaker Plant

It is proposed that the Peaker Plant will operate until 31 December 2050. Given that archaeological concerns for the proposed Peaker Plant have been resolved at the preconstruction stage, no mitigation measures are required for archaeological, architectural and cultural heritage during the decommissioning phase of the Proposed Project. At the end of its life, the plant will be decommissioned, and the site remediated and restored in line with any requirements of the planning permission and IE licences, unless otherwise authorised.

13.4.5.2 Proposed Gas infrastructure

The AGI is owned and operated by Gas Networks Ireland who would be responsible for the future intentions of this facility if the Cashla Plant were decommissioned. The lifespan of the Proposed Project is not defined but it is anticipated that it will be maintained, and periodic upgrading undertaken over a long lifetime to meet future demand and upgrades in technology.

Given that archaeological concerns for the proposed Peaker Plant have been resolved at the preconstruction stage, no mitigation measures are required for archaeological, architectural and cultural heritage during the decommissioning phase of the Proposed Project. At the end of its life, the plant will be decommissioned, and the site remediated and restored in line with any requirements of the planning permission and Industrial Emissions (IE) licences, unless otherwise authorised.

13.4.5.3 Proposed Access Route

Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the project, no mitigation measures are required for archaeological, architectural and cultural heritage during the decommissioning phase of the Proposed Project.

13.4.5.4 Proposed 220 kV Grid Connection

Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the project, no mitigation measures are required for archaeological, architectural and cultural heritage during the decommissioning phase of the Proposed Project.

13.4.6 Landscape and Visual Impact

The proposed project has been subjected to a separate and comprehensive Landscape and Visual Impact Assessment. This section addresses the potential visual impact to Archaeological, Architectural and Cultural Heritage only. A map showing the visual buffer Zone of Theoretical Visibility (ZTV) was produced by Eamonn Byrne Landscape Architects Ltd, and the cultural heritages were overlaid in order to assess the visual effect. The ZTV mapping included the screening effect of buildings and vegetation in the study area. The map assesses the elements of the Proposed Project which would be theoretical visible (see Figure 13-13). This is divided into three buffers:

- Blue: where lower, middle and upper elements are visible
- Green: where middle and upper elements are visible
- Red: where only upper elements are visible

As outlined in Section 13.3, there are 28 RMPs, eight SMRs which include three redundant records (CH017–CH018, CH032), which can be excluded. It also includes a single Protected Structure/NIAH registration, eight

excavations, ten AAPs and a single townland boundary. The excavations and AAPs are not visual amenities and are thus not considered here. Additionally, although townland boundaries form part of the cultural landscape of the area, these are not currently considered amenities and are not taken into consideration

There were 20 sites which were found not to fall within any of the buffers of the ZTV mapping (see Table 13-18). This includes 18 RMPs/SMRs including the castle, CH019, located c. 853 m north of the proposed Peaker Plant. The single Protected Structure, Athenry Agricultural College (CH037), also falls outside any of the ZTV buffers. This suggests that none of the elements of the proposed project will be visible from these sites, and therefore will not be visually effected.

In addition, the Athenry Town Centre ACA, which is located c.2.5 km, also does not fall within any ZTV buffers. The RMP zone of notification for the town overlaps with the ZTV for the upper storeys of the plant by c. 0.269 ha, however, as detailed above, in this area the zone of notification for the town would appear to be amalgamated with those for two other records. This indicates that the proposed project will not be visible from the historic town centre. As a result, the proposed project will have no visual effect on the view or setting of the historic town centre.

There were 11 sites which were found to fall within the blue buffer indicating that the lower, middle and upper elements will be visible from these sites (see Table 13-18). The closest site is the ringfort, (CH036), which is an RMP, located c.100 m west of the Peaker Plant. This site is located on the western side of the M17 and is not accessible to the public. In addition, this site was partially excavated in 2010 under licence no. E004024 (CH042) in advance of the construction of the M17 Galway (Rathmorrissy) to Tuam road scheme. There are no visible surface remains of the remainder of the ringfort, which was identified using geophysical survey. As a result, while the proposed Peaker Plant will have a visually effect on the setting of the ringfort, screening is not suggested as it will be of little benefit.

The second closest site is CH007, which is a poorly preserved ringfort situated c. 374 m west. This ringfort faces east towards the proposed Peaker Plant, and its views will be visually effected by the proposed project. However, it is located within private land, and is not a visual amenity accessible to the public. Screening as a mitigation is not suggested as it will be of little benefit.

The other ten sites are also located on private land, are not accessible to the public and are not considered visual amenities. In addition, three sites (CH003–CH005) located c. 1 km from the proposed Peaker Plant have no extant remains. Those with upstanding remains are also located c. 800 m to 1 km from the proposed Peaker Plant. Therefore, while the proposed Peaker Plant will have a visual effect on these sites, screening is not suggested as it will be of little benefit.

There were three sites identified to fall within the green buffer meaning that the middle and upper elements will be visible from these sites (see Table 13-18). These three sites are located over 1 km from the proposed Peaker Plant within private land. Therefore, while the proposed Peaker Plant will have a visual effect on these sites, screening is not suggested as it will be of little benefit.

The underground nature of the proposed UGC means that it will have no visual effect on any CH site during the operational stage.

Table 13-18 Summary of Cultural Heritage Sites within visual buffers.

Buffer	RMPs/SMRs	RPS/NIAH	ACA
Blue	CH003, CH004, CH005, CH006 CH007, CH010, CH011, CH014 CH021, CH023, CH036		

Green	CH009, CH026, CH035		
Orange			
None	CH001–CH002, CH008 CH012, CH013, CH015, CH016, CH019 CH020, CH024, CH025, CH027 CH028, CH029, CH030, CH031 CH033, CH034	CH037	Athenry Town Centre

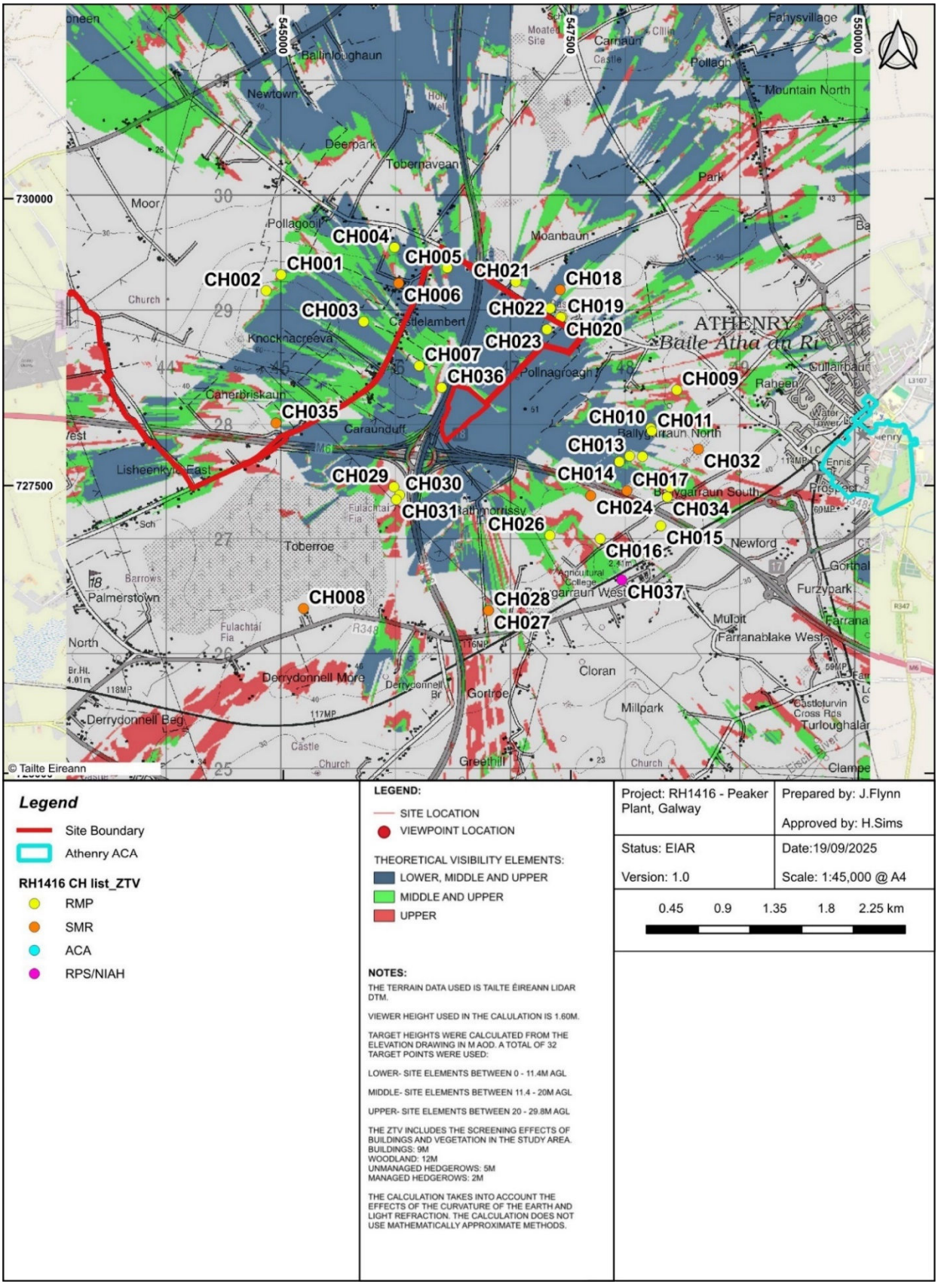


Figure 13-13 - Relevant Cultural Heritage sites and Athenry ACA with the ZTV mapping

13.5 Mitigation Measures

The following mitigation measures proposed are subject to approval by the National Monuments Service and the local planning authority.

The current state policy is that preservation *in situ* of archaeological material is the preferred option. Where this cannot be achieved then appropriate measures need to be adopted to ameliorate the impacts that the proposed development may have on features of archaeological, architectural and/or cultural heritage within the study area during both the construction and operational phases of the works.

The below recommendations have been compiled with reference to the Framework and Principles for the Protection of the Archaeological Heritage (1999) as well as the following:

- Environmental Protection Agency (2003) Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements)
- Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR)
- Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) (1999) Frameworks and Principles for the Protection of the Archaeological Heritage
- Department of the Environment, Heritage and Local Government (2011) Architectural Heritage Protection Guidelines for Planning Authorities

The following mitigation measures are recommended:

1. A suitably qualified licence-eligible archaeologist under license from the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor:
    a. Any sub-surface groundworks undertaken in proximity to known RMPs. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the licenced archaeologist prior to the commencement of works in the vicinity of the recorded monument.
    b. Areas targeting CH059 where the groundworks for proposed HDD exit pit under the M6 will take place.
    c. The footprint of the proposed grid connection cable route in areas not previously disturbed by services, road or other modern construction
    d. Should any archaeological material be encountered, works will cease, and the County Archaeologist and National Monuments Service shall be notified. A strategy will be proposed to the County Archaeologist and National Monuments Service to suitably record any archaeological material identified, and preserve any archaeological material *in situ*, where possible. Where preservation *in situ* cannot be achieved, either in whole or in part, then a programme of archaeological excavation will be proposed, to ensure the preservation by record of the area of the project that will be directly impacted upon. Further work will then only be carried out following consultations with the County Archaeologist and the National Monuments Service.
2. Direct drilling should not take place in the vicinity of recorded monuments, and all excavations in these areas should comprise open cut trenching. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the licenced archaeologist prior to the commencement of works in the vicinity of the recorded monument.
3. The resulting archaeological report will be submitted to the County Archaeologist and to the National Monuments Service Section of the Department of Housing, Local Government and Heritage.

13.6 Residual Effects

The proposed Peaker Plant and access route were the subject of a preceding test excavation which confirmed that the geophysical anomalies identified by Dowling (2025) were not archaeological in nature. It also did not identify any further archaeological features/deposits within the project area. Therefore, as no direct effects are predicted, there are no residual effects for this part of the proposed development.

The proposed access route will have a direct, physical effect on the unknown subsurface remains of CH057 while the proposed UGC will have a direct, physical effect on the unknown subsurface remains of CH059. The proposed UGC will also have an indirect effect on CH019 and CH020 by directly and physically effecting unknown subsurface archaeology related to the monuments. However, given the sub-surface nature of potential archaeology, the potential to excavate this site through the construction phase will provide data to the archaeological community from the potential subsurface sites. The potential to gain knowledge outweighs the negative impact.

Furthermore, the implementation of mitigation measures for the proposed grid connection will ensure that the residual effect is slight and/or moderate, as well as slight and/or negligible.

Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the project, no significant residual impacts on archaeological, architectural and cultural heritage are predicted.

Table 13-19 - Summary of Impacts and Impact Magnitude after Mitigation

CH. No	Phase	Effect Type	Mitigation Measures	Magnitude of Effect after implementation of mitigation measures	Significance of Effect after implementation of mitigation measures
CH019–CH020	Construction	Direct	• A suitably qualified licence eligible archaeologist under license from the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor any sub-surface groundworks undertaken in proximity to RMPs. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the consultant archaeologist prior to the commencement of works in the vicinity of the recorded monument. • Direct drilling should not take place in the vicinity of recorded monuments, and all excavations in these areas should comprise open cut trenching. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the licenced archaeologist prior to the commencement of works in the vicinity of the recorded monument.	Slight	Slight
CH057	Construction	Direct	A suitably qualified licence eligible archaeologist under license from the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor Areas targeting CH059 where the groundworks for proposed HDD exit pit under the M6 will take place.	Moderate	Negligible
CH059	Construction	Direct	A suitably qualified licence eligible archaeologist under license from the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor Areas targeting CH059 where the groundworks for proposed HDD exit pit under the M6 will take place.	Moderate	Negligible

13.7 Monitoring Requirements

The mitigation measures outlined in Section 13.5 are recommended monitoring measures.

14. Material Assets and Built Services

14.1 Introduction

The EPA '*Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)*' (2022)[94] state the following topics warrant consideration under material assets:

- Built Services;
- Waste Management, and,
- Roads and Traffic.

Material assets serving the Proposed Project are examined, specifically in relation to existing and proposed built services (i.e. foul sewerage, surface water drainage, water supply, gas, electricity, and telecommunications utilities), and waste management. Roads and Traffic have been assessed separately in Chapter 10 Traffic and Transportation of this EIAR and are not assessed here.

14.2 Study Assessment and Methodology

The EPA '*Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)*' (2022) was used for this assessment.

14.2.1 Methodology

The methodology for the Material Assets assessment includes:

- Identifying the receiving environment to determine the baseline conditions of the site and its environs;
- Undertaking an impact assessment to determine potential impacts during construction, demolition, operation and decommissioning phases of the project;
- Identifying and assessing appropriate mitigation measures;
- Assessing the cumulative impacts and;
- Assessing any residual effects.

14.2.2 Built Services

Information on built services for the Proposed Project was collated from:

- ESB Networks utility plans;
- eir telecommunications plans;
- Gas Networks Ireland (GNI) utility plans;
- TLI Group site layout drawings; and
- Available utility information and maps received from Uisce Éireann and Galway County Council (GCC).

[94] Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)

This information was supplemented by observations recorded during various site walkover surveys, and pre-application consultation with Uisce Éireann and GCC. Surface water runoff, foul drainage discharge and water supply requirements have also been designed with due regard to the following guidelines:

- CIRIA report C753 'The SuDS Manual – v6
- Greater Dublin Strategic Drainage Study (GDSDS)
- Uisce Éireann Code of Practises and Technical Standards (IW-CDS-5030-01 to 04 & IW-TEC-800)
- Uisce Éireann Pre-Connection Enquiry Application (Onsite wastewater disposal)
- Uisce Éireann Statement of Design Acceptance; and,
- Uisce Éireann Confirmation of Feasibility.

14.2.3 Waste Management

This section of the EIAR has been prepared in accordance with the EPA 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (2022), and 'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects' (EPA 2021).

The findings of the Construction Resource and Waste Management Plan (RWMP; AtkinsRéalis, 2025) (Document no.: 0114485DG0028) prepared as part of this planning application have been incorporated into this assessment where relevant. A copy of the RWMP is presented in Appendix 2-5, Volume 3 of the EIAR. The RWMP was prepared with due regard to the following relevant documents:

- 'Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects' (EPA, 2021)
- 'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (EPA, 2018)
- 'A review of Design and Construction Waste Management Practices on Selected Case Studies – Lessons Learned' (EPA, 2015)
- 'Design out Waste: Preparation of Waste Reduction Factsheets for Design Teams' (EPA, 2015)
- 'Development of an Audit Methodology to Generate Construction Waste Projection Indicators for the Irish Construction Industry' (EPA, 2009)
- National Waste Management Plan for a Circular Economy 2024–2030 (NWMP, 2024)
- Galway County Development Plan 2022–2028 (GCC, 2022); and
- Galway County Development Plan 2022–2028 Development and Design Standards (GCC, 2022).

The waste management strategy during the construction phase of the Proposed Project has been developed in accordance with the National Waste Management Plan for a Circular Economy 2024 – 2030 which was published in March 2024 and replaces all Regional Waste Management Plans. The overarching objectives of the NWMP have been incorporated into the latest development plans pertinent to this Site i.e. Galway County Development Plan 2022-2028 (GCC). According to NWMP (2024) the National Waste Management Plan has the following objectives:

- Prevent or minimise the production of waste in the first instance;
- Reduce, re-use and recycle to the maximum extent possible;
- Endeavour to recover energy from waste where possible; and
- Ensure the efficient and safe disposal of any residual waste.

This assessment has also been informed by findings of the Chapter 11 Land, Soils and Geology section of this EIAR.

Additionally, the following relevant best practice guidance documents and Development Plans were consulted:

- Design out Waste: Preparation of Waste Reduction Factsheets for Design Teams' (EPA, 2015);

- EPA National Waste Statistics Summary Report 2020 (EPA 2020);
- Galway County Development Plan 2022–2028 (GCC, 2022); and
- Galway County Development Plan 2022–2028 Development and Design Standards (GCC, 2022).

The Galway County Development Plan (2022–2028) sets out the following objectives with regards to construction and demolition waste management:

'WM 5 - Construction and Environmental Management Plans

Construction Environment Management Plans shall be prepared in advance of the construction of relevant projects and implemented throughout. Such plans shall incorporate relevant mitigation measures which have been integrated into the Plan and any lower tier Environmental Impact Statement or Appropriate Assessment. CEMPs typically provide details of intended construction practice for the Proposed Project, including:

(k) disposal of construction/demolition waste and details of how it is proposed to manage excavated soil, including compliance with 2006 Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects, Department of the Environment, Heritage and Local Government'.

The Development Standards included as Chapter 15 of the Galway County Development Plan (2022–2028) sets out the following policy objectives for Industrial Development:

Waste Management/Storage - Provision shall be made on site in a screened compound for short-term waste and segregation storage pending collection and disposal. There must be adequate provision for storage of segregated waste (bio-waste/dry recyclables/residual waste) pending collection'

14.3 Receiving Environment

The Site is a greenfield site in Pollnagroagh, Athenry is located approximately 18 km east of Galway City and 2 km west of Athenry. The proposed project site, named the is approximately 19.17 hectares and is located within the townlands of Pollnagroagh and Rathmorrissy, Athenry, Co. Galway.

Historic land-use at the Site was greenfield, based on a review of available historic mapping and aerial photography. The GSI bedrock geology 100k map identifies the predominant underlying bedrock of the route as the Burren Formation, which is made up of Pale grey clean skeletal limestone with small portions of Bedrock outcrops in the northern extents of the site. Based on all available evidence, including soil analytical data and findings from the geotechnical investigation (Chapter 11 Land, Soils and Geology), taking account of proposed mitigation measures, soils beneath the Site are not considered to pose an unacceptable risk to human health, building and services, environmental receptors or third-party sites.

Consultation with relevant bodies have been undertaken to determine existing utilities present in the vicinity of the Site. A complete set of all utility / service plans received showing the general vicinity of the Site is included as an appendix to the Civil Planning Engineering Report (AtkinsRéalis, 2025) (Document ref.: PEK3-ATR-ZZ-ZZ-RP-CE 300001) provided in this planning submission. Relevant utility maps have been included in Appendix 14-1, Volume 3 of the EIAR.

All known built services are described below.

14.3.1 Storm Water Drainage

There are no existing storm sewers or culverts on the main project site (i.e. Proposed Peaker Plant). Potential stormwater drainage infrastructure along the proposed HV cable route will be identified at detailed design stage when GPR surveys are carried out.

14.3.2 Foul Water Drainage

There is no existing foul water network on the main project site as shown in the Utility Plan, Drawing Ref: IW-AGG-2023-000 in Appendix 14-1, Volume 3 of the EIAR. There are existing Uisce Éireann assets located within project boundary of the proposed HV cable route from the existing Cashla substation that will require undercrossing. A schedule of crossings have been prepared and submitted to Uisce Éireann. Uisce Éireann infrastructure along the cable route will be confirmed at detailed design stage when Ground Penetrating Radar (GPR) surveys are carried out and any requirements to modify or protect existing foul water network will be shown on detailed design drawing and will be included as part of compliance.

14.3.3 Water Supply & Distribution

The main project site is currently not serviced by a public water supply. There are existing Uisce Éireann assets located within the vicinity of the underground cable route from the existing Cashla substation that will require under crossing. Refer to Appendix 14-1, Volume 3 of the EIAR. A schedule of crossings have been prepared and was submitted to Uisce Éireann. Uisce Éireann infrastructure along the cable route will be confirmed at detailed design stage when GPR surveys are carried out. Any requirements to modify or protect existing foul water network will be shown on detailed design drawing and will be included as part of compliance.

14.3.4 ESB Supply

As presented in Appendix 14-1, Volume 3 of the EIAR, there are no existing underground ESB services and overhead lines within the site boundary of the main project site.

There are existing HV, MV and LV Overhead Lines crossing over ca. 8no. sections of the proposed cable route between ca. 3700 m, 3824 m, 4126 m, 4300 m, 4548 m, 4752 m , 5151 m and 5460 m (Appendix 14-1, Volume 3 of the EIAR). There are several ESB UGC crossings associated with the proposed cable route as shown in Drawing Ref: PEK3-ATK-ZZ-ZZ-DR-CE-902711 (Appendix 2-12, Volume 3 of the EIAR).

14.3.5 Gas Supply

There is a 650 mm diameter high pressure gas transmission main (BGE/85 Mayo to Galway) which runs south to north through the main project site as shown in Drawing Ref: PEK3-ATK-ZZ-ZZ-DR-CE-902711 (Appendix 2-12, Volume 3 of the EIAR). There are existing gas utilities which intersects the proposed HV cable route in the vicinity of Land parcel 1490 (Eircode: H65XR15). The location of the gas line is presented in the Utility Plans and TLI Drawings in Appendix 14-1, Volume 3 of the EIAR and Drawing Ref: PEK3-ATK-ZZ-ZZ-DR-CE-900047 included as Appendix 2-12, Volume 3 of the EIAR.

14.3.6 eir Network

Existing eir ducting is located in the vicinity of the M17 where the proposed HV cable route intersects the road. Existing eir ducting is also located along the route of the proposed HV cable route from the Cashla substation to main Proposed Project site (Appendix 14-1, Volume 3 of the EIAR). Utility maps have been obtained along the route where applicable.

14.3.7 Street Lighting

There is existing street lighting along the M6 in the vicinity of the M18 interchange. There is no lighting along the internal roads which the proposed underground grid connection route follows to the Cashla Substation.

14.3.8 Cashla Substation

The layout of the existing Cashla Substation is shown in Figure 14-1. This substation is described in Chapter 2 Project Description.

Figure 14-1 - Drone image of the existing Cashla Substation. Source: TLI (2026)

14.4 Impact Assessment

14.4.1 Characteristics of the Proposed Project

A detailed description of the Proposed Project is given in Chapter 2 Project Description including the proposed demolition associated with the Proposed Project. The characteristics of the Proposed Project specifically in relation to proposed built services / utilities are described in Section 14.4.1.1. and in relation to waste management in Section 14.4.3.2

14.4.1.1 Built Services

14.4.1.1.1 Surface Water / Storm Water Drainage

As outlined in the Civil Planning Engineering Report (AtkinsRéalis, 2025) (Appendix 2-1, Volume 3 of the EIAR) there are no storm sewers or culverts in the immediate surroundings and as such it is proposed to discharge stormwater generated by the Proposed Project by infiltration to ground.

Stormwater run-off will be collected from carriageways, concrete, and other impermeable surfaces. SuDS have been incorporated into the drainage design in the form of filter drains where allowable to reduce run-off rates and to improve run-off quality.

The SuDS features to be used in the drainage network include filter drains (external to the site), infiltration pond with hydrocarbon interceptor and sealed permeable paving (car parking areas). The storm runoff will be collected through a series of gullies, linear drains and filter drains and will ultimately discharge to the infiltration pond to the north of the site via a class 1 full retention hydrocarbon separator.

As outlined in the Civil Planning Engineering Report (AtkinsRéalis, 2025) (Appendix 2-1, Volume 3 of the EIAR), the pond has been sized for the 100-year storm event + 20% climate change. A section through the pond including levels is included in the drainage drawings. A full set of all proposed drainage design drawings are presented in Appendix 2-12, Volume 3 of the EIAR

The Civil Planning Engineering Report (AtkinsRéalis, 2025) states that the storm drainage network has been designed based on the following design criteria:

For collection and conveyance systems, the following storm events are to be considered with the associated surcharge requirements:

- 1 in 5 year + 20% climate change – No surcharge of the drainage system is allowed
- 1 in 30 year + 20% climate change – No flooding of the drainage system. For Swales this means 150 mm of freeboard should be achieved.
- 1 in 100 year + 20% climate change - Some short-term flooding managed such that it does not enter buildings or disrupt emergency access routes.

14.4.1.1.2 Foul Drainage

As outlined in the Civil Planning Engineering Report (AtkinsRéalis, 2025) (Appendix 2-1, Volume 3 of the EIAR), the onsite foul sewer will be designed and constructed in accordance with Uisce Éireann standards.

It is proposed to install a small foul sewer network which will be partly gravity fed and partly pumped. The pumped section of the sewer will be to lift the effluent from the administration building to the proposed waste water treatment plant (WWTP). The proposed WWTP will be designed and installed in accordance with the current EPA Code of Practice Domestic Waste Water Treatment Systems and will consist of a small package pump station. The rising main is approximately 35m in length and will discharge to a Uisce Éireann decompression manhole before entering to a proposed WWTP.

The proposed power plant is proposed to be remotely controlled where possible and as such the staff on site will generally be 2-3 maintenance staff or security with an expected maximum population of 10 persons at any one time.

As such the proposed WWTP will be a package domestic plant such as a 10 Person ONE2CLEAN Wastewater Treatment System by Graf G50006 (or similar). This will discharge to underground storage tanks which will be emptied by tanker once a week and taken to a nearby WWTP for disposal. The onsite WWTP is to prevent septicity occurring in the storage tanks during collection times.

A full set of all proposed drainage design drawings are presented in Appendix 2-12, Volume 3 of the EIAR.

Refer also to the Civil Planning Engineering Report prepared by AtkinsRéalis (2025). All foul drainage related works will be carried out in consultation with Uisce Éireann and in accordance with all relevant Uisce Éireann guidelines and any Site-specific additional requirements.

14.4.1.1.3 Water Supply and Distribution

Potable water

Proposed watermain services (150 mm diameter pipeline), which will come from Athenry will be provided and be installed by Uisce Éireann to the site entrance on the L3103. The peak daily domestic water demand (including potable use) for the Proposed Project is calculated to be 0.007 l/s. Uisce Éireann has confirmed that water connection is feasible without infrastructure upgrade by Uisce Éireann. Further details are included in the Confirmation of Feasibility response from Uisce Éireann included as an appendix to the Civils Planning Report (Document ref.: PEK3-ATR-ZZ-ZZ-RP-CE 300001) included as part of the planning submission application. All new water mains will be designed and installed in accordance with Uisce Éireann Code of Practice and standard details.

A full set of all proposed watermain service drawings are presented in Appendix 2-12, Volume 3 of the EIAR. Refer also to the Civil Planning Engineering Report prepared by AtkinsRéalis (2025).

A pre-connection enquiry was submitted to Uisce Éireann with reference: CDS25000940. The Confirmation of Feasibility from Uisce Éireann was received in May 2025 and is included as an Appendix to the Civils Planning Report (Doc no.: 0114485DG0012).

Demineralised Storage Water Tank

As outlined in the Civil Planning Engineering Report (AtkinsRéalis, 2025) (Appendix 2-1, Volume 3 of the EIAR) the Cashla Peaker Plant requires demineralised water for the operation of the turbine.

To produce the demineralised water, an onsite treatment plant will convert potable water supplied by Uisce Éireann into demineralised water, which will be stored in a tank, ca. 7555 m^3 in size, until needed.

The process of creating and filling the tank with demineralised water takes several weeks. The conversion process is expected to be approximately 75% efficient, meaning that 25% of the water used will be rejected as heavily mineralised waste water. This waste water will be stored in a tank and removed off-site as required to a wastewater treatment plant for disposal.

Fire Demand

A static firefighting water tank with a capacity of 540 m^3 is proposed to ensure sufficient water supply for firefighting operations at a flow rate of 75 litres per second over a 2-hour duration. This provision accounts for the possibility that the proposed incoming water main may not deliver adequate flow or pressure during an emergency. Since the actual performance of the water main cannot be confirmed until it is installed, the full tank capacity has been included as a precaution. However, this requirement may be revised in consultation with the local fire brigade once the water main installation is complete and its capacity verified.

In addition, a separate underground contaminated firewater tank with a total capacity of 1,087 m^3 will be constructed to capture any potentially contaminated firewater generated during a fire event. This tank also accommodates:

- Rejected water from the demineralised water production process, and

- Runoff from a 1-in-10-year, 24-hour storm event, which must be considered in combination with any firewater discharge.

The contents of this tank will be safely stored and subsequently removed off-site by tanker for treatment at a licensed external wastewater facility.

14.4.1.1.4 ESB

Power supply, and the requirement for any alterations to the existing power supply network for the development of the Proposed Project Site, will be agreed with ESB Networks in advance of construction. All power supply related works will be carried out in accordance with ESB Networks relevant guidelines.

The proposed UGC may be required to cross existing High voltage UGC apparatus surrounding the Cashla 220 kV substation compound**.** A minimum separation distance between the cables be adhered to in order to comply with EirGrid/ESB Networks requirements. The EirGrid/ESB Networks preferred undercrossing method will be used where possible. Where undercrossing of the existing UGC routes is not possible an overcrossing method will be used. All UGC crossings will need to be agreed with EirGrid/ESB Networks as part of the design approval process. The UGC crossings have been designed in line with EirGrid/ESB Networks specifications (TLI, 2025).

14.4.1.1.5 eir Network

Connection to the existing eir network in the vicinity of the Proposed Project will be agreed in advance of construction with eir. All telecommunication supply related works will be carried out in accordance with relevant eir guidelines. All construction works within the vicinity of these areas will be carried out in accordance with the Health and Safety Authorities (2016) 'Code of Practice for Avoiding Danger from underground services'.

14.4.1.1.6 Street Lighting

An Outdoor Lighting Report was prepared by Lighting Reality (2025), as presented in full in Appendix 2-3, Volume 3 of the EIAR, which was prepared in accordance with relevant standards and guidelines and which will be implemented as part of the Proposed Project. The Proposed Site Lighting Layout drawing (Ref: PEK3-ATK-ZZ-ZZ-DR-EE-901300) shows the proposed lighting along the proposed internal roads of the main project site, around the proposed building and near the fuel tanks to the south of the proposed main project site. The Outdoor Lighting Report has also been developed in consultation with bat and biodiversity specialists and is in line with the guidelines and legislation for the protection of bats with an aim of minimising disruption and disturbance to local bat populations. A number of design principles will be implemented so as to minimise light intrusion within the identified key bat areas' which were identified following a bat survey at the site as described in the Chapter 5 Biodiversity.

14.4.1.1.7 Telecommunications mast

A 36 m high telecommunications mast will be located on the site and owned by EirGrid. This will be a free-standing lattice telecommunications mast to support antennae and communication dishes with associated ground-mounted equipment cabinets. This infrastructure is essential for enhancing ESB's internal communications network, supporting both operational efficiency and the resilience of Ireland's electricity grid. The mast design and siting have been informed by national planning policy and the 1996 Telecommunications Antennae and Support Structures Guidelines, which recommend locating masts in rural areas and co-locating with existing infrastructure where possible. The Proposed Project adheres to these principles by:

- Utilizing a lattice structure that allows for multiple operators and future upgrades.
- Minimizing environmental impact through careful siting and screening.
- Avoiding sensitive ecological zones and designated scenic routes.

14.4.1.2 Waste

The Proposed Project will be designed, planned, constructed and operated to minimise waste generation at every stage from construction and demolition, operation and decommissioning.

The management of waste generated during the construction of the Proposed Project and associated demolition will be in accordance with the Construction RWMP submitted as part of this planning application. The following waste streams will be generated during the construction phase: native non-contaminated soils, mixed construction and demolition (C&D) waste, wood / timber, metal, paper, plastics and packaging, canteen / office waste, and other waste (comprising soiled paper, cardboard, plastics, cloth, insulation and plasterboard).

During the operational phase, the Proposed Project has been designed to provide adequate domestic refuse storage areas for the main project site. Waste streams included residual waste, dry recyclables and organic waste will be generated by the staff operating the Cashla Peaker Plant.

Spent lubricating oil will be generated from maintenance of the gas turbine and generator.

As there is no local foul sewer system available, waste water streams will be captured on-site and transported off-site for proper disposal. These waste streams include:

- Domestic foul effluent
- Contaminated fire water runoff
- Machine washdown chemicals
- Demineralized water processing rejection

14.4.2 Potential Impacts during Demolition Phase

Demolition works will take place prior to construction; involving the demolition of two structures which will generate ca. 40 tonnes of waste. Demolition will be conducted using hand and mechanical methods appropriate to the scale of the structures. Stone material will be salvaged where practicable for reuse or recycled as hardcore. Waste materials will be disposed of in compliance with the Waste Management Act.

The following potential impacts could occur during the demolition phase:

- Release of dust and particulate matter into the air;
- Waste generation from materials that cannot be salvaged, reused or recycled.

These potential impacts are considered to be likely and should they occur, would be temporary and moderate adverse.

14.4.3 Potential Impacts during Construction Phase

14.4.3.1 Built Services

The following potential impacts could occur during the Construction phase:

- Damage to existing water and wastewater network, within the associated services, along the Grid route connection to the Cashla substation.
- Damage to existing underground power supply near the Site;
- Damage to existing telecommunication assets within the vicinity of the Site;
- Contamination to the existing public water supply network during the installation of the cable route; and,

- Damage to the gas network located within the vicinity of the site.

These potential impacts are considered to be unlikely and should they occur, would be temporary and moderate adverse. This will be considered at detailed design.

14.4.3.2 Waste Management

During the construction phase, it has been estimated that the various waste streams will be generated and managed as follows (refer to the RWMP presented in Appendix 2-5, Volume 3 of the EIAR).

14.4.3.2.1 Native Non-Contaminated Soils

The estimated volume of soil generated during the construction phase (ca.: 13,000m^3) will be minimised by reducing / eliminating the need for excavation and importing of capping layers. Lime stabilisation may also be used to reduce the amount of soils generated onsite. The balance of soil materials excavated from the Site will be reused where possible for landscaping purposes, and infill where appropriate, ensuring that any residual soil waste is kept to a minimum. Should any soil be required to be removed from site, then the soil will be characterised and removed offsite in accordance with all relevant waste management legislation.

14.4.3.2.2 Mixed C&D Waste

Following segregation onsite, any residual mixed C&D waste (ca.: 26 tonnes) will be collected in containers specifically for mixed C&D waste; these will be removed offsite for subsequent offsite separation and disposal at a licenced waste disposal / recovery facility.

14.4.3.2.3 Wood / Timber

Timber waste (ca.: 51 tonnes) will be segregated in order to prevent contamination by other wastes and will be stored so as to limit the potential for this material to rot. Wooden pallets will be returned to relevant suppliers where possible. Timber offcuts will be reused onsite where feasible. A covered receptible for waste wood will be placed in the waste storage area, prior to removal from Site for recycling. All such timber will be free from chemical treatment.

14.4.3.2.4 Metals

Metal waste (ca.: 33 tonnes) will be generated during the project, particularly arising from the use of rebar. All waste metal will be segregated offsite at the waste disposal / recovery facility for reuse and recycling. Given the significant scrap value associated with metal waste, this waste will be stored in a dedicated container within a secure part of the Site, and regular collections from Site to the waste recycling facility will limit the potential for unauthorised entry and theft.

14.4.3.2.5 Paper, plastics and Packaging

Packaging wastes (ca.: 23 tonnes) will be removed (paper / cardboard / plastic / general waste) offsite for subsequent offsite separation and disposal at a waste disposal / recovery facility. Waste packaging will be stored in dedicated containers in the waste storage area for collection and subsequent segregation and recycling.

14.4.3.2.6 Canteen / Office Waste

Onsite staff welfare facilities/ offices will generate food and packaging waste (ca.: 34 tonnes). Dedicated containers will be provided to permit easy segregation of these wastes; brown bins will be provided for compostable food waste, green bins will be provided for dry recyclables (packaging, hard plastic, paper, cardboard, tetrapak etc.) and black bins will be provided for any residual waste.

14.4.3.2.7 Other wastes

In addition to the above waste streams, other waste materials (ca.: 9 tonnes) will be generated during the construction phase. These residual wastes will typically comprise non- recycling waste such as soiled paper / cardboard / plastics / cloth, fibreglass, polystyrene insulations and plasterboard. These materials will be stored separately to all other waste streams in order to prevent any cross contamination.

While waste will be generated during the construction of the Proposed Project, all waste streams will be managed in accordance with statutory waste management and environmental requirements, regional waste related policy, best practice waste management guidance, and a project specific RWMP (Refer to Appendix 2-5, Volume 3 of this EIAR). As with any construction project, there is potential for nuisance issues to arise during the construction phase, associated with dust or waste materials impacting roads and footpaths adjacent to the Proposed Project. The potential impacts of waste generated during the construction phase (via. transport and disposal / recovery to appropriately permitted / licenced facilities; and potential nuisance issues) will be temporary and slight adverse. Mitigation measures will be implemented as required to further manage these potential impacts.

14.4.4 Potential Impacts during Operational Phase

14.4.4.1 Built Services

- During the operational phase, waste water and sludge from the main project site will be generated.
- BGE will enter into a maintenance contract with a licensed disposal company to maintain the on-site waste water treatment plant which will include servicing and desludging. Domestic wastewater is conveyed to a treatment system, then stored in a sealed underground cesspool for off-site disposal by tanker. Weekly removal of ca. 7-10m^3 of sludge will be removed by a licensed contractor.

14.4.4.2 Waste Management

14.4.4.2.1 Gas Turbine and Generator Maintenance

- During the operational phase, spent oil resulting from the lubricating oil system of the continually operating turbine will be generated. When the oil is replaced, the spent oil will be removed offsite by a licenced contractor for recycling in a suitable processing facility.
- The compressor washing system associated with the gas turbine which can operate when the gas turbine is not in operation. Under this circumstance, the cleaning fluids will be drained into a containment tank and removed off-site to a licenced treatment facility.

14.4.4.2.2 Demineralised Water Production Wastewater

As part of the plant's gas turbine operation requirements, demineralised water is required. Demineralised water will be injected into the gas turbine:

- For power augmentation (the injected water increases the air mass flow passing through the gas turbine) when combusting gas fuel or,
- To reduce NOx gases when combusting low sulphur diesel fuel (i.e., the secondary fuel source), demineralised water is injected into the gas turbine combustion system in a defined ratio to the volume of low sulphur diesel (secondary fuel) fuel being combusted to control the maximum combustion temperature.

Treatment Process Details:

- Demineralised waste water reject will be generated through the process of creating and filling the water storage tank with demineralised water. A concentrated reject stream will be sent to a contaminated water tank during reverse osmosis. This waste water will be stored in a tank and removed off-site as required to a wastewater treatment plant for disposal.
- Bunded IBC containers, which are used to contain acid and alkali required for the demineralisation process, will need to be periodically removed replaced once ineffective by a licensed waste contractor. Spent regenerants from ion exchange are also directed to the contaminated water tank and removed off-site. Refer to Chapter 2 Project Description.

14.4.4.2.3 Contaminated Firewater

In the event of a fire on site, contaminated firewater will be captured via the stormwater system and directed to containment tanks for off-site treatment, as detailed in full in Chapter 2 Project Description.

14.4.4.2.4 Machine Washdown Chemicals/Solvents

- Routine maintenance of the gas turbine involves cleaning the machine with solvents. These solvents are injected internally and drain down for collection beneath the machine. The collection system is closed and discharges all solvents to an underground tank, from where they are collected by tanker and disposed of off-site at a licensed waste facility capable of handling hydrocarbon waste. It is anticipated that this maintenance will occur several times a year, generating no more than $2m^3$ of waste hydrocarbons each time.
- Internal washdowns will be done biannually, with solvents collected via the internal pipework into underground tanks (ca. $2m^3$). These are emptied by tanker for licensed disposal. No further pollution controls are necessary due to the closed collection system. Refer to Chapter 2 Project Description.

14.4.4.2.5 Filter Bags from Gas Turbine Generator

The filter house contains bag filters which catch any sizeable incoming particles to prevent contamination of the gas turbine components. The filter house is expected to have a pulse cleaning system to extend the life of the bag filters. This system functions by compressing air and blowing it backwards through individual filter bags to remove some of the caught particles. These fall into a hopper for collection and removal to a licenced waste site.

14.4.4.2.6 Spent Oils

Lubrication oil used in the gas turbine and generator is expected to require replacement after an extended period of use due to the heat related decomposition of the oil chemistry. There is also the potential for oil to be replaced if used for pump lubrications. These spent oils will be removed from site by a licenced contractor which after treatment can be re-used in the market.

14.4.4.2.7 General Waste Collection

During the operational phase, waste collection areas for the main project site will be clearly identified, secure, have adequate lighting and drainage, and will be easily accessible for bin collection crews. General waste volumes for the Cashla Peaker Plant will be minimal.

During the operational phase waste shall be collected on a fortnightly basis by a commercial waste contractor who holds a current valid waste collection permit issued by the National Waste Collection Permit Office (NWCPO). All waste materials will be removed offsite to an appropriately permitted or licenced waste disposal / recovery facility. All such waste will be transported and disposed of in accordance with relevant waste

management legislation (including but not limited to the Waste Management Act of 1996, 2001 and 2003 and all subsequent waste management regulations as amended).

Therefore, while waste will be generated during the operational phase of the Proposed Project, all such waste will be managed in accordance with statutory waste management and environmental requirements, national waste related policy, and best practice waste management guidance. The potential impacts of waste generated during the operational phase (via. transport and disposal / recovery to appropriately permitted / licenced facilities) will be long-term and imperceptible. Regardless, mitigation measures will be implemented.

14.4.5 Potential Impacts during Decommissioning Phase

14.4.5.1 Built Services

- Damage to existing water and wastewater network, within the associated services, along the Grid route connection to the Cashla substation.
- Damage to existing underground power supply near the Site;
- Damage to existing telecommunication assets within the vicinity of the Site;
- Contamination to the existing public water supply network during the decommissioning of the cable route; and,
- Damage to the gas network located within the vicinity of the site.

14.4.5.2 Waste Management

The likely impacts during the decommissioning phase are assessed to be similar to those during the construction phase with no significant effects assessed as likely to occur. Various waste streams will be generated and managed as follows.

14.4.5.2.1 Native Non-Contaminated Soils

Volumes of soil generated during the decommissioning phase will be reused onsite where possible for landscaping purposes, or infill where appropriate, ensuring that any residual soil waste is kept to a minimum. Should any soil be required to be removed from site, then the soil will be characterised and removed offsite in accordance with all relevant waste management legislation.

14.4.5.2.2 Mixed Decommissioning Waste

Following segregation onsite, any residual mixed decommissioning waste will be collected in containers specifically for mixed waste; these will be removed offsite for subsequent offsite separation and disposal at a licenced waste disposal / recovery facility.

14.4.5.2.3 Metals

Metal waste will be generated during the project, particularly arising from existing infrastructure. All waste metal will be segregated offsite at the waste disposal / recovery facility for reuse and recycling. Given the significant scrap value associated with metal waste, this waste will be stored in a dedicated container within a secure part of the Site, and regular collections from Site to the waste recycling facility will limit the potential for unauthorised entry and theft.

14.4.5.2.4 Paper and plastics

Paper and plastic wastes will be removed (paper / cardboard / plastic / general waste) offsite for subsequent offsite separation and disposal at a waste disposal / recovery facility. Waste packaging will be stored in dedicated containers in the waste storage area for collection and subsequent segregation and recycling.

14.4.5.2.5 Canteen / Office Waste

Onsite staff canteens will generate food and packaging waste). Dedicated containers will be provided at each canteen to permit easy segregation of these wastes; brown bins will be provided for compostable food waste, green bins will be provided for dry recyclables (packaging, hard plastic, paper, cardboard, tetrapak etc.) and black bins will be provided for any residual waste.

14.4.5.2.6 Other wastes

In addition to the above waste streams, other waste materials will be generated during the decommissioning phase. These residual wastes will typically comprise non- recycling waste such as soiled paper / cardboard / plastics / cloth, fibreglass, polystyrene insulations and plasterboard. These materials will be stored separately to all other waste streams in order to prevent any cross contamination.

14.4.6 'Do Nothing' Scenario

This assessment assumes that under the 'Do Nothing' scenario the Proposed Project would not be developed. The site is a greenfield site therefore the Do Nothing scenario will have a neutral and imperceptible effect on the Site with regards to Material Assets.

14.5 Mitigation Measures

14.5.1 Pre-Construction Phase

14.5.1.1 Built Services

The following mitigation measures will be implemented during the pre-construction phase:

- **Underground cable route**
  - Prior to commencement of any excavation works, it will be the responsibility of the Contractor to locate all existing services, and to safeguard same during construction, including the requirement to provide a location plans, maps and other relevant information to the local authority and the employed crews to mitigate against any conflicts with existing buried services.
  - In advance of any construction activity, the contractor will undertake detailed surveys and scans of the proposed HV route to confirm the presence or otherwise of any services. If services are found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific clearance requirements, excavation or relocation methods and to schedule a suitable time to carry out works.
  - Relevant information will also be provided to the local authority and the employed crews to mitigate against any conflicts with existing buried services. It is an obligation of the developer/licence holder to install underground cable infrastructure in line with EirGrid functional specifications, for safety, constructability, and maintenance reasons.
  - The new infrastructure shall be designed / installed as per these standards, to ascertain a separation from any existing 3rd party services (i.e. Water, Telecom, etc) and inclusive from any High Voltage /Medium Voltage or Low Voltage cables that may also be present. This minimum clearance requirement is incorporated into the H.S.A. Code of Practice on "Avoiding Danger from Buried Services". Electricity cables/ducts must not be laid above other existing services except at crossing positions.
- **High Voltage Underground Cable Crossings & Parallel Runs**
  - The proposed HV route may be required to cross existing High voltage UGC apparatus surrounding the Cashla 220 kV substation compound. Each individual crossing or parallel run will need to be individually

assessed on a case-by-case basis. The EirGrid/ESB Networks preferred undercrossing method will be used where possible. Where undercrossing of the existing UGC routes is not possible an overcrossing method will be used. All UGC crossings will need to be agreed with EirGrid/ESB Networks as part of the design approval process. The UGC crossings have been designed in line with EirGrid/ESB Networks specifications.

- **Water Mains**
  - Uisce Eireann will need to be consulted and advised on details of the project proposals in the form of a completed Building-over or Near an Irish Water Asset Application Form and associated technical information largely comprising drawings and schedules with details of proposed crossings etc with as much available information as possible.
  - Uisce Eireann will be involved in the early engagement on projects that may involve any infrastructure which may be located near their assets with the intention of identifying as early as possible, if bespoke design measures or diversions are necessary.
  - The water supply will be turned off by the utility so work can commence on diverting or crossing the service. The section of the existing pipe will be removed and will be replaced with a new pipe along the new alignment of the service. The works will be carried out in accordance with the utility standards.
- **Gas Mains**
  - All work in the vicinity of a Gas Transmission Pipeline must be completed in compliance with the 'Code of Practice 2021'. The Gas Transmission Pipelines exist within Gas Networks Ireland Wayleaves. No excavation may take place within any such Wayleave unless consent, in the form of a valid Excavation Permit, has been granted by Gas Networks Ireland.
  - Where the cable route intersects with the existing Gas Network, a detailed construction method statement will be prepared by the Contractor prior to the commencement of construction. Where possible, crossing existing gas lines be implemented using open trenching with either an undercrossing or an overcrossing, depending on the depth of the Gas Network Pipe. During the laying of the HV cable there will be coordination between BGE and GNI to specify the appropriate construction methodology where the HV line crosses the transmission line.

14.5.2 Construction

14.5.2.1 Built Services

The following mitigation measures will be implemented during the construction phase:

- Under crossings of Uisce Eireann assets required will be carried out in strict accordance with UE Code of Practice for Water Infrastructure with all separation requirements adhered to and the works carried out in strict accordance with the Uisce Eireann Code of Practice. Design for the under-crossings will be carried out in agreement with both parties. UE Asset Locations have been obtained from existing UE asset drawings and a GPR survey (in combination with slit trenches) on the cable route will be carried prior to construction to verify same prior to installation of the cable route.
- Stormwater drainage infrastructure will be identified along the cable route at detailed design stage when GPR surveys are carried out. Any requirements to modify or protect the existing infrastructure will be shown on detailed design drawing and will be included as part of compliance
- All works associated with the existing utilities for the Proposed Project will be carried out in strict accordance with the guidelines of the relevant stakeholders (specifically ESB, and Uisce Éireann), Health and Safety Authority and any additional site-specific requirements;
- A project-specific Detailed Construction Environmental Management Plan (CEMP) will be prepared by the appointed Contractor prior to the commencement of construction works. This document will take account of all of the environmental considerations (including water, dust and noise nuisance control; soil / stockpile

management; temporary groundwater management; appropriate Site management of compound area; fuel, oil and chemical storage and use; and waste management) set out in the CEMP presented in Appendix 2-10, Volume 3 of this EIAR;

- The construction compounds will include adequate temporary welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the compound will be removed off site to an appropriately licensed facility for disposal for the duration of the construction and commissioning phase;
- All newly installed utilities/ services will be assessed, tested and certified as required prior to being fully commissioned;
- A copy of all available existing, and as built utility plans will be maintained on Site during the construction of the Proposed Project.
- Any underground utilities including but not limited to power lines, water mains, foul sewers, storm sewers, GNI, ESB and Uisce Éireann services, located within the red line boundary of the project will be clearly marked and all construction personnel will be made aware of the known location of any onsite underground or over ground services during the construction phase;
- During the laying of the HV cable there will be coordination between BGE and GNI to specify the appropriate construction methodology where the HV line crosses the transmission line.
- Outdoor Lighting will be implemented in accordance with the report prepared by Lighting Reality (2025), Appendix 2-3, Volume 3 of this EIAR.

14.5.2.2 Waste

14.5.2.2.1 Construction Phase

The following mitigation measures will be implemented during the construction phase:

- All waste management procedures implemented onsite during the construction phase will be in accordance with the RWMP (AtkinsRéalis, 2026) presented in Appendix 2-5, Volume 3 of this EIAR. In advance of commencement onsite, the Contractor will prepare a project specific detailed RWMP which will further develop this plan, and will provide specific details in terms of proposed permitted haulage contractors, and permitted / licenced waste disposal / recovery facilities;
- All waste materials will be segregated onsite into the various waste streams, via dedicated skips and storage areas. All waste will be removed from Site by one or more waste haulage contractor(s) who hold a current valid waste collection permit issued by the National Waste Collection Permit Office (NWCPO). All waste materials generated during the construction phase will be removed offsite to an appropriately permitted or licenced waste disposal / recovery facility. All waste removed offsite will be appropriately characterised (under the correct LoW code), transported and disposed of in accordance with relevant waste management legislation (including but not limited to the Waste Management Act of 1996, 2001 and 2003 and all subsequent waste management regulations as amended). All waste management and disposal / recovery records will be maintained onsite throughout the project and will be made available for viewing by the Client, Employer's Representative and statutory consultees (GCC, EPA) as required.
- Waste arising from the site clearance, primary infrastructure and earthworks is expected to comprise made ground/topsoil, gravels and clay/silt material, and would be either re-used onsite or removed offsite for appropriate reuse, recovery and/or disposal as required.
- Any contaminated excavated material found on site will be removed by licensed waste carriers and disposed of at appropriately licensed facilities.
- Disposal of surface runoff in excavations during construction will be captured in sumps and disposed to ground via infiltration by pumping to proposed temporary lagoons. This will allow slow seepage of the surface water runoff to ground with the benefit of filtration as the water percolates to ground in the lagoon.
- Scheduling and planning the delivery of materials will be carried out on an 'as needed' basis to limit any surplus materials;

- Materials will be ordered in sufficient dimensions so as to optimise the use of these materials onsite, and will be carefully handled and stored so as to limit the potential for any damage;
- Where feasible, sub-contractors will be responsible for the provision of any materials they require onsite in order to help reduce any surplus waste;
- All loaded trucks entering and exiting the Site will be appropriately secured and covered; and,
- Dust will be controlled at entry and exits to the Site using wheel washes (as required) and/or road sweepers, and tools and plant will be washed out and cleaned in designated areas. Wheel / road sweeper washings will be contained and treated prior to discharge.

14.5.3 Operation

14.5.3.1 Built Services

The following mitigation measures will be implemented during operation:

- BGE will enter into a contract with a licensed disposal company to maintain the on-site waste water treatment plant which will include servicing and desludging.

14.5.3.2 Waste

Waste management during the operational phase of the Proposed Project will be undertaken by private waste contractors (in accordance with statutory waste management and environmental requirements, regional waste related policy, and best practice waste management guidance), and regulated by Galway County Council. Therefore, no further mitigation measures are required with regard to the transport and disposal or recovery of all waste streams which will be generated during the operational phase.

The following mitigation measures will be implemented during the operational phase in order to minimise the potential impact of litter pollution and prevent water contamination;

- Suitably sized waste receptacles will be provided at the main project site (Peaker Plant) by private waste contractors;
- During the operational phase waste shall be collected on a fortnightly basis from the main project site;
- It will be the responsibility of the staff and maintenance workers to ensure that all waste generated is disposed of appropriately and responsibly;
- Waste management during the operational phase of the Proposed Project will be undertaken by private waste contractors (in accordance with statutory waste management and environmental requirements, regional waste related policy, and best practice waste management guidance), and regulated by Galway County Council / EPA. Therefore, no further mitigation measures are required with regards to the transport and disposal or recovery of all waste streams which will be generated during the operational phase;
- Wastewater from the proposed WWTP domestic plant will be discharged to underground storage tanks which will be emptied by tanker once a week and taken to a nearby WWTP for disposal.
- To manage the contaminated firewater tank, it is proposed that the storm network will be divided into multiple individual areas. Each area will have a pH-controlled actuator valve. In the event of a fire, the firewater from the affected area will be diverted to the firewater tanks, while any rainfall during the fire in other areas will continue to flow unimpeded to the soakaway pond northeast of the site. This division into separate areas helps reduce the size of the contaminated firewater storage tanks. The contaminated firewater will be disposed of off-site by tanker to a suitably licenced external wastewater treatment facility.
- Wastewater from the onsite treatment plant used to produce demineralised water will be stored in a tank and removed off-site as required to a wastewater treatment plant for disposal and;

- Routine maintenance of the turbine involves cleaning the machine with solvents. These solvents are injected internally and drain down for collection beneath the machine. The collection system is closed and discharges all solvents to an underground tank, from where they are collected by tanker and disposed of off-site at a licensed facility capable of handling hydrocarbon waste. It is anticipated that this maintenance will occur several times a year, generating no more than 2m^3 of waste hydrocarbons each time.

14.5.4 Decommissioning

The following mitigation measures will be implemented:

- The full decommissioning of the gas pipeline in accordance with prevailing best practice will be undertaken by GNI in accordance with GNI's established procedures and prevailing best practice at the time of closure;
- Materials will be segregated and sent for re-use, recycling, or licensed disposal in line with legislative requirements and commercial viability;
- Any foundations or hardstanding associated with the AGI will be broken up and removed to licensed facilities where practicable. Sub-surface foundations, if present, may be broken to a depth of 1m below ground level, with the remainder left in situ;
- Some equipment associated with the Peaker Plant will be decommissioned during the lifespan of the plant and removed to a suitable recycling facility where the materials will be recycled to the extent that a commercially viable demand exists;
- At the end of life of the plant, unused fuel, fluids and chemicals will be removed from site and sold for re-use or repurposed within the operator's other facilities. If no viable re-use option exists, the fluids will be removed by a licenced waste contractor for processing in a suitable treatment plant;
- The Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP) will be prepared, maintained and implemented by BGE and/or associated contractors; and
- In addition, the mitigation measures outlined herein for the Construction Phase, will be applied as appropriate, during any future decommissioning.

14.6 Monitoring Requirements

14.6.1 Monitoring During the Construction Phase

The Construction RWMP (AtkinsRéalis, 2026) presented in Appendix 2-5, Volume 3 of this EIAR, states the Contractor will be responsible for maintaining waste records and documentation for the full duration of the construction phase. The Contractor will track and monitor all waste volumes transported offsite. All waste records will be maintained onsite throughout the project and will be made available for viewing by the Client, Employer's Representative and statutory consultees (GCC, EPA) as required.

14.6.2 Monitoring During the Operational Phase

Monitoring for compliance with EPA licence conditions will occur. Otherwise, no monitoring is required during the operational phase.

14.7 Residual Effects

Taking account of the proposed mitigation measures for Material Assets, specifically built services the residual effects of the Proposed Project will be short-term and not significant during the construction phase, and long-term and not significant during the operational phase. There will be no likely significant residual effects associated with built services.

Taking account of the proposed mitigation measures for Material Assets, specifically waste management, the residual effects of the Proposed Project will be short-term and imperceptible during the construction phase, long-term and imperceptible during the operational phase and short-term and imperceptible during the decommission phase. There will be no likely significant residual effects associated with waste management and / or generation.

14.8 Difficulties encountered during preparation of this chapter

No difficulties were encountered during the preparation of this Chapter.

15. Major Accidents and Disasters

15.1 Introduction

This chapter assesses the impacts of major accidents and disasters (MA&D) associated with the Proposed Project located in Pollnagroagh / Rathmorrissy, Athenry, Co. Galway. It identifies and evaluates events with the potential to cause significant adverse effects on human health, the environment, or property, either during operation, construction and decommissioning phase. The assessment considers both internal risks (such as fires, explosions, or structure failures) and external hazards (such as extreme weather events, flooding, or nearby industrial accidents). The evaluation is carried out in accordance with the requirements of the Directive (EU) 2011/92 as amended by Directive (EU) 2014/52 and relevant national best practice guidance, ensuring that appropriate mitigation and emergency response measures are identified to prevent, control, or respond effectively to any foreseeable major accident or disaster scenario. A full description of the project is available in Chapter 2 Project Description.

Below is an overview of the key relevant details of the construction, operation and decommissioning phases of the Proposed Project. The information presented in these sections is informed by the project design, but it is not a complete description of the Proposed Project. Therefore, it should be read in conjunction with the full set of planning application documents. For a more comprehensive description of the Proposed Project, please refer to Chapter 2 Project Description of the EIA Report. Chapter 2 provides a detailed overview of the lifecycle of the project, including reference to the architectural and civil engineering, drawings, plans, reports, and other relevant document in order to define the Proposed Project.

15.1.1 Construction Phase

There will be two separate planning applications under s37E and 182A and the EIAR assesses the project as a whole. The Proposed Project also includes the GNI underground grid connection and substation that are to be subject of the consenting process under s39A of the Gas Act 1976. The Proposed Project comprises a single open cycle gas turbine (OCGT). Depending on the technology that is used, the turbine will have a total output capacity of either 325MW or 334MW. The turbine parameters are the same in both cases, it is only the output capacity that will change depending on the technology used. There may be minor differences in noise, vibration and emission levels depending on which technology is used. However, the different technologies will not give rise to any difference in terms of Major accidents and disasters. Accordingly, the assessment in this chapter of the EIAR applies equally to both technologies.

The single open cycle gas turbine will be with an on-site 220 kV air insulated substation, Above Ground Installation (AGI), an underground hot tapped connection to the high pressure transmission network (GNI146 Rathmorrissy Gas Pipeline), an 8.1km underground cable (UGC) connection to the existing Cashla 220 kV substation, and supporting buildings, fuel and water storage, access, and site infrastructure. The facility will combust natural gas delivered at high transmission pressures, with low sulphur diesel stored on site as a strictly limited secondary fuel, held in two double-skinned above ground tanks (each 3,777m^3). The AGI compound (*circa*. 2,500m^2) includes pressure reduction kiosks, boiler house for gas pre heating, metering, filtration and other gas processing equipment, all within a secured fenced enclosure and designed to relevant Irish and EN standards.

Site fire and emergency water provisions are significant to major accident considerations: a dedicated static firefighting tank and water main infrastructure will provide the required fire main flows and a low sulphur diesel driven fire pump is provided to ensure resilience in the event of a loss of external power. All potentially contaminated firewater will be captured via a segregated stormwater network and directed to a contaminated

firewater holding tank sized to accommodate two hours of firefighting plus concurrent storm runoff; contaminated firewater is to be removed off site by licensed contractors for treatment and disposal. Drainage and pollution control measures include hydrocarbon interceptors (IS EN858), sealed permeable paving in parking areas, and SuDS features where viable, designed to limit off site contamination following any incident.

The plant's operational regime, a peaking facility with low annual running hours and predominantly remote operation, influences the major accident context by limiting routine exposure time but concentrating risk during start up, shut down, fuel switching, and occasional on low sulphur diesel testing.

Overall, the design and operational controls described including adherence to standards, closed containment, continuous emissions and leak monitoring, segregated drainage and emergency response systems form the primary framework for preventing, detecting and managing major accident scenarios for the Peaker Plant.

15.1.2 Operational Phase

The facility will be commissioned using staged hydraulic and functional tests: gas, fuel and water systems will be hydraulically tested with potable water, gas-containing joints leak-checked with detectors, and electrical, control and safety systems progressively validated prior to use. The gas turbine and generator will undergo series commissioning tests, progressive load runs, contractual performance guarantees and EirGrid grid-code compliance tests before being placed into commercial service, thereby minimising commissioning-phase failure risks associated with grid connection and operation.

During operation the underground transmission gas pipeline and the Above Ground Installation (AGI) will be operated and maintained by GNI in accordance with I.S. 328:2021. Routine inspections and checks will be undertaken every month by maintenance staff, with in-line inspections ("pigging") and detailed integrity monitoring approximately every 7–10 years. Pigging requires depressurisation and may involve limited, controlled releases of natural gas that will be closely managed and recompressed into lower-pressure systems where feasible; such activities are recognised as planned, low-probability events with established controls.

Hazardous fluids are managed using containment and monitoring measures. Lubricating oil and hydraulic oil systems include secondary containment; spent oils and other waste liquids will be removed by licensed contractors to appropriate off-site facilities. Secondary low sulphur diesel storage tanks incorporate interstitial automatic leak detectors and regular external inspections; in the event of a primary tank leak, contents will be removed by road tanker for repair and return. The turbine's compressor washing uses biodegradable cleaning agents with rinsing by demineralised water; if conducted offline, wash fluids are contained and removed to a licensed treatment facility.

A permanent Continuous Emissions Monitoring System (CEMS) in the turbine exhaust will monitor emissions in accordance with the Industrial Emissions Directive and relevant EN standards, with reporting to the EPA under licence conditions. Noise-reducing inlet and exhaust silencers reduce acoustic impacts. Collectively, these design, monitoring, maintenance and emergency-response measures provide layered prevention, detection and mitigation against major accidents and disasters.

15.1.3 Decommissioning Phase

The Proposed Project's associated infrastructure and operations include defined end-of-life and decommissioning arrangements intended to manage risk and environmental effects. Gas Networks Ireland (GNI) will retain ownership of the transmission infrastructure and will be responsible for decommissioning. Transmission pipelines will be degassed, isolated, filled with 500 mbar of nitrogen within one month of customer decommissioning, and subsequently grouted in accordance with GNI procedures (AM/BP/107).

It is proposed that the Peaker Plant will operate until 31 December 2050 with a clear process for equipment removal, reuse, repurposing, or recycling. Unused fuels, fluids and chemicals will be removed for re-use or processed by licensed contractors where no viable reuse exists. Process equipment and structural materials will be repurposed or sold where markets exist, or dismantled and transported as required; otherwise materials will be sent to licensed recycling facilities. Concrete foundations and roads will be broken out and removed for potential reuse where permitted; subsurface piling will be broken back to 1 m below ground level. Previously excavated soils will be reinstated where compatible with boundary vegetation. BGE will prepare and maintain an Environmental Liabilities Risk Assessment and/or a Closure, Restoration and Aftercare Management Plan as required under its licence.

15.2 Methodology

Alongside the legislation, policy, and guidance outlined in Chapter 1, the following relevant legislation, policy, and best practice guidance has been complied with in the preparation of this chapter:

- EPA 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2022);
- EIAR Directive 2011/92 as amended by Directive (EU) 2014/52, which requires consideration of "the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or natural disasters relevant to the project consented."
- EPA 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements' (2018);
- The guidelines on Major Accidents and Disasters within EIA published by Institute of Environmental Management and Assessment (IEMA, 2020).
- Health and Safety Authority Guidance on Technical Land-Use Planning Advice, for planning authorities and COMAH establishment operators (2023);
- EPA's Guidance on Assessing and Costing Environmental Liabilities (2014).
- Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015;
- HSA Guide to the COMAH Regulations 2015 (S.I. No. 209 of 2015);
- Building Regulations (Part A Amendment) Regulations 2012 (as amended) (SI No. 138 of 2012);
- Safety, Health and Welfare at Work (Construction) Regulations 2013 (as amended) (hereafter referred to as the Safety, Health and Welfare (Construction) Regulations) (S.I. No. 291 of 2013); and
- A Framework for Major Emergency Management. Guidance Document 10 (DECLG 2015).

The EPA Guidelines, 2022, state that:

"To address unforeseen or unplanned effects the Directive further requires that the EIAR takes account of the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk). This may be supported by general risk assessment methods or by systematic risk assessments required under other legislation e.g. a COMAH (Control of Major Accident Hazards involving Dangerous Substances) assessment.

The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g. the potential effects of floods on sites with sensitive facilities. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required."

15.2.1 Major Accident

For the purpose of this assessment, the definition of a 'Major Accident' is taken from the guidelines on Major Accidents and Disasters within EIA published by Institute of Environmental Management and Assessment (IEMA, 2020).

"A major accident is an event (for instance, train derailment or major road traffic accident) that threatens immediate or delayed serious environmental effects to human health, welfare and / or the environment and requires the use of resources beyond those of the client or its appointed representatives (i.e., contractors) to manage". Major accidents can be caused by disasters resulting from both man-made and natural hazards. A disaster is a man-made / external hazard (such as an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation that meets the definition of a major accident. In general, major accidents and / or disasters should be considered as part of an assessment where the development has the potential to cause the loss of life, permanent injury and/or temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration".

For the purpose of this assessment, the definition of a 'Disaster' is as follows (IEMA, 2020):

"a natural hazard (e.g. earthquake) or a man-made external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident."

For the purposes of this assessment, the definition of 'Vulnerability' is as follows (IEMA, 2020):

"Vulnerability – describes the potential for harm as a result of an event, for example due to sensitivity or value of receptors. In the context of the EIA Directive, the term refers to 'exposure and resilience' of the proposed development to the risk of a major accident and / or disaster. Vulnerability is influenced by sensitivity, adaptive capacity, and magnitude of impact; and Significant environmental effect (in relation to a major accident and / or disaster assessment) – includes the loss of life, permanent injury and temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration."

15.2.2 Background to Control of Major Accident Hazards Involving Dangerous Substances (Control of Major Accident Hazards (COMAH)) Regulations

The Seveso III Directive (2012/18/EU) requires Member States to apply land-use or other relevant policies to ensure that appropriate distances are maintained between residential areas, areas of substantial public use and the environment, including areas of particular natural interest and sensitivity and hazardous establishments. For existing establishments, Member States are required to implement, if necessary, additional technical measures so that the risk to persons or the environment is maintained at an acceptable level.

The purpose of the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations (S.I. 209 of 2015) (COMAH Regulations) is to transpose the Seveso Directive into Irish law and lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents, with the overall objective of providing a high level of protection in a consistent and effective manner.

The Health and Safety Authority (HSA) is the Competent Authority in Ireland as defined by Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015, (COMAH Regulations 2015) which implement the Seveso III Directive in Ireland. The HSA is responsible for ensuring that the impacts of facilities which fall within the remit of this legislation are taken into account with respect to land use planning. This is achieved through the provision of technical advice to planning authorities.

The Proposed Project will be a “lower tier” COMAH establishment, as it will store hazardous substances in excess of the Lower Tier thresholds identified in Part 2 of Schedule 1 of the COMAH Regulations 2015.

15.2.3 Site Specific Risk Assessment Methodology

The analysis of the predicted impacts of the Proposed Project, with respect to major accidents and disasters, on human health and the environment during construction, operation and decommissioning are presented in this Chapter. The risk assessment identifies and quantifies risks focusing on potentially significant adverse effects of the project on the environment, deriving from its vulnerability to risks of relevant major accidents and/or disasters. The approach to identifying and quantifying risks associated with the Proposed Project by means of a site’s specific risk assessment is derived from the EPA Guidelines on the Preparation of an EIAR (EPA, 2022) and all other documents outlined above.

Assessment methods quantify and predict the magnitude and significance of impacts. The methods employed for assessment and evaluation of the environmental topics for this Chapter are based on

- Schedule 6 of the Planning and Development Regulations, 2001, as amended:

  “a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met.

  Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events”.

- Geospatial Analysis (cumulative impacts only – used to identify planning permissions/applications and Seveso Establishments within a 5km radius).
- Flood Risk Assessment following The Planning System and Flood Risk Management Guidelines for Planning Authorities published by the OPW in 2009 (OPW Guidelines).

The risk assessment identifies and quantifies risks focusing on potentially significant adverse effects of the project on the environment, deriving from its vulnerability to risks of relevant major accidents and/or disasters. The approach to identifying and quantifying risks associated with the Proposed Project by means of a sites specific risk assessment is derived from the EPA Guidelines on information to be contained in EIAR (EPA, 2022).

The criterion for categorising impact is derived from the EPA’s Guidance on Assessing and Costing Environmental Liabilities (2014). In this guidance, the risk assessment methodology commences with the establishment of risk classification criteria followed by risk analysis based on these criteria. Risk classification tables are required in order to evaluate and rank the risks compared with each other. They form the basis for rating the likelihood of an event occurring and the consequence of impact if the event occurs. The approach used in this assessment is summarised as follows and has been derived from relevant guidance as described above:

- Identification of hazardous substances which could be present over the lifecycle of the Proposed Project, including flammable substances, materials harmful to the environment and materials harmful to human health;
- Consideration of the quantities and storage arrangements associated with these substances and the prospective area operations at the Proposed Project involving these materials;
- Identification of potential MA&D Risk Events associated with these materials and operations. Assessment of the vulnerability of the Proposed Project to disasters as a result of, for example, location, infrastructure, climatic conditions and geological events;
- Where credible MA&D Risk Events and Disasters are identified, the reasonable worst-case consequence of each Risk Event is assessed in qualitative terms, based on factors including receptors which could be affected, and mitigation measures already in place (see Table 15-1) and,
- The likelihood and consequence ratings are combined to form a risk score for risk evaluation (see Table 15-2).

Table 15-1 - Risk Classification - Likelihood

Rating	Category	Description
1	Very low	Very low chance of hazard occurring
2	Low	Low chance of hazard occurring
3	Medium	Medium chance of hazard occurring
4	High	High chance of hazard occurring
5	Very high	Very high chance of hazard occurring

Table 15-2 - Risk Classification - Consequence

Rating	Category	Description
1	Trivial	Small number of people affected, no fatalities No contamination to environment.
2	Minor	Single fatality: limited number of people affected; a few serious injuries Localised contamination effects of short duration.
3	Moderate	Significant number of people in affected area impacted with multiple fatalities Contamination effects widespread or of extended duration.
4	Major	5 to 50 fatalities, up to 100 serious injuries Heavy contamination, localised effects, or extended duration.
5	Massive	Large numbers of people impacted with a significant number of fatalities (>50), injuries in the hundreds Very heavy contamination, widespread effects of extended duration.

The risks are then ranked according to their own risk score (1-5) in a colour coded matrix able which allows risks to be easily displayed and prioritised. The colour codes are as follows and indicated in Table 15-2.:

- Red – high level risks requiring priority action (overall risk scores of 15-25);

- Yellow – medium-level risks requiring action, but not as critical as red-coded risks (overall risk scores of 8-12); and
- Green (light and dark) – low-level risks requiring continuing awareness and monitoring on a regular basis (overall risk scores of 1-6).

Table 15-3 - Example Risk Matrix

Likelihood	Consequence: Trivial	Minor	Moderate	Major	Massive
Very High	Low	Medium	High	High	High
High	Low	Medium	Medium	High	High
Medium	Low	Low	Medium	Medium	High
Low	Low	Low	Low	Medium	Medium

15.2.4 Forecasting Methods and Difficulties Encountered

No difficulties were encountered in completing this chapter.

15.3 Receiving Environment

The EIA Directive requires the following to be described relating to the baseline scenario:

"A description of the relevant aspects of the current state of the environment (baseline scenario)".

The Proposed Project is a Gas-Powered Peaker Plant and associated infrastructure at Pollnagroagh / Rathmorrissy, Athenry, Co. Galway. Refer to Chapter 2 Project Description for a detailed description.

The main receptors of the Proposed Project are;

Ground (Soils / Surface Land)

The Site is predominantly greenfield agricultural land with no contamination identified in initial studies. The existing geological layers are predominately Marine shelf facies; Limestone and calcareous shale. Teagasc Soils underlying the site consist of bedrock at surface calcareous which are made up of renzinas and lithosols. The proposed UGC route is predominantly underlain by tills derived of limestone which are made up of grey brown podzolics and brown earths. The primary superficial / quaternary sediments underlying the vicinity of the site comprise Karstified bedrock outcrop or subcrop and Till derived from Limestones. the predominant underlying bedrock of the route as the Burren Formation, which is made up of Pale grey clean skeletal limestone with small portions of Bedrock outcrops in the northern extents of the site (Chapter 11 Land, Soils & Geology).

Groundwater

The Proposed Project is underlain by a Regionally Important Aquifer – Karstified. There are areas of Locally Important Aquifer – bedrock which is moderately productive only in local zones to the immediate north and south of the Proposed Project. There are no karst features located within the site of the Proposed Project. However there are seven karst features located within 50m of the proposed route including: Five enclosed depressions and two caves. The Proposed Project is within two ground waterbodies including: Clarinbridge (European Code: IE_WE_G_0008) which is classified as 'Good' and is 'Not at risk' of failing to achieve good WFD status by 2027 and Groundwater Dependent Terrestrial Ecosystems Galway Bay Complex Fens (SAC000268) (European Code: IE_WE_G_0087) which is classified as 'Good' and is 'Not at risk' of failing to achieve good status by 2027. According to the GSI database, there are no group water scheme or public water supply abstraction points, or designated group water scheme or public water supply Source Protection Areas within the vicinity of the Site. The closest Groundwater Scheme is the Carheenlea GWS (Code: IE_GSI_ZOC_53) located ca. 4.4km north of the Proposed Project, more details of groundwater are available in Chapter 11 Water.

Surface Water

No surface watercourses are present within the immediate site (none within ~2km). The nearest named rivers are the Clarinbridge (circa 2.7km SE) (European Code: IE_WE_29C020400) and the Clare (Galway) (circa 4km NW) (European Code: IE_WE_30C011200); transitional/coastal waterbodies (Oranmore Bay, Inner Galway Bay North, Corrib Estuary) are 9–13km away. Some nearby sub-catchments have historic WFD classifications of Moderate/Poor, but adjacent coastal/transitional waterbodies are currently classified as 'Not at risk' of failing 'Good' status by 2027. Flood risk on site is low (Flood Zone C; see Chapter 11 Water for more detail).

15.3.1 Nearby Projects

There is a proposed windfarm *circa* 20km away; however, was included as there will be some overlap with the underground grid corridor, away from the Proposed Project and is subject to planning consent. The '*Gannow Renewable Energy Development'*, will be in the townlands of Gannow, Attimonmore South, Cappanasruhasun, Killimor, Cappaghnanool, Derrynamanagh, and will comprise of a wind farm and an underground grid connection cabling following the public road network, as stated in the EIAR accompanying the windfarm project planning.

The Gannow Renewable Energy Development which, subject to planning will consist of the following:

- 8 No. wind turbines, with a ground to blade tip height range of 178m-185m (hub height range of 101m-104m and a rotor diameter range of 149m-163m);
- Meteorological mast 30m in height;
- On-site 38kV electrical substation including associated infrastructure;
- 38kV underground electricity cabling (c.21km) located primarily within the public road corridor to facilitate the connection to the national grid at Cashla 220 kV Substation in Barrettspark, Co.Galway;
- 2 No. Temporary construction compounds; and
- New permanent site entrance off the L3115 local road.

The Gannow Renewable Energy Development is not likely to impact the Proposed Project, from a major accidents and disasters perspective, as there are no major accidents that could interact between the projects.; therefore, the impact is considered to be negligible and not significant.

15.3.2 Nearby Industrial Licensed Sites

Table 15-4 details the sites which operate under Directive 2010/75/EU (the Industrial Emissions Directive) licences from the Environmental Protection Agency, within a 5km radius of the Proposed Project. A 5km radius has been selected because sites beyond this distance are unlikely to have any meaningful interaction with or impact on the Proposed Project.

Table 15-4 - Industrial Emissions License Site within 5km of Proposed Project

Registration number	Name	Category	License Type	Distance (km) & Direction
P0369-01	Byrne-Mech Limited	Industry	IEL	3.7km east

There will be no interaction between major accidents at the Byrne-Mech facility and the Proposed Project, therefore, there are no constraints to the Proposed Project from licenced sites nearby the Proposed Project.

15.3.3 Nearby Seveso Establishments

Seveso establishments have a “consultation distance” which is defined as “a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment” (COMAH Regulations). There are no Seveso sites within 5km radius of the Proposed Project, and impacts further than 5km from the Proposed Project are considered extremely unlikely.

The Proposed Project site is not located within the consultation zones of any Seveso establishment; therefore, there are no constraints to the Proposed Project at this location from nearby Seveso establishments.

15.3.4 Seismic Activity

In Ireland, seismic activity is recorded by the Irish National Seismic Network. The Geophysics Section of the School of Cosmic Physics, Dublin Institute for Advanced Studies, has been recording seismic events in Ireland since 1978 (www.dias.ie). This network consists of several seismometers that are located throughout Ireland. Figure 15-1 illustrates historical and recorded seismic events since 1980.

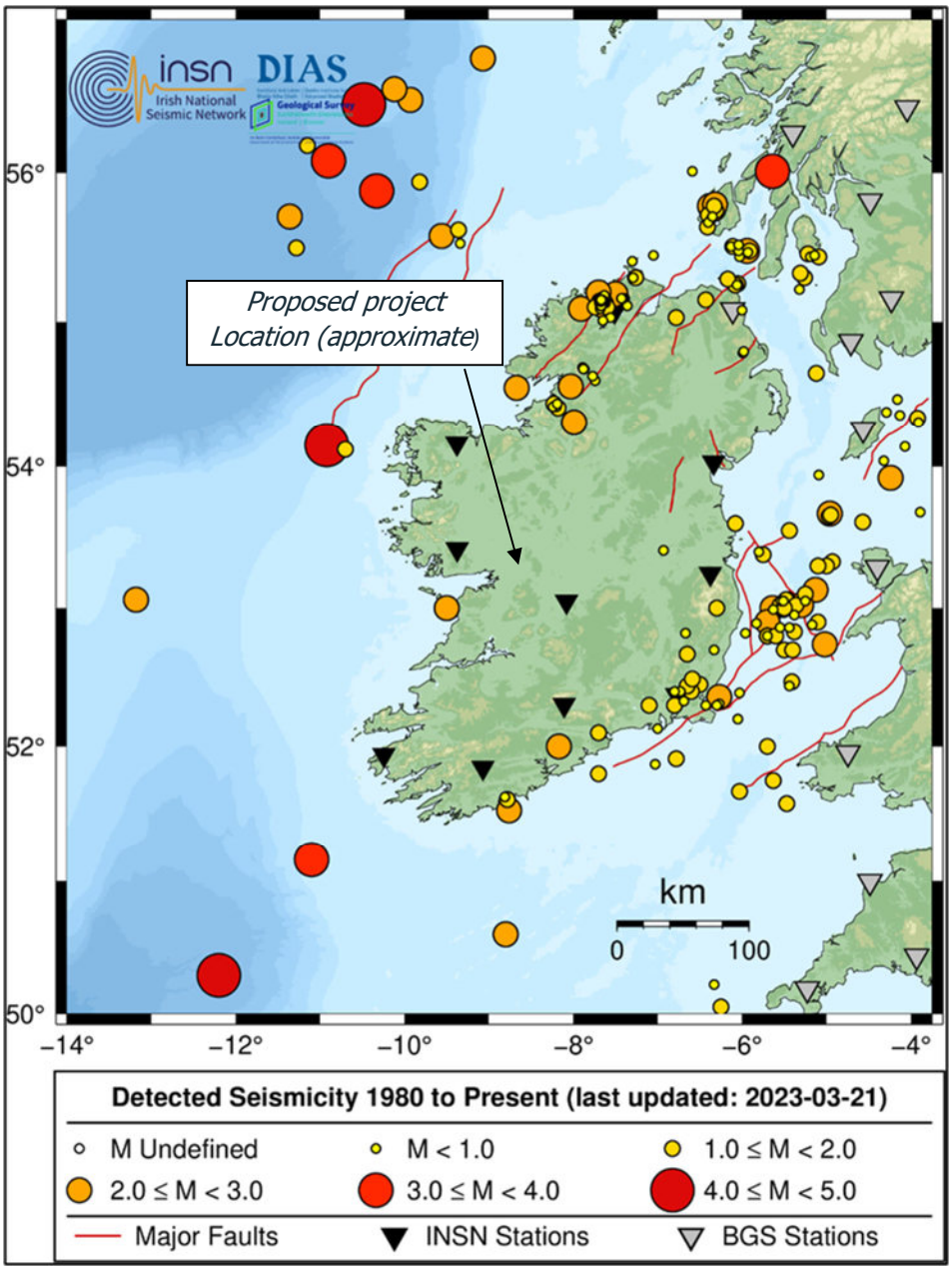


Figure 15-1 - Ireland Seismic Activity Map

Seismic activity and earthquake risk in Ireland are generally considered to be low. This is because Ireland is located on the western edge of the Eurasian Plate, which is a tectonic plate that is not known for its seismic activity. However, earthquakes can still occur in Ireland, although they are typically small and have little impact.

It can be seen in Figure 15-1 that there is no seismic activity recorded in the vicinity of the Proposed Project. Therefore, the likelihood of seismic activity impacting the Proposed Project is negligible; therefore, not significant.

15.3.5 Flood Risk

According to the site-specific Flood Risk Assessment (FRA) carried out by AtkinsRéalis Limited (2026), the Proposed Project is shown not to be at a significant risk from flooding. It is discussed in the Water chapter of this EIAR (Chapter 12 Water).

The FRA concluded the following:

- There was no historic risk of flooding identified in the Proposed Project site;
- There were no Alluvium deposits identified on the Proposed Project site; and
- It is indicated by the Office of Public Works (OPW) Floodmaps and the general viewer that the proposed site is in Floodzone C

It was concluded from the Stage 1 FRA, that there was no requirement for a Stage 2 FRA as the Proposed Project site is not at risk of flooding.

15.3.6 Landslides

Much of the Earth's surface is covered by unconsolidated sediments which can be especially prone to instability. Instability is often significantly increased by man's activities in building houses, roads, drainage and agricultural changes, which can result in landslides, mud flows, bog bursts and debris flows. These can cause damage to property, infrastructure, the natural environment, and can also pose a risk to human life.

In general, risk of landslides in Ireland is generally considered to be low, as the country is not located in a region with high seismic activity or large mountain ranges. Landslides are more common in unconsolidated material than in bedrock, and where the sea constantly erodes the material at the base of a cliff landslides and falls lead to recession of the cliffs. Landslides have occurred in Ireland in recent years in upland peat areas due to disturbance of peat associated with construction activities.

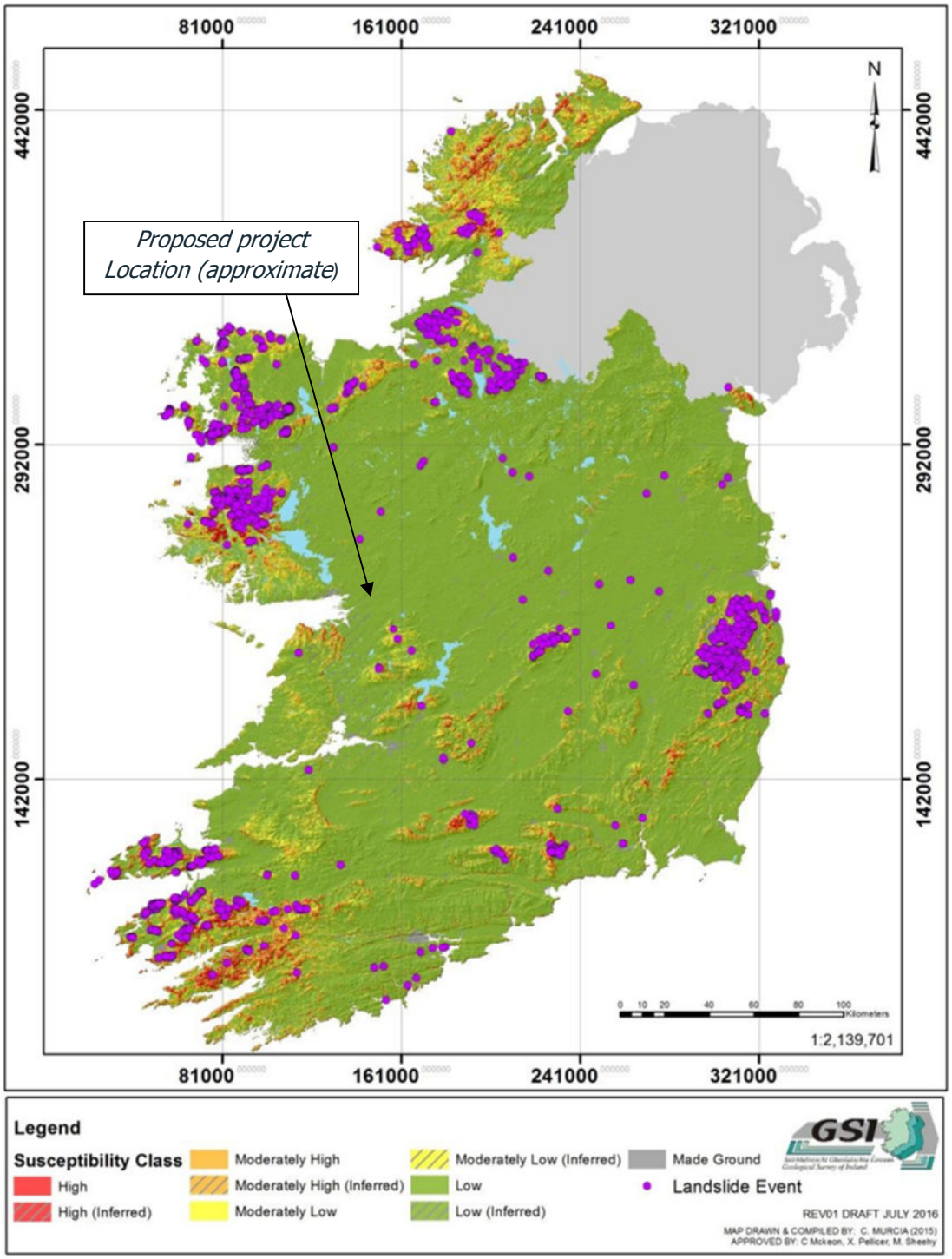


Figure 15-2 - Landslide Susceptibility Map (GSI Ireland)

The landslide susceptibility map identifies areas which are subject to landslides and is measured from low to high. The landslide susceptibility map considers the location of landslides and what causes them (slope, soil type and the impact of the flow of water). It can be seen in Figure 15-2, that the Proposed Project and the surrounding area have a low susceptibility of landslides. Therefore, the likelihood of a landslide impacting the Proposed Project is negligible; therefore, not significant (see Chapter 12 Land Soils and Geology for more information).

15.3.7 Major Accident Hazards

The major accident hazards identified in the Land Use Planning assessment (Cashla Peaker Plant, COMAH Land Use Planning report (ref no: 257501.0147), AWN Consulting (2025)) (included in Appendix 15-1, Volume 3 of the EIAR), for the Proposed Project, are presented in Table 15-5.

Table 15-5 - Major Accident Hazards at Proposed Project

Installation	Loss of Containment Scenario	Consequence/Event	Reference
Indoor equipment (release of natural gas in turbine enclosure)	Instantaneous failure	VCE (1)	Table 64, HSA TLUP Guidance Document, HSA, 2023
	Continuous leak over 10 minutes	VCE	
	10 mm pipe leak over 30 minutes	VCE	
Natural Gas Pipeline	Rupture of Pipelines	Fireball/Jet fire	Table 40/41 and Table 42, HSA TLUP Guidance Document, HSA, 2023
		VCE	
		Flash fire	
	Pipeline Leak (10% of the pipeline diameter)	Fireball/Jet fire	
		VCE	
		Flash fire	
LPG Tank	Instantaneous release	Fireball	Table 23, HSA TLUP Guidance Document, HSA, 2023
		VCE	
		Flash fire	
	Continuous leak over 10 minutes	Jet fire	
		VCE	
		Flash fire	
	10 mm pipe leak over 30 minutes	Jet fire	
		VCE	
		Flash fire	
LPG Road Tanker	Instantaneous failure	Fireball	Table 24, HSA TLUP Guidance Document, HSA, 2023
		VCE	
		Flash fire	
	Loss of entire contents through largest connection	Jet fire	
		VCE	
		Flash fire	
		Jet fire	Table 25,

Installation	Loss of Containment Scenario	Consequence/Event	Reference
	Rupture of unloading house	VCE	HSA TLUP Guidance Document, HSA, 2023
		Flash fire	
	Leak of unloading house 10% of diameter	Jet fire	
		VCE	
		Flash Fire	
	BLEVE (hot)	BLEVE (hot) (2)	
Diesel	Instantaneous failure	Pool fire	

Note:

1. *VCE Vapour Cloud Explosion*
2. *BLEVE Boiling Liquid Expanding Vapour Explosion*

The Land Use Planning assessment (AWN, 2025) concluded that the individual location-based risk contours corresponding to tolerable levels for new COMAH establishments do not extend to an off-site work location or to an indoor area where the public are present. Therefore, it is concluded that the criteria in Table 1 of the *Guidance on Technical Land Use Planning advice (HSA, 2023)* are met, and level of off-site risk at the Proposed Project is acceptable. Therefore, it is concluded that the risk from a major accident, at the Proposed Project, to human health and environment in the surrounding area, will be **not significant**.

15.4 Characteristics of the Proposed Project

The purpose of this section is to provide an overview of the key relevant details of the construction operational phase and decommissioning phase of the Proposed Project. The information presented in this section is informed by the project design, but it is not a complete description of the Proposed Project. Therefore, it should be read in conjunction with the full project package.

The Proposed Project will be classified as a “lower tier” COMAH establishment and as such will be subject to the provisions of the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, S.I. No. 209 of 2015.

Chapter 2 Project Description provides a detailed overview of the lifecycle of the project, including reference to the architectural and civil engineering, drawings, plans, reports, and other relevant documents in order to define the Proposed Project.

15.4.1 Hazardous Materials

15.4.1.1 Construction Phase

Flammable Gas Cylinders

Construction and maintenance activities may require welding which can be carried out using compressed gases such as acetylene. There is the potential for a release of flammable gas, including an explosive depressurisation

event, for example due to accidental damage to a gas cylinder, pressure regulator, or associated pipework. The released gas could be ignited, resulting in a fire or explosion. The potential risks of which could include harm to persons due to thermal radiation and damage to property and the environment.

Concrete

There is the potential for an accidental release of concrete into the soil, or surface water during the construction of the Proposed Project. Concrete is not classified hazardous in accordance with the Chemical, Label and Packaging (CLP) Regulations (EC No. 1272/2008); however, concrete paste is alkaline (pH 10-14); therefore the potential impacts if concrete enters the environment via a release to water, include:

- Raising the pH causing harm to aquatic ecosystems
- Cause sedimentation on aquatic beds, which could harm flora and fauna.

Fuel Storage

Small quantities of low sulphur diesel will be present on-site for use in construction vehicles. Diesel has flammable and environmental hazards.

Diesel is classified as an ignition category 3 substance, following the criteria in the Guidance on Technical Land Use Planning (HSA, 2023); therefore, it has an ignition probability of 0. Therefore, there is no potential for flammable hazards associated with diesel and it is therefore scoped out from further assessment.

Due to the small quantities of low sulphur diesel involved, there is no potential for a spill of low sulphur diesel to meet the criteria for a Major Accident and it is therefore scoped out from further assessment.

15.4.1.2 Operational Stage

Natural Gas

The OCGT unit will primarily run on natural gas supplied from the GNI network. Natural gas is classified as a Flammable Gas Category 1 with hazard statement H220 extremely flammable gas.

Natural gas will be piped to the onsite Above Ground Installation (AGI) connection from the Gas Networks Ireland (GNI). The AGI will facilitate regulation of the gas pipeline pressure from the GNI supply pressure of 85bar (maximum) to a maximum site pressure of 35bar. Access to the AGI will be restricted to Gas Networks Ireland (GNI) personnel only.

The completed AGI and gas supply system will be designated as a hazardous area with the designation and extent determined in accordance with EU Directive 2014/34/EU which governs equipment used in potentially explosive atmospheres and EU Directive 99/92/EC (ATEX Workplace Directive) to protect workers from fire and explosion risks caused by dangerous substances. All electrical and control instrumentation installed within the hazardous area will comply with IEC 60079 standards for explosive atmospheres.

The potential impacts of a fire and / or explosion as a result of a release of Natural Gas result in:

- A major fire which could escalate to other areas.
- Thermal radiation generated by a major fire and / or explosion overpressures could cause significant harm to persons including up to the potential for fatal injuries.
- Harm to persons due to smoke inhalation.
- Damage to property within the site.

Secondary Fuel Storage

Low sulphur diesel (secondary fuel) will be provided as a secondary source of fuel for the OCGT.

Diesel is classified as an ignition category 3 substance, following the criteria in the *Guidance on Technical Land Use Planning Advice* (HSA, 2023); therefore, it has an ignition probability of 0. Therefore, there is no potential for flammable hazards associated with low sulphur diesel and it is therefore scoped out from further assessment.

Low sulphur diesel (secondary fuel) will be stored in 2 No. double-skinned tanks, with the capacity of 3,335m^3 each within a bunded area (i.e. total of 6670m^3 / 5470 tonnes). The bund will be reinforced concrete and will have at least 110% of the greatest individual tank or 25% of the total volume of fuel that could be stored within the bunded area, whichever is the greater. The bund will have a leak detection system. Each secondary low sulphur diesel storage tank will have automatic leakage detectors within the inter-tank space to detect leakage from the primary inner tank and regular external inspections to detect any deficiencies in the secondary outer containment tank. In the event of leakage being detected from the primary tank, the tank contents would require to be removed by road tanker to a suitable offsite low sulphur diesel storage facility and returned once appropriate repairs had been undertaken.

The tanks will be designed in accordance with EN 14015 inclusive of all safety features required by the standard and as the result of safety design reviews during the detailed design stage.

The secondary fuel will be offloaded on site from road tankers. A dedicated unloading bay will be provided that can collect any spills to prevent any discharge to ground.

Double-skinned tanks along with leak detection system and presence of a bund eliminate a Major Accident to the Environment (HSA, 2023); therefore, a release of low sulphur diesel (secondary fuel) from the storage tanks will not be considered further in this assessment.

Propane

There will be 1 No. propane storage tank onsite, with the capacity to contain up to 1 tonne of propane gas. The propane will support gas turbine start-up when it is run on low sulphur diesel (secondary fuel).

The potential impacts of a fire and / or explosion as a result of a release of propane consist of:

- A major fire which could escalate to other areas.
- Thermal radiation generated by a major fire and / or explosion overpressures could cause significant harm to persons including up to the potential for fatal injuries.
- Harm to persons due to smoke inhalation.
- Damage to property within the site.

Mineral Oil

Mineral oil will be used in shunt reactor. Mineral oil has no hazard phrases in accordance with Regulation (EC) No 1272/2008 (the CLP Regulation). Therefore, it is scoped out of further assessment.

Maintenance Workshop

The Maintenance Workshop is designed to accommodate routine plant maintenance equipment and small quantities of chemicals (see Table 15-6).

Table 15-6 - Chemical Storage and estimated volumes

Chemical	Volume
Lubricating oil to top-up equipment bearing lubrication systems	100L
Lubricating grease to top up equipment bearing grease	50kg
Water system biocide to protect the closed-circuit cooling system	100L
Biocide for low sulphur diesel storage	1000L
Corrosion Inhibitor to protect the closed-circuit cooling system	100L
Weak sulphuric acid	1no. IBC (1000L)

The Proposed Project will have containment systems to intercept any material released. Workshop flooring will be constructed from reinforced concrete, specified with epoxy coatings in workshop areas to resist chemical exposure and mechanical wear. This will stop the release of chemicals to the environment during day to day use. Retention facilities will be provided to contain any potentially contaminated firewater produced during a fire and to provide for storage for later disposal off-site by tankers. The system accounts for concurrent rainfall (10-year, 24-hour storm event), chemical spill and firefighting water. Only affected catchments that contain hazardous spills will divert runoff to containment, minimizing tank size while meeting EPA licensing requirements.

Any hazardous waste residues or potentially contaminated sludge resulting from spill clean-up activities will be:

- Stored in appropriate metal or plastic containers.
- Placed in temporary bunded storage areas within the construction compound.
- Removed from site by an approved, permitted/licensed waste management contractor for appropriate off-site treatment, recycling, or disposal. Documentation will be maintained.

Due to the small quantities of chemicals present and the mitigation measures that are in place, it is unlikely that a release could lead to a consequence that meets the criteria of a Major Accident; therefore, it is scoped out from further assessment.

A CRAMP (Closure and Aftercare Management Plan) will be completed for the Proposed Project which will ensure all major accidents will be managed appropriately during decommissioning.

15.5 Potential Impacts of the Proposed Project

The baseline environment, pollution pathways, relevant mitigation measures and residual impacts have been assessed in greater detail within the corresponding specialist chapters; Chapter 4 Population and Human Health, and Chapter 11 Land, Soils and Geology.

15.5.1 Construction Phase

General construction activities will include ground preparation, excavation, construction of structures. These activities will require the use of vehicles and tools. The hazards associated with activities include the potential for vehicle impact, particularly during reversing and vehicle overturning. The controls around this work will be managed by appropriate risk assessments to control the risks to people, the environment and also to the existing operational areas.

Mitigation measures that will be used are consist of :

- Traffic management plan
- Emergency response plan
- Restricted access to relevant people
- Security facilities/fencing/CCTV
- Gravel areas (gravel topping on soil, lined with impermeable membrane underneath with a series of land drains to collect infiltrated runoff and discharge to soakaway via petrol interceptor)
- Dedicated footpaths
- Hard standing areas for low sulphur diesel (secondary fuel) fuel offloading with provision to collect any spilled low sulphur diesel to prevent any discharge to ground
- Firefighting system site wide
- Equipment containing stored volumes of flammable liquids (step up transformer, auxiliary transformer, gas turbine lubrication oil tank and the low sulphur diesel fuel tanks) are protected with water deluge systems. This consists of a number of water spray nozzles arranged around the equipment connected to the site fire water distribution system.

A detailed description of the construction phase and relevant mitigation measure during each activity is discussed in detail in Chapter 2 Project Description.

A site-specific Construction Environmental Management Plan (CEMP) and a Health and Safety Plan will be produced by the Construction Contractor, covering the construction and commissioning of the Proposed Project. The Preliminary Safety & Health Plan will be prepared to ensure compliance with relevant health and safety legislation including the Safety, Health and Welfare at Work Act (2005).

The following risks of major accidents or disasters associated with the Proposed Project have been identified for further assessment:

- Extreme heat or cold weather resulting in structural damage and/or pollution to soils, groundwater or surface waters
- Storm events (including lightning) resulting in structural damage and/or pollution to groundwater and surface waters
- Flooding
- Flash fire, Explosion or Jet fire following compressed gas cylinder release (e.g. acetylene for welding)
- Flash fire, Explosion or Jet fire following natural gas release

The impact and likelihood of these scenarios is assessed in Table 15-7. There are no likely impacts on the project to off-site receptors during the construction phase in relation to major accidents and disasters.

Table 15-7 - Assessment of Major Accidents and Disasters for Construction Phase

Risk ID	Major Accident	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
C1	Extreme heat or cold weather resulting in structural damage and/or pollution to soils, groundwater or surface waters	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	The Proposed Project will be constructed, and operated in accordance with all relevant planning, building and environmental licencing codes (Building Regulations, 2012).	1	The Proposed Project will be constructed, and operated in accordance with all relevant planning, building and environmental licencing codes (Building Regulations, 2012). Continuous monitoring of the construction activities and monitoring of surrounding environment during construction phase will be conducted.	2
C2	Storm events (including lightning) resulting in structural damage and/or pollution to groundwater and surface waters	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	The engineering design of the Proposed Project will incorporate lightning mitigation. This will be assessed in accordance with recognised industry standards such as EN/IEC 62305.	1	All construction activities will be suspended during extreme weather events.	2

Risk ID	Major Accident	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
				Temporary storage systems will be employed during construction of the Proposed Project. Containment systems to intercept any material released will be developed within a Construction Phase Environmental Management Plan (CEMP)			
C3	Flooding	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	A Flood Risk Assessment was prepared in accordance with 'The Planning System and Flood Risk Management - Guidelines for Planning Authorities' issued by the Department of Environment, Heritage and Local Government in November 2009.	1	The flood risk assessment concluded that there is no flood risk to the site.	2
C4	Flash fire, Explosion or Jet fire following compressed gas	Human Health	3	There is potential for harm to persons on-site in the vicinity of	1	European Industrial Gases Association standard procedures	3

Risk ID	Major Accident	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
	cylinder release (e.g. acetylene for welding)			the hazardous gas release. A Site Emergency Response Plan will be developed prior to the commencement of operations and will include detailed procedures in the event of a major accident.		will be used for the storage and use of gas cylinders. When not in use, cylinders will be stored in external, well-ventilated areas and when in use, appropriately certified equipment will reduce the potential for ignition if a flammable gas is accidentally released. Detailed method statements, plans and assessments will be produced to carry out natural gas activities safely.	
C5	Flash fire, Explosion or Jet fire following natural gas release	Human Health	3	There is potential for harm to persons on-site in the vicinity of the hazardous gas release. A Site Emergency Response Plan will be developed prior to the commencement of operations and will	1	The Gas Networks Ireland (GNI) Code of Practice for Working in the Vicinity of the Transmission Network (Procedure No: AO/PR/127, 2021) will be followed.	3

Risk ID	Major Accident	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
				include detailed procedures in the event of a major accident.		Detailed method statements, plans and assessments will be produced to carry out natural gas activities safely.	
C6	Release of Concrete paste to surrounding environment	Biodiversity, soils and geology, hydrology and hydrogeology	2	The low quantities associated with a potential release would not likely result in serious consequences.	1	Temporary storage systems will be employed during construction of the Proposed Project. Containment systems to intercept any material released will be in place and detailed in a Construction Phase Environmental Management Plan (CEMP) and standard techniques will be used to pour cement onto prepared areas.	2

15.5.2 Operational Phase

The following potential risks of major accidents or disasters in connection with the Proposed Project have been assessed:

- Release of Natural Gas;
- Extreme heat or cold weather resulting in structural damage and/or pollution to soils, groundwater, or surface waters;
- Storm events resulting in structural damage and/or pollution to groundwater and surface waters;
- Flooding; and
- Release of Propane.

The impact and likelihood of these scenarios is assessed in Table 15-8. There are no likely impacts on the project or to off-site receptors during the operation phase in relation to major accidents and disasters.

Table 15-8 - Assessment of Major Accidents and Disasters for Operational Phase

Risk ID	Major Accident Scenario	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
O1	Flooding	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	A Flood Risk Assessment was prepared in accordance with 'The Planning System and Flood Risk Management -Guidelines for Planning Authorities' issued by the Department of Environment, Heritage and Local Government in November 2009. It was concluded that the Proposed Project is within Flood Zone C.	1	The flood risk assessment concluded that there is no flood risk to the site.	2
O2	Extreme Weather (e.g. heat, cold, wind and storms, resulting in result structural damage)	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	Increases in extreme weather could lead to operational instability in equipment, including electrical apparatus that is sensitive to temperature and humidity, *e.g.* sensors and/or ventilation systems . While extreme temperatures may cause temporary interruptions to operations at the Proposed Project, they are not expected to lead to incidents with the potential to cause a major accident or disaster. Increasing atmospheric wind speeds could cause structures to become unstable. In a worst-case event, these structures could fall and/or collapse resulting in harm to people in the vicinity. The structural engineering design of the facilities will calculate wind loading and other requirements based on industry standard guidance and methods.	1	The Proposed Project will be constructed, and operated in accordance with all relevant planning, building and environmental licencing codes (Building Regulations, 2012). The engineering design of the facilities will take operation at future climatic conditions into account.	2

Risk ID	Major Accident Scenario	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
O3	Flash fire, Explosion or Jet fire following Natural gas release	Human Health	3	There is potential for harm to persons on-site in the vicinity of the hazardous gas release. Detailed method statements, plans and assessments will be produced to carry out natural gas activities safely. A Site Emergency Response Plan will be developed prior to the commencement of operations and will include detailed procedures in the event of a major accident.	1	The design equipment and pipework will be to industry codes and standards to reduce the potential for a loss of containment, including the use of welded connections to avoid potential leak sources. The Proposed Project will be operated and managed in accordance with all Regulatory requirements, including COMAH and IE licence conditions. Detailed method statements, plans and assessments will be produced to carry out natural gas activities safely. A Site Emergency Response Plan will be developed prior to the commencement of operations and will include detailed procedures in the event of a major accident.	3
O4	Flash fire, Explosion or Jet fire following Propane gas release	Human Health	3	There is potential for harm to persons on-site in the vicinity of the hazardous gas release. Detailed method statements, plans and assessments will be produced to carry out Propane gas activities safely. A Site Emergency Response Plan will be developed prior to the	1	The design equipment and pipework will be to industry codes and standards to reduce the potential for a loss of containment, including the use of welded connections to avoid potential leak sources. The design will be subject to numerous formal process safety studies to identify and mitigate	3

Risk ID	Major Accident Scenario	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
				commencement of operations and will include detailed procedures in the event of a major accident		hazards, such Hazard and Operability (HAZOP) studies. Detailed method statements, plans and assessments will be produced to carry out gas activities safely. The Proposed Project will be operated and managed in accordance with all Regulatory requirements, including COMAH and IE licence conditions. A Site Emergency Response Plan will be developed prior to the commencement of operations and will include detailed procedures in the event of a major accident.	

15.5.3 Decommissioning

It is proposed that the Peaker Plant will operate until 31st December 2050. During the life span some equipment may require replacement; such decommissioned items will be sent to licensed recycling facilities.

At the end of the life of the plant unused fuel, fluids and chemicals will be removed and either re-used/sold, or else handled by licensed waste contractors for treatment if no re-use is viable.

Under IE Licence requirements BGE will prepare and maintain an Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP).

Decommissioning of the AGI is responsibility of GNI will be conducted following GNI's established procedures and the best practices in place at the time of closure. This process will include the safe isolation of all gas infrastructure, removal of the gas inventory, and de-energisation of equipment. Pipework will be purged, degassed, and rendered inert according to GNI's transmission decommissioning procedure AM/BP/107. Where applicable, any redundant underground infrastructure may be filled with grout to ensure long-term stability.

Process equipment will be repurposed with the operator's other facilities where possible or sold on the used-equipment market. If there is no viable re-use option available the equipment components will be removed to licenced recycling facilities and recycled as much as is possible.

Building and structural materials will be removed by licensed contractors for potential re-use and concrete foundations and roads will be broken up and removed for re-use as much as legislation allows. Subsurface concrete piling if required will be broken to 1m depth leaving remainder in the ground.

Once all equipment and structure material will be removed previously excavated soils will be reapplied where compatible with boundary vegetation. The onsite 220 kV substation will remain under the control of EirGrid and will form part of the national grid.

A CRAMP (Closure and Aftercare Management Plan) will be completed for the Proposed Project which will ensure all major accidents will be managed appropriately during decommissioning.

Based on the CRAMP plan and mitigation measures in place for decommissioning phase, there are no likely impacts on the project or to off-site receptors during decommissioning in relation to major accidents and disasters.

15.5.4 Do Nothing Scenario

The EIA Directive requires the following to be described relating to the future receiving environment (the 'Do Nothing' scenario):

"an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge".

For the purposes of this EIAR, the 'Do Nothing' scenario represents the likely evolution of the baseline in the absence of the Proposed Project, in accordance with the requirements of the EIA Directive. This scenario considers how the receiving environment, and specifically the potential for major accidents and disasters, would naturally change based on available environmental information.

Under the Do Nothing Scenario, no construction or operational activities would occur and the site would remain in its current condition. The baseline characteristics of the site and its surroundings are expected to remain largely unchanged. While broader environmental trends such as climate related changes or incremental shifts in local land use may occur over time, these are not anticipated to materially alter the site's exposure to major accident and disaster related risks. Accordingly, no significant change in the overall risk profile is predicted in the absence of the Proposed Project.

15.5.5 Indirect or Secondary Impacts

The Proposed Project will be a COMAH facility as it will store above threshold quantities of hazardous materials, which are in excess of the defined COMAH thresholds set out in Schedule 1 of the COMAH Regulations. The Health and Safety Authority (HSA), which is the central competent authority for regulatory control of COMAH sites, require COMAH sites to have a 'consultation distance'. A consultation distance (CD) is a distance around an establishment, within which there are potentially significant consequences from major accidents to people (or to the environment).The developers of future developments within the consultation distance of the Proposed Project would be required to complete a Land Use Planning assessment. Therefore, the Proposed Project could not have indirect impacts on the type of project that are permitted within its consultation distance.

A proposed consultation distance has been provided in the Land Use Planning assessment, attached as an Appendix to this EIAR (Appendix 15-1, Volume 3 of the EIAR).

The overall character of the surrounding area is a low density population. Therefore, the indirect impacts are considered not significant.

15.6 Mitigation Measures

The Proposed Project has been designed in line with good industry practice, and mitigation against the risk of major accidents and/or disasters is embedded through the design, in accordance with planning and legislative requirements. There is a layered suite of mitigation measures embedded across design, construction, operation and decommissioning to prevent, detect and respond to major accidents and disasters, see Chapter 2 for detail description of mitigation measures in place for the Proposed Project. These include, regulatory compliance with COMAH and IE licensing and adherence to national and international codes and standards.

Enhanced security measures will be implemented when the existing pipeline is exposed and will be confirmed in consultation with the on-site Inspection Personnel & Engineering Contractors. These measures may include temporary backfilling of exposed pipe sections or the deployment of 24-hour on-site security personnel, depending on the assessed risk and site-specific requirements.

A site Major Accident Prevention Policy, including an Emergency Response Plan, will be developed prior to the commencement of operations and will include detailed procedures in the event of a major accident.

Engineering controls that are built into the design and will be implemented comprise double-skinned low sulphur diesel tanks with interstitial leak detection, continuous emissions monitoring (CEMS), hydrocarbon interceptors, SuDS where viable, a dedicated static firefighting tank, and contaminated-firewater capture tanks sized for two hours of firefighting plus concurrent storm runoff with licensed off-site removal. A detail description of all the mitigation measure that will be used for Proposed Project is available in Chapter 2 Project Description.

Operational controls consist of:

- Routine inspections

- Integrity monitoring
- Maintenance regimes
- Safe chemical storage
- licensed waste removal and clear decommissioning provisions (ELRA/CRAMP).
- Traffic management plan
- Emergency response plan
- Restricted access to relevant people in different areas of the site
- Security facilities/fencing/CCTV
- Gravel topping on soil, lined with impermeable membrane underneath with a series of land drains to collect infiltrated runoff
- Hard standing areas for low sulphur diesel fuel offloading and collection of any spilled diesel
- Bunds to contain Fuel
- Site wide firefighting system and alarms

Collectively, these prevention, detection, containment and emergency-response measures coupled with regulatory oversight are presented as proportionate and robust.

As no likely significant effects were identified, no additional mitigation measures are proposed.

15.7 Residual Effects of the Proposed Project

The residual effects are the final predicted or intended effects which occur after the proposed mitigation measures have been implemented. As no likely significant effects were identified, there is no potential for residual effects.

15.8 Conclusion

The chapter evaluates the risk of major accidents and disasters for the proposed gas fired Peaker plant at Pollnagroagh / Rathmorrissy, Athenry, across construction, operation and decommissioning. The Proposed Project will be classified as a lower tier COMAH establishment. The assessment is in accordance with relevant Irish and EU guidance and legislation (EPA EIAR guidance, IEMA MA&D guidance, COMAH/Seveso transposition, HSA land use planning guidance, OPW flood guidance and applicable building and safety regulations) and uses a site specific risk assessment method to identify hazardous substances, plausible accident scenarios, and the site's vulnerability to natural and man-made events.

Major accident and disaster scenarios have been identified, assessed and managed through design, operation and management measures. Key hazards considered include releases of natural gas, propane and compressed gas cylinders during construction and operation, together with foreseeable natural hazard influences such as extreme weather, flooding and low landslide/seismic susceptibility. Engineering design features, robust containment and drainage systems, double skinned fuel tanks with interstitial leak detection, segregated contaminated firewater capture and off site licensed disposal, and noise and emissions monitoring form embedded prevention and mitigation layers. The site will be subject to regulatory regimes (COMAH, IE licensing standards and relevant codes and standards) and to formal safety studies and procedures, including detailed method statements, a Construction Environmental Management Plan (CEMP), and a Site Emergency Response Plan (ERP) with defined responsibilities, training and emergency arrangements.

Given these embedded controls, the likelihood and severity of off-site consequences from the assessed MA&D scenarios are low; individual location based risk contours do not extend to off-site workplaces or indoor public

spaces and no Seveso establishments lie within the consultation distance. Flood risk, landslide and seismic risk at the site are all assessed as negligible or low. Consequently, after implementation of the committed design, operational and emergency measures, no significant adverse off site effects from major accidents or disasters are predicted. Residual risks at the site are therefore considered not significant, and potential cumulative MA&D effects with nearby developments are assessed as neutral/imperceptible. Appropriate decommissioning and closure arrangements, including environmental liabilities assessments and Closure, Restoration and Aftercare Management Plans, will further ensure risks are managed at end of life. Overall, with the specified controls, regulatory oversight and emergency preparedness in place, the Proposed Project's MA&D risks to human health and the environment are considered acceptably low.

16. Cumulative Impacts

16.1 Introduction

This Chapter assesses the potential for the Proposed Project to act in combination with proposed and permitted projects and plans within the vicinity to result in cumulative impacts on the environment.

Competent technical experts, as presented in Chapter 1 of this EIAR, have carried out a cumulative impacts assessment with respect to the following specific environmental factors:

- Population and Human Health
- Biodiversity
- Noise & Vibration
- Land, Soils and Geology
- Water
- Air Quality
- Waste Management
- Climate
- Material Assets
- Cultural Heritage
- Landscape & Visual Impact Assessment
- Traffic and Transport

The EIA Directive states that an EIAR should contain cumulative effects, which are defined as:

'A description of the likely significant effects of the project on the environment resulting from…the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.'

16.2 Methodology

Cumulative impacts are defined as *'the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects'* (EPA, 2022). All proposed and permitted projects and plans in the immediate environs, approved by Galway County Council or An Coimisiún Pleanála (ACP) within the last 5 years, have been reviewed.

An initial review of planning applications in the general vicinity (2km radius) of the Proposed Project was conducted[95]. These developments were reviewed individually and those deemed to have already been constructed, were of a small scale in nature (i.e. extension works, or property retention works) or were considered to be of a reasonable distance from the Proposed Project were not considered further in this assessment.

A short list of 42no. proposed and permitted projects and plans were reviewed in further detail, in terms of project location, nature of development and (if relevant) supporting planning documents (refer to Appendix 16-1, Volume 3 of this EIAR, Short-List of Relevant Projects Assessed), by each individual specialist with regard to cumulative impacts as part of the technical assessments undertaken for this EIAR.

One of these projects (Ref.: 2561412; Applicant: Gannow Ltd.), a proposed Windfarm (8no. wind turbines) and 38kV Grid infrastructure (including substation and underground grid connection), in Attymon, Co.Galway,

[95] Note: Latest review carried out February 2026.

includes a 2.2km section of road that is common to both the proposed Gannow Wind Farm, and the Cashla Peaker Project.

The Gannow wind development was refused planning permission by Galway County Council on 21st November 2025. This decision was appealed by the applicant, to An Coimisiun Pleanala (ACP) (Ref: PL-500493-GY-25) on 18th December 2025. The outcome of this appeal is pending.

Therefore a technical review has been undertaken by TLI (2026) in order to determine the technical feasibility of the Gannow grid connection, as well as a cumulative impact assessment, from a technical perspective. Details are presented in Appendix 16-2, Volume 3 of this EIAR, and included below. The proposed Gannow wind development has been reviewed by each individual specialist with regard to cumulative impacts as part of the technical assessments undertaken for this EIAR.

16.3 Cumulative Impact Assessment

16.3.1 Gannow Wind Farm (Ref: 2561412)

TLI (2026) have undertaken a detailed review of the proposed Gannow wind development (Ref: 2561412), specifically to consider the legitimacy of a grid connection, that has been submitted as part of the development application. Refer to Appendix 16-2, Volume 3 of the EIAR.

According to TLI (2026):

'There is currently no planned works to deep retrofit or reinforce this EirGrid node for Distribution connections. This Transmission system operated (TSO) substation can and will only accept transmission connections (110k & 220kV) from renewable generators, with a potential megawatt export, ranging from circa 80MW to 450MW on the primary bus bar. For such a connection (38kV) into Cashla for the Gannow Wind farm, a Distribution transformer to facilitate a connection with significant deep reinforcements would be deemed necessary, but at great expense to ESB Networks and EirGrid.

The application being sought by Gannow Ltd is technically unviable, as the designated connecting megawatt for a distribution (DSO) connection is circa 40MW-50MW. The Gannow renewable development will not have the option to connect at Cashla unfortunately given these constraints….. At present, there is no Grid Connection Agreement in place from ESB Networks to Gannow ltd, to facilitate such a connection, nor will a connection offer be made available by ESB Network for an option to connect at Cashla substation.'

However, it is noted that the proposed project (i.e. Cashla Peaker Plant – 220kV Grid Connection) *'has obtained a connection offer to the electrical grid subject to approval by EirGrid via an auction process. Bord Gáis Energy was successful in the SEMO T-4 2028/29 auction for a 10-year contract covering Oct 2028 – Sept 2038. This means that Bord Gais Energy were deemed successful to connect to Cashla substation by EirGrid. Bord Gáis Energy have engaged with EirGrid to present proposed grid connection route along public road (22 April 25), in lieu of the approved connection offer to Cashla substation'* (TLI, 2026).

In summary, the proposed Gannow wind development (Ref: 2561412) has been refused by Galway County Council (albeit this decision has been appealed to ACP). The TLI (2026) review concludes that at present there is no Grid Connection Agreement in place to facilitate the Gannow development via a connection to the existing Cashla Substation, rendering the application '*technically unviable'*.

The advice of TLI technical experts is that the Gannow connection at the existing Cashla substation would not be viable, regardless of whether the OCGT (Proposed Project) also connects there, as the substation currently

only accepts transmission connections not distribution connections. However, taking a precautionary approach, the proposed Gannow development has still been cumulatively assessed as part of the EIAR. Refer to Section 16.3.2 (Population and Human Health), to Section 16.3.13 (Major Accidents and Disasters) below.

As part of the initial cumulative impact assessment, TLI (2026) undertook a review of the technical considerations when assessing the use of the 2.2km section of road that is common to both the proposed Gannow Wind Farm, and the Cashla Peaker Project for the respective underground cables associated with both projects.

It should be noted that while both projects do interact, each project can and will be delivered as a standalone project. Details of the technical cumulative impact assessment (TLI, 2026) are presented in Appendix 16-2, Volume 3 of the EIAR, and discussed in further detail in Section 16.3.12 Material Assets.

16.3.2 Population and Human Health

42no. proposed and permitted projects and plans (within 2km of the proposed project) were reviewed with respect to potential population and human health cumulative impacts, in terms of project location, nature of development and (if relevant) supporting planning documents. The full list and details of projects reviewed are presented in Appendix 16-1, Volume 3 of this EIAR.

Following a review of Planning Applications in the local area, the Population and Human health assessment has not identified potential cumulative effects above and beyond what has been identified in respective technical chapters Climate change (Chapter 8), Air Quality (Chapter 7), Noise and Vibration (Chapter 9), Water (Chapter 12), Land, Soils and Geology (Chapter 11), and Major Accidents and Disasters (Chapter 15).

It is to be noted that interactions with other critical infrastructure such as water supply are dealt with in relevant chapters and form material consideration in construction management plans. All work will be carried out in accordance with appropriate safety guidance and legislative requirements and to ensure that safety on the strategic road network will be maintained. Such considerations apply for the project in isolation and in combination with any other projects.

Furthermore, the Proposed Project is not within the area covered by the Athenry Local Area Plan 2024-2030 and is 1 km from any land zoned within the Plan. Cumulative effects with this Plan are not anticipated.

16.3.3 Biodiversity

A search of Galway County Council planning and ACP planning applications and other relevant projects has been undertaken for applications submitted within the last 5 years within 2km of the Proposed Project (last accessed January 2026). The full list and details of projects reviewed are presented in Appendix 16-1, Volume 3 of this EIAR. Near the proposed works, projects that have been granted planning permission include retention of existing developments, agricultural developments, typical extensions to domestic dwellings or the construction of new domestic dwellings. Regarding potential impacts to water quality, these projects will have to comply with the EPA's Code of Practice for Domestic Wastewater Treatment Systems (EPA, 2021). These developments have conditions attached to their planning permission relating to sustainable development, such as siting of septic tanks, foul surface water and effluent drainage facilities, and clean surface water run-off drainage facilities. Therefore, it is not anticipated that the developments that have been granted permission will have any significant effects in combination with the Proposed Project.

Key projects which have been considered are large-scale developments in the region of the Proposed Project. The projects that have been considered are in presented in Table 16-1.

As per Table 16-1, there will be no likely cumulative impacts between the Proposed Project and any nearby relevant proposed or permitted projects and plans.

Table 16-1 -Biodiversity Cumulative effects assessment.

Planned Development	Summary	Cumulative effect assessment -
2260907	To install an external S-5500 milk silo with 25,200 litres capacity. Gross floor space of proposed works 7.00 sqm.	Galway County Council carried out an EIA Screening and determined that there no likelihood of significant effects on the environment (including biodiversity) arising from the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2374	To erect 20kw domestic wind turbine and associated site works.	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
20101	For wind turbine test site comprising of the following.:- 1. No. 12m high turbine tower with adjacent 12m high wind measuring mast and 1. No. 20m high turbine tower with adjacent 20m high wind measurement mast and all associated services	No EIA Screening was carried out, however given the scale and nature of the development and the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
20499	For a twenty year planning permission for the continued operation of the existing quarry and all associated uses and activities, as well as for an extension to the existing quarry extraction area and all associated site works including landscaping arrangements. The proposed quarry extraction area extension is on lands to the north, south and east of the existing quarry and the additional extraction area amounts to approximately 6.7 hectares. The application is accompanied by an Environmental Impact Assessment Report and a Natura Impact Statement.	An EIA was carried out for the development, and mitigation is included to negate potential impacts to peregrine falcon as well as to avoid groundwater impacts. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
20961	For permission for development at this site at Ballymoneen and Grange East, Co Galway. The development will consist of a planning permission for a period of 5 years to construct and complete a Solar PV Energy and Battery Storage development with a total site area of circa 140.9	An Ecology Impact Assessment (EcIA) was carried out and included mitigation measures in the form of construction methodologies and a BMP. With the implementation of mitigation

	Hectares to include a single storey electrical substation building, electrical transformer and inverter station modules, solar PV panels ground mounted on support structures, battery containers and associated infrastructure, internal access tracks, security fencing, electrical cabling/ ducting, CCTV and other ancillary infrastructure, drainage, additional landscaping and habitat enhancement as required and associated site development works including works related to the access to the site. The solar farm would be operational for 35 years. Gross floor space of proposed development: 1886.39 sqm.	measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
21733	To construct a 4 bay slatted shed with a calf creep. Gross floor space of proposed works: 292.56 sqm	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
22368	For the installation of an LPG safety installation in a caged enclosure 1.8m x 1.2m x 1.2 (LxWxH) servicing the existing LPG storage installation with all ancillary services and associated site works. Gross floor space of proposed works: 2.16 sqm	Galway County Council concluded that environmental impact assessment could be screened out at a preliminary examination as no significant impacts to the environment were envisaged given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
23229	a) revised levels & location of upper playing field area, previously approved under pl. ref:17/1883; b) retention of community walkway to perimeter of upper playing field area; c) retention of external exercise equipment, water font & bench seating alongside community walkway; d) retention of accessible ramp & external stairs; e) retention of spectator rail & ball stop fencing to pitch area; f) retention of low sulphur diesel generator powering previously approved floodlights as per pl. ref: 17/1883; g) retention of revised floodlight locations as approved under pl. ref: 17/1883; h) provision of new pedestrian access to front boundary wall of site; i) provision of new pathway linking said entrance to the existing community walkway; j) provision of extended community walkway to run alongside perimeter of all playing pitches to aide	It was concluded that environmental impact assessment could be screened out at a preliminary examination as no significant impacts to the environment were envisaged given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	accessibility to all pitches; k) provision of low level lighting to entirety of community walkway; l) provision of floodlighting to existing car park area (car park previously approved under pl. refs: 00/26 & 02/1583); m) provision of additional fencing & ball stop netting to existing all weather pitch & perimeter of running track area; n) provision of warm up area to interior of running track in an astro surface; o) provision of a high jump area to interior of running track in a synthetic surface to match track; p) provision of a shot putt throw area to interior of running track in a tarmacadam finish with sand/gravel landing pit area; q) provision of tarmac finish to existing rear service road onto L-3103 to facilitate emergency vehicle access to playing field area; r) provision of a long jump area to track side in a synthetic finish to match track surface; s) provision of storage compound to western end of site to house sports & maintenance equipment; t) provision of additional bench seating alongside community walkway	
23355	To upgrade the existing 220k overhead line between the existing Cashla 220kV Substation in the townland of Barrettspark, Co. Galway, & Tower 138 in the townland of Oughtagh, Co. Galway. The proposed development will consist of refurbishment works to the existing overhead Line (approximately 49 km long & comprising of 138no. steel angle masts). The refurbishment works to towers will consist of: installation of replacement parts on the towers including insulators, shield wire, vibration dampeners, arching horns & anti-climbing guards; associated site development works, including temporary work areas, foundation refurbishment /strengthening & recapping/clearing of shear blocks; clearance of shear block bases; & ancillary works; ancillary site preparation works, site clearance & levelling at the 6no. temporary construction compounds & associated temporary works to existing tracks & new temporary access routes to provide internal access routes to each tower with all associated works required to facilitate the development. No works will be undertaken to the overhead line (conductor). The proposed development will also consist of upgrades to the Cashla 220kV substation that will consist of: the decommissioning and removal of line bay equipment within the substation boundary;	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	construction of a new adjacent offline like for like line bay & associated bay protection cabinets within the substation boundary; & new overhead lines connection between the end mast & the new line bay. A Natura Impact Statement (NIS) will be submitted to the planning authority with the application	
24160	To construct two grass-based pitches, an astro turf pitch, ball wall, walking path and all associated works	No EIA Screening was carried out, however given the scale and nature of the development and the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
24260	For the installation of solar panels over the roof of an existing telecommunications cabin on a steel frame (covering an area of 60 sqm to maximum height of 5 meters above ground level) works to consist of all ancillary development works, including steel uprights	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
24266	To construct 17 No. two storey dwelling houses, consisting of 1 detached three bedroom dwellings, 6 three bedroom semi detached dwellings, 6 three bedroom terraced dwellings, 4 two bedroom semi detached dwellings including all associated estate works and services to service the development. Gross floor space of proposed works: 1826.85 sqm (THE PERMISSION HEREBY GRANTED IS FOR 13 NO. DWELLINGS ONLY 1456.85 SQM)	No EIA Screening was carried out, however given the scale and nature of the development and the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
25258	To construct a new slatted cow wintering unit including all associated works and services on an existing farmyard	No EIA Screening was carried out, however given the scale and nature of the development and the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
211047	To construct the following: a 24,505sqm single storey data centre building, a 5232sqm single storey Logistics and Administration Building, a 289sqm single storey Maintenance Building, a 16sqm Security Hut and associated barriers, 2 number 48sqm Fibre Huts (max building eaves height = 10m), 18 external standby generators, all associated external plant, a 20kV Electricity Substation, contractor facilities, a main entrance including a new right turning lane, internal access roads and	An EIAR was submitted which contained mitigation pertaining to groundwater, surface water, rare plants on-site and bats. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	associated infrastructure, proprietary waste water treatment plants including percolation areas, mains water connection, fire water storage tanks; rainwater harvesting, provision of fibre optic data connections, car parking (207 spaces, including 7 visitor spaces, 50 internal staff mobility spaces and disabled parking spaces), bike parking, an amenity walkway and associated parking, site levelling for a laydown area and a 220kV substation, 2.4m high perimeter security fencing, landscaping including supplementary tree planting and all associated works. A report for screening for Appropriate Assessment and an Environmental Impact Statement (EIS) will be submitted with the planning application (gross floor space 30,138sqm)	
212026	For the upgrade of the sewerage network in the town of Athenry and the townlands of Caherroyn, Gorteenacra, Knockaunglass, Athenry, Baunmore, Gortnahown, Prospect, Newford, Ballygarraun South, Raheen and Cullairbaun in Co. Galway. The Athenry Town Walls and Gateway (Record of Protected Structure No. 132) is located within the subject site. The development will consist of; Decommissioning of an existing combined sewer overflow at North Gate street within the centre of Athenry Town; upgrade/rep	An EcIA was submitted which details mitigation measures pertaining to construction, biosecurity and white-clawed crayfish, concluding that no significant impacts to biodiversity were envisaged following them. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
221006	For the development and operation of a 150 to 500 MVA (electrical rating) synchronous condenser. The development which will be located within a site compound of c. 1 hectare east of the existing ESB substation for the purpose of stabilizing the electricity grid will consist of the following elements: The development and operation of a 150 to 500 MVA (electrical rating) synchronous condenser. Compound building housing synchronous condenser generator and flywheel (540 sqm c. 12m high); 5 No. modular containers to house electrical and control equipment (total area of c. 195 sqm, c. 5m high), a generator step-up transformer, auxiliary transformer and electrical plant including and external circuit breaker (c. 8m); 1 No. firefighting water tank and pump, boundary fencing (c. 3m high) and CCTV, c. 50m of underground cabling ducts and cable to the neighbouring ESB Substation, all other ancillary site works including access roads and upgrade of existing local	An EcIA was submitted which concluded that the development will have no adverse impacts to biodiversity. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	access road. Planning permission is being sought for a duration of 10 years. Gross floor space of proposed works: 540 sqm	
323709	Construction of a dwelling house and all associated works	It was concluded that environmental impact assessment could be screened out at a preliminary examination as no significant impacts to the environment were envisaged given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2260533	For the following; (1) Construction of a new detached dwelling house, (2) Domestic Garage and (3) proposed effluent treatment system and percolation area and all associated site works.	No EIA Screening was carried out, however given the scale and nature of the development and the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2261321	For industrial development, the development will consist of: • the provision of a 2no. storey industrial warehousing unit & ancillary office space (8826.3sqm.); • the provision of a service yard plant & refuse area, distribution & circulation yard with 5no. level access loading bays; • the provision of solar PV panels; • the provision of 163no. car parking spaces & 163no. bicycle parking spaces; • the provision of internal roadways, pedestrian footpaths & associated landscaping; • the provision of a new vehicular & pedestrian access from Ballydavid South road; • the provision of signage & all other associated site development works intended to facilitate the proposed development	An EcIA was carried out and concluded that there would be no significant impacts to biodiversity. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2360251	To construct an extension comprising of a changing room & sensory room; retention permission is also for the existing staff car parking area to the eastern boundary of the site and all associated site works. Gross floor space of proposed works: 110 sqm. Gross floor space of work to be retained: 360 sqm	It was concluded that environmental impact assessment could be screened out at a preliminary examination as no significant impacts to the environment were envisaged given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2360948	Retention permission for development at C&F Tooling, Cashla, Athenry, County Galway. Retention planning permission for the following extensions to the existing C&F Tooling premises: • machine shop & canteen (gross floor area - 792m2) • switch room & compressor room	No EIA Screening was carried out, however given the scale and nature of the development and the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	(gross floor area - 96 m2) •maintenance garage & stores gross floor area - 673 m2) • monitoring office building (gross floor area - 444 m2) • steel cleaning shop (gross floor area - 62.3 m2) • store (gross floor area - 20.3 m2) • machine shop (gross floor area - 4,065 m2). In addition to the above, retention permission for the existing component storage area (external) (approx. 1.54 Ha in area). Planning permission for: • upgraded surface water drainage system & associated works, •relocation of existing traffic barrier at the existing vehicular entrance to the premises, • new vehicular staff entrance on the western boundary of the site, & • alterations to the existing staff car park to provide 357no. car parking spaces to include the provision of EV charging & accessible car parking bays, • provision of visitor car park to provide 31no. car parking spaces (including EV charging & accessible car parking bays). The proposed development includes for all associated site development works & landscaping	
2361014	Outdoor seating area & canopy on the south (front) elevation of the Raheen Woods Hotel. The seating area under the canopy is 29.1m2. The boundary of the seating area is a planter bed with dimensions of 9.2 m in length, 4.27 in width & 0.675 high. The canopy is 2.350 high at the planter bed, & rises to 4.038 at the front elevation of the hotel. The canopy is erected with steal beams (3 no 152 UC 23) & is fixed to the existing building with 4no. 16mm chemical anchors at each beam	No EIA Screening was carried out, however given the scale and nature of the development and the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2361035	For the proposed development will consist of: • construction of a 4no. storey medical device manufacturing facility providing warehousing, production areas, administration offices & restaurant (GIA: 40,226.6 m2); • construction of a central utilities compound to comprise a gas insulated switchgear substation building (GIA: 124.57 m2), pumphouse building (GIA: 84.79 m2) & MV building (GIA: 306.46 m2); • the development includes 4no. surface car park areas, which comprise a total of 500no. car par	The EIAR includes mitigation measures after which it is concluded that there will be no negative impacts to the environment. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2361460	For the amendments to the 110kV electricity substation within the solar photovoltaic (“PV”) energy development approved under Register Reference 20/961 comprising 2 no. single storey control buildings, a	It was concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker

	transformer compound and busbar compound, palisade security fencing around the compound concrete post and rail fencing around the boundary of the site, 6 no. lightning masts (17.5 metres high) and 6 no. light poles (3 metres high); and the construction of grid connection infrastructure to connect the substation to the ESB Cashla 220kV substation at Cashla, Co. Galway comprising the laying of c. 6,610 metres of 110kV underground electricity cables (3 no.) and communications cable in ducts (6 no.) and associated infrastructure substantially under public roads and under an existing underground gas main by means of horizontal directional drilling; and an amendment to the operational period of the sub-station and grid connection infrastructure within the site. Gross floor space of proposed works: 521 sqm	Plant it is considered that there is no potential for cumulative impacts.
2361534	(1) erect new golf netting and support system along public roadway (70.00m Long x 15.00m High) and (2) retain existing golf netting along public roadway	It was concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2460494	(a) a side extension to the main factory building which was initially granted Planning Permission under Pl Ref No. 38041, (b) alterations to the front elevation of the main building and the front elevation of the extension referred to at (a) above, (c) new signage to the front elevation, (d) the removal of welding workshop (e) a change of use for part of the storage building which was initially granted Planning Permission under Pl Ref No. 01/3977 to trade retail, (f) an existing open storage	It was concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2460861	For the amendments to planning permission reference 23/61035 which provides for a Medical Device Manufacturing Facility and all associated development. The proposed amendments to the permitted development are as follows: • Reduction in the floor area of the permitted medical device manufacturing facility to provide a building with a GIA of 29,588.5 m2 and associated amendments to building footprint and external envelope; • Reconfiguration of the Central Utilities Compound including reduction in the floor area of the MV building	The EIAR includes mitigation measures after which it is concluded that there will be no negative impacts to the environment. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	(Proposed GIA: 304.5 m2) and increase in the floor area of the Sprinkler Pumphouse (Proposed GIA: 151 m2); • Reduction of 21 no. car parking spaces in Car Park No. 2 to provide a total of 479 no. car parking spaces on the Campus; • Reconfiguration of the 102 no. EV car parking spaces throughout the car parking areas; • Amendment to the alignment of the internal HGV road; • Provision of bus lane on the main vehicular access road with associated amendments to landscaping and drainage; • Provision of 2 no. bus shelters to the east of Car Park 2; • Amendment to the extent of roof mounted solar PV panels and plant equipment on the roof of the manufacturing facility; • Amendment to surface water drainage infrastructure, including the Attenuation pond & SuDs Basin; • Amendment to the permitted access roads, landscaping, boundary treatments, internal pedestrian connectivity infrastructure, public lighting and all other site development works and services ancillary to the proposed amendments. A Natura Impact Statement (NIS) is submitted to the planning authority with the planning application. Gross floor space of proposed works: 330,044 sqm	
2461646	For the construction of 1no. single storey shed, yard area, car park and associated site works including connection to existing onsite watermain & foul network, surface water management, concrete paving, demolition of 1no. building and all ancillary site works. The proposed shed will be used for sheep at the site. Gross floor space of proposed works: 508.00 sqm. Gross floor space of any demolition: 567.00 sqm	No EIA Screening was carried out, however given the scale and nature of the development and the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2560052	For the proposed development within County Galway will comprise: •the replacement (“restringing”) of the existing OHL circuit conductor wires with a new higher capacity conductor; •Replace tower in situ at 1no. location;•Retain towers at 3no. locations including foundation strengthening with bar member replacement at 2 locations;•Replace polesets at 15no. locations;•the replacement of insulating and ancillary hardware at structures;•all associated temporary site development works to gain access to the existing structures including vegetation clearance and management, disassembly and reassembly of gate posts/piers and removal and reinstatement of existing fencing; and	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	•other temporary associated and ancillary site development works required for the purpose of the uprate of the existing circuit, including construction compounds, silt traps, silt fences, vegetation clearance and management, stone tracks, ground protection mats, infrastructure crossing support systems (i.e. guard poles) and temporary watercourse crossings. Where required, an aerial catenary stringing system (ACSS) will be used to facilitate stringing operations over major obstacles, e.g. busy national roads, wide rivers, etc. A Natura Impact Statement will be submitted to the Planning Authority with the application	
2560072	For the construction of a viewing platform (71sq meter) and all associated site works	It was concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2560251	For a proposed Large-Scale Residential Development of 133 no. residential units located off the L3105 Road, in the townland of Cullairbaun, Athenry, County Galway. The proposed development will consist of the: i. Development of 133 no. residential units comprising: a. 12 no. 1 bed units b. 10 no. 2 bed units c. 109 no. 3 bed units d. 2 no. 4 bed units ii. Renovation of the existing building on site, Cullairbaun House (National Inventory of Architectural Heritage registration no. 30332001), for use as a pre-school crèche (254m2) with ancillary open space, refuse storage area and bike storage area. iii. Demolition of existing sheds and the development of a new building (308m2), comprising brick and painted render finish to the building and a standing seam metal roof, to be used as an after-school crèche, with ancillary open space. iv. 1 no. vehicular access point from the L3105 Road. v. 1 no. designated pedestrian and cyclist access point from the L3105 Road. vi. Provision of 185 no. total car parking spaces and 2 no. motorcycle parking spaces on site. vii. Provision of 374 no. total secure bicycle parking spaces on site, including 274 long term and 100 short term spaces. viii. Provision of communal open space including hard and soft landscaping such as planting and paving, and public lighting. ix.	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. An EcIA was also submitted, including mitigation measures to negate any impacts to biodiversity relating to pollution. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	Central play areas with a mix of natural play features and climbing / agility equipment. x. Provision of drainage systems including SUDS rain garden areas. xi. 2 no. ESB substation kiosks located to the north and south of the site. xii. Potential for future connections to adjoining sites including An Cheathrú Bhán to the north-east of the site, and Raheen pitches / Gaelscoil Riada to the west of the site. xiii. All other associated and ancillary development and site works. The application contains a statement setting out how the proposal will be consistent with the objectives of the Galway County Development Plan 2022-2028	
2561193	For upgrading of existing service vehicle entrance to rear of site from road L-3103 (60kph), provision of parking area to western end of existing sports arena	It was concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2561224	To install flood lighting to existing Gaa pitch (granted under planning ref: 19446) that will include 6 nr 20m poles and all associated works	It was concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
2561412	For a period of 10 years for a development consisting of the provision of the following: i. 8 no. wind turbines with an overall turbine total tip height range of 178m - 185m, a rotor diameter range of 149m - 163m, and turbine hub height range of 101m - 104m, and associated foundations and hard standing areas; ii. A permanent 38kV substation compound (including a control building (157.6 sqm) with welfare facilities, all associated electrical plant and apparatus, security fencing, underground cabling, storage containers, wastewater holding tank, site drainage and all ancillary works); iii. Permanent underground electrical (38kV) and communications cabling to the existing Cashla Substation in the townland of Barrettspark (including joint bays, communication and earth sheath link chambers and all ancillary works along the route). This cabling route is primarily located within the public road corridor which includes protected structures (RPS No. 3747, RPS No. 146). iv.	The EIAR includes mitigation measures (water quality, air quality, habitat protection, biosecurity and fauna mortality) after which it is concluded that there will be no negative impacts to the environment. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

	Underground electrical (20/33kV) and communications cabling connecting the wind turbines and meteorological mast to the proposed on-site substation; v. 2 no. temporary construction compounds (including site offices and welfare facilities (with a combined floor area of 202.5 sqm); vi. A meteorological mast with a height of 30 meters, security fencing and associated foundation and hard-standing area; vii. Upgrade of existing site tracks/ roads and provision of new site access roads, junctions and hardstand areas, including a new site entrance off the L3115; viii. Peat and Spoil Management Areas; ix. Tree felling and vegetation removal; x. Biodiversity enhancement measures (including peatland habitat enhancement, Marsh Fritillary habitat enhancement and management, establishment of hedgerows and native woodland planting); xi. Site drainage; xii. Operational stage site signage; and xiii. All ancillary works and apparatus. A thirty five-year operational life from the date of full commissioning of the wind turbines and subsequent decommissioning is being sought. An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) have been prepared in respect of the proposed development and accompany this application. An Opinion on Unconfirmed Details issued by Galway County Council (Opinion Ref. No. 25/MP/2) on 29th May 2025 accompanies this application. The details unconfirmed in this application are the turbine total tip height, rotor diameter and hub height. The range of parameters under which the turbine dimensions will fall are specified on this notice in item i. above and further detailed in the Opinion on Unconfirmed Details that accompanies this application. This development is covered by the provisions of the Renewable Energy Directive III (Directive (EU) 2023/2413) and it is important to note that the planning application may be subject to section 34D of the Planning and Development Act 2000, as amended. When a notice issues in accordance with section 34D(b), the provisions of article 26A of the Planning and Development Regulations 2001 to 2025 shall apply	
2561471	For the replacement (“restringing”) of the existing OHL circuit conductor wires with a new higher capacity conductor between structure no. 81 and 161; the replacement of angle masts in-situ at 3no. locations, with	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures

	similar structures; the painting of a tower at 1no. location; the replacement of polesets at 54no. locations, with similar structures. The change in structures will result in standardised heights from 16 m to 23 m along the circuit. The majority of the height increases will be between 0.1 m and 2.0 m (at 40no. structures), with 13no. structure replacements resulting in no change in height. Structure no. 109 will increase in height by 3.0 m; the replacement of insulating and ancillary hardware at all structures from structure no. 81 to 160; the replacement of stay wire / anchors and associated fittings at 3no. locations; the replacement of crossarms at 59no. locations; the installation of fibre wrap on phase conductor between structure no. 1 and structure no. 161; all associated temporary site development works to gain access to the existing structures including the removal and reinstatement of 220m of hedgerow / field boundary (estimated using Táilte Éireann data), vegetation clearance and management, disassembly and reassembly of gate posts / piers and removal and reinstatement of existing fencing; and other temporary associated and ancillary site development works required for the purpose of the uprate of the existing circuit, including construction compounds, silt traps, silt fences, vegetation clearance and management, stone tracks, ground protection mats, infrastructure crossing support systems (i.e., guard poles) and a temporary watercourse crossing to access structure no. 160. Where required, an aerial catenary stringing system will be used to facilitate stringing operations over major obstacles, e.g., national roads, rivers, etc. A Natura Impact Statement will be submitted to the Planning Authority with the application	for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
21859	To continue quarrying with associated roads and ancillary services and to operate a concrete batching plant and a bitumen batching plant within the quarry. The 13 hectare extraction area and the 27.5 hectare site boundary remains identical to that outlined in the existing quarry planning permission for Coshla Quarries Ltd (P06/4125). An Environment Impact Statement (EIS) will be submitted with the application	An EIAR was submitted as part of the original request for permission to quarry (091958). It included mitigation in the form of surface water protection and construction fencing for fauna protection. It concluded that there would be no impacts to biodiversity. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

322624 / 2560220	For continued use of the existing quarry to the permitted depth of minus 5 mOD, including drilling, blasting, crushing, processing, stockpiling of materials, associated roads and ancillary services (granted under Planning Ref. File No.: 09/1958 and ABP Ref.: PL07.235821); Continued use of open storage areas; Continued use of existing permitted concrete manufacturing facility (granted under Planning Ref. File No. 09230 and 19/517: ABP-304769-19); Continued use of the existing office (granted under Planning Ref. File No.: 09/1958 and ABP Ref.: PL07.235821); Continued use of the existing maintenance shed (granted under Planning Ref. File No. 09610); Continued use of the existing water management system (including settlement lagoons), weighbridge and wheelwash; Lateral extension of the existing permitted quarry area over a previously permitted extraction area (granted under Planning Ref. File No. 06/4125) of c.4.6 ha. area to a final floor level of minus 5 mOD. The total quarry extraction area will be c. 13 Ha.; Restoration of the application area to natural habitat after uses following completion of ex-traction. The proposed development is within an overall application area of c. 27.5 hectares and is for a total period of 22 years (comprising an operational period of 20 years followed by 2 years for restoration). This application is accompanied by an Environmental Impact Assessment Report (EIAR)	An EIA was carried out for the development, and mitigation is included to negate potential impacts to peregrine falcon. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
308549	Permission for 20 years to continue operating the existing quarry and all associated uses and activities.	An EIA was carried out for the development, and mitigation is included to negate potential impacts to peregrine falcon. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
320248	Retention permission for extension to existing tooling premises and existing component storage area and planning permission for upgraded surface water drainage system, relocation of traffic barrier, new vehicular staff entrance and alterations to the existing staff & visitor car parks, together with all associated site development works	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

2561637	To erect a 30m high telecommunications lattice structure together with antennas, dishes and associated telecommunications equipment all enclosed by security fencing	An EIA Screening was carried out and concluded that there was no requirement for a full EIAR given the nature and scale of the development. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
25363	Extension of Duration - of pl ref 20/961 for permission for development at this site at Ballymoneen and Grange East, Co Galway. The development will consist of a planning permission for a period of 5 years to construct and complete a Solar PV Energy and Battery Storage development with a total site area of circa 140.9 Hectares to include a single storey electrical substation building, electrical transformer and inverter station modules, solar PV panels ground mounted on support structures, battery containers and associated infrastructure, internal access tracks, security fencing, electrical cabling/ ducting, CCTV and other ancillary infrastructure, drainage, additional landscaping and habitat enhancement as required and associated site development works including works related to the access to the site. The solar farm would be operational for 35 years. Gross floor space of proposed development: 1886.39 sqm	An EcIA was carried out and included mitigation measures in the form of construction methodologies and a BMP. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.
25365	To extend wind turbine testing & research site to rear of existing factory (previously granted under planning permission ref. number 13/1242) to include the following: 24 no. 20-30kw wind turbines (maximum height is 30.100 meters), includes 2 no. turbines in upper test site (previously granted under planning permission ref. no. 20/101), all other ancillary site works	An EIA Screening was not deemed required. An environmental impact statement was carried out and included monitoring for collision risk. With the implementation of mitigation measures for the Cashla Peaker Plant it is considered that there is no potential for cumulative impacts.

16.3.4 Landscape and Visual Impact

The cumulative landscape and visual assessment was informed by a review of proposed and permitted projects and plans within the study area, as presented in Appendix 16-1, Volume 3 of the EIAR. Each project was screened for relevance based on factors including scale, nature, location, potential intervisibility, and temporal overlap with the proposed development. Developments unlikely to give rise to perceptible cumulative landscape or visual effects were excluded. Only those projects with the potential to interact with the proposed development in landscape or visual terms were taken forward for cumulative assessment.

The following projects have been identified as having potential to give rise to cumulative landscape and visual effects with the proposed development.

Proposed telecommunications lattice tower

A 30m tall lattice telecommunications mast is proposed on land in close proximity to the south east of the proposed main project site and forms a separate planning application (Galway County Council, Planning Reference 2561637 which was granted planning permission on 9 January 2026).

Although the mast would represent an additional vertical element within the local landscape, it would be of a slender form and similar height compared with some of the proposed project structures in the proposed main project site.

From certain viewpoints in the immediate vicinity (e.g. along sections of the M6 and M18 corridors and local roads), the mast and the proposed project at the proposed main project site would be visible together. In these cases, the mast would introduce a slight additional visual focus and would marginally increase the overall perception of built development within the view.

During construction and decommissioning, cumulative effects would be short-term, associated primarily with intermittent activity and the temporary presence of plant. The cumulative visual effect is therefore judged to be slight adverse during construction, operation and decommissioning phases and is not considered significant, reflecting the small scale and limited extent of additional change. There would be no cumulative visual effects post decommissioning. At greater distances, the mast would be screened by a combination intervening topography and vegetation or would be perceived as a minor, recessive feature alongside the proposed main project site infrastructure.

Due to its slender form and limited scale, the mast and its associated construction activities would not materially change the overall landscape character or key elements of the landscape, which would remain influenced by the surrounding motorway network, pylons, topography, vegetation, and the proposed main project site structures. Therefore, the cumulative effect on the landscape is assessed as negligible adverse during construction, operation and decommissioning phases and is not considered significant. There would be no cumulative visual effects post decommissioning.

Proposed Gannow Windfarm

A planning application for 8 no. wind turbines with an overall turbine total tip height range of 178m-185m, a rotor diameter range of 149m-163m, and turbine hub height range of 101m-104m, associated substation and a permanent underground electrical (38kV) and communications cabling to the existing Cashla Substation (Galway County Council, Planning Reference 2561412) has been assessed.

The proposed windfarm comprising 8 turbines with a maximum tip height of 185m is located approximately 13 km from the proposed main project site. At this distance, it is judged that the turbines may be perceptible as distant vertical elements in some views, particularly from elevated vantage points. The proposed underground

electrical cable connection associated with the windfarm would follow the local road network but would be entirely underground once constructed and would not contribute to any visual effects.

From a visual perspective, the turbines would only be apparent in limited distant views predominantly during the operational phase, and where visible, they would appear relatively small in scale compared with the foreground and mid-ground elements of proposed project structures in the proposed main project site. Therefore, the cumulative visual effect of the power plant and windfarm is judged to be negligible to slight adverse during the operational phase only and not considered significant, reflecting minimal perceptibility and limited interaction within shared views.

From a landscape perspective, the addition of the distant windfarm does not materially alter the character of the landscape surrounding the proposed main project site development. Accordingly, the cumulative landscape effect is assessed as negligible to slight adverse during the operational phase only and not significant.

16.3.5 Air Quality

16.3.5.1 Construction Phase

As per the IAQM guidance (IAQM, 2024), there is the potential for cumulative construction dust impacts to nearby sensitive receptors if the construction phase of the proposed project coincides with that of other developments with significant dust generating potential within 500 m of the site.

A review of the planned and permitted projects within 500 m of the site was undertaken in order to identify developments with the potential for cumulative construction phase impacts. The following developments were identified of sufficient scale to potentially generative cumulative dust impacts with the proposed project.

Table 16-2 – Air Quality Summary of Committed Developments with Potential for Cumulative Effects

Planning Reference No.	Description
308549	Permission for 20 years to continue operating the existing quarry and all associated uses and activities (Status: consented development, existing quarry).
322624 / 2560220	Permission for continued use of the existing quarry to the permitted depth of minus 5 mOD, including drill-ing, blasting, crushing, processing, stockpiling of materials, associated roads and ancillary services (granted under Planning Ref. File No.: 09/1958 and ABP Ref.: PL07.235821); Continued use of open storage areas; Continued use of existing permitted concrete manufacturing facility (granted under Planning Ref. File No. 09230 and 19/517: ABP-304769-19); Continued use of the existing office (granted under Planning Ref. File No.: 09/1958 and ABP Ref.: PL07.235821); Continued use of the existing maintenance shed (granted under Planning Ref. File No. 09610); Continued use of the existing water management system (including settlement lagoons), weighbridge and wheelwash; Lateral extension of the existing permitted quarry area over a previously permitted extraction area (granted under Planning Ref. File No. 06/4125) of c.4.6 ha. area to a final floor level of minus 5 mOD (Status: consented development, existing operational quarry).
2561471	Permission for the replacement (“restringing”) of the existing OHL circuit conductor wires with a new higher capacity conductor between structure no. 81 and 161; the replacement of angle

Planning Reference No.	Description
	masts in-situ at 3no. locations, with similar structures; the painting of a tower at 1no. location; the replacement of polesets at 54no. locations, with similar structures. All associated temporary site development works to gain access to the existing structures including the removal and reinstatement of 220m of hedgerow / field boundary (estimated using Táilte Éireann data), vegetation clearance and management, disassembly and reassembly of gate posts / piers and removal and reinstatement of existing fencing; and other temporary associated and ancillary site development works required for the purpose of the uprate of the existing circuit, including construction compounds, silt traps, silt fences, vegetation clearance and management, stone tracks, ground protection mats, infrastructure crossing support systems (i.e., guard poles) and a temporary watercourse crossing to access structure no. 160 (Status: consented development, existing OHL circuit conductor wires).
2361460	Permission for the amendments to the 110kV electricity substation within the solar photovoltaic ("PV") energy development approved under Register Reference 20/961 comprising 2 no. single storey control buildings, a transformer compound and busbar compound, palisade security fencing around the compound concrete post and rail fencing around the boundary of the site, 6 no. lightning masts (17.5 metres high) and 6 no. light poles (3 metres high); and the construction of grid connection infrastructure to connect the substation to the ESB Cashla 220kV substation at Cashla, Co. Galway comprising the laying of c. 6,610 metres of 110kV underground electricity cables (3 no.) and communications cable in ducts (6 no.) and associated infrastructure substantially under public roads and under an existing underground gas main by means of horizontal directional drilling; and an amendment to the operational period of the sub-station and grid connection infrastructure within the site (Status: consented development).
2561412	Permission for a period of 10 years for a development consisting of the provision of the following: i. 8 no. wind turbines with an overall turbine total tip height range of 178m - 185m, a rotor diameter range of 149m - 163m, and turbine hub height range of 101m - 104m, and associated foundations and hard standing areas; ii. A permanent 38kV substation compound (including a control building (157.6 sqm) with welfare facilities, all associated electrical plant and apparatus, security fencing, underground cabling, storage containers, wastewater holding tank, site drainage and all ancillary works); iii. Permanent underground electrical (38kV) and communications cabling to the existing Cashla Substation in the townland of Barrettspark (including joint bays, communication and earth sheath link chambers and all ancillary works along the route). This cabling route is primarily located within the public road corridor which includes protected structures (RPS No. 3747, RPS No. 146). iv. Underground electrical (20/33kV) and communications cabling connecting the wind turbines and meteorological mast to the proposed on-site substation; v. 2 no. temporary construction compounds (including site offices and welfare facilities (with a combined floor area of 202.5 sqm); vi. A meteorological mast with a height of 30 meters, security fencing and associated foundation and hard-standing area; vii. Upgrade of existing site tracks/ roads and provision of new site access roads, junctions and hardstand areas, including a new site entrance off the L3115; viii. Peat and Spoil Management Areas; ix. Tree felling and vegetation removal; x. Biodiversity enhancement measures (including peatland habitat enhancement, Marsh Fritillary habitat enhancement and management, establishment of hedgerows and native woodland planting); xi. Site drainage;

Planning Reference No.	Description
	xii. Operational stage site signage; and xiii. All ancillary works and apparatus. (Status: Refusal Nov-25. Appealed Dec-25. Appeal decision pending)
23355	Permission to upgrade the existing 220k overhead line between the existing Cashla 220kV Substation in the townland of Barrettspark, Co. Galway, & Tower 138 in the townland of Oughtagh, Co. Galway. The proposed development will consist of refurbishment works to the existing overhead Line (approximately 49 km long & comprising of 138no. steel angle masts). The refurbishment works to towers will consist of: installation of replacement parts on the towers including insulators, shield wire, vibration dampeners, arching horns & anti-climbing guards; associated site development works, including temporary work areas, foundation refurbishment /strengthening & recapping/clearing of shear blocks; clearance of shear block bases; & ancillary works; ancillary site preparation works, site clearance & levelling at the 6no. temporary construction compounds & associated temporary works to existing tracks & new temporary access routes to provide internal access routes to each tower with all associated works required to facilitate the development. The proposed development will also consist of upgrades to the Cashla 220kV substation that will consist of: the decommissioning and removal of line bay equipment within the substation boundary; construction of a new adjacent offline like for like line bay & associated bay protection cabinets within the substation boundary; & new overhead lines connection between the end mast & the new line bay (Status: Status: consented development, existing OHL circuit conductor wires).
2560052	Permission for the proposed development within County Galway will comprise: the replacement (“restringing”) of the existing OHL circuit conductor wires with a new higher capacity conductor; Replace tower in situ at 1no. location; Retain towers at 3no. locations including foundation strengthening with bar member replacement at 2 locations; Replace polesets at 15no. locations; the replacement of insulating and ancillary hardware at structures; all associated temporary site development works to gain access to the existing structures including vegetation clearance and management, disassembly and reassembly of gate posts/piers and removal and reinstatement of existing fencing; and other temporary associated and ancillary site development works required for the purpose of the uprate of the existing circuit, including construction compounds, silt traps, silt fences, vegetation clearance and management, stone tracks, ground protection mats, infrastructure crossing support systems (i.e. guard poles) and temporary watercourse crossings. Where required, an aerial catenary stringing system (ACSS) will be used to facilitate stringing operations over major obstacles, e.g. busy national roads, wide rivers, etc (Status: consented development, existing OHL circuit conductor wires).
2360948	Permission & retention permission for development at C&F Tooling, Cashla, Athenry, County Galway. Retention planning permission for the following extensions to the existing C&F Tooling premises. Planning permission for: upgraded surface water drainage system & associated works, relocation of existing traffic barrier at the existing vehicular entrance to the premises, new vehicular staff entrance on the western boundary of the site, & alterations to the existing staff car park to provide 357no. car parking spaces to include the provision of EV charging & accessible car parking bays, provision of visitor car park to provide 31no. car parking spaces (including EV charging & accessible car parking bays). The proposed

Planning Reference No.	Description
	development includes for all associated site development works & landscaping (Status: consented development. Granted Feb-24, Appealed July-24, Grant Upheld Mar-25)).
221006	Permission for the development and operation of a 150 to 500 MVA (electrical rating) synchronous condenser. The development which will be located within a site compound of c. 1 hectare east of the existing ESB substation for the purpose of stabilizing the electricity grid will consist of the following elements: The development and operation of a 150 to 500 MVA (electrical rating) synchronous condenser. Compound building housing synchronous condenser generator and flywheel (540 sqm c. 12m high); 5 No. modular containers to house electrical and control equipment (total area of c. 195 sqm, c. 5m high), a generator step-up transformer, auxiliary transformer and electrical plant including and external circuit breaker (c. 8m); 1 No. firefighting water tank and pump, boundary fencing (c. 3m high) and CCTV, c. 50m of underground cabling ducts and cable to the neighbouring ESB Substation, all other ancillary site works including access roads and upgrade of existing local access road. (Status: consented development)
21859	Permission to continue quarrying with associated roads and ancillary services and to operate a concrete batching plant and a bitumen batching plant within the quarry. The 13 hectare extraction area and the 27.5 hectare site boundary remains identical to that outlined in the existing quarry planning permission for Coshla Quarries Ltd (P06/4125). (Status: consented development, existing quarry).
20499	Permission for a twenty year planning permission for the continued operation of the existing quarry and all associated uses and activities, as well as for an extension to the existing quarry extraction area and all associated site works including landscaping arrangements. The proposed quarry extraction area extension is on lands to the north, south and east of the existing quarry and the additional extraction area amounts to approximately 6.7 hectares (Status: consented development. Granted Oct-20,Appealed Oct-20, Grant Upheld Apr-25)).
211047	Permission to construct the following: a 24,505sqm single storey data centre building, a 5232sqm single storey Logistics and Administration Building, a 289sqm single storey Maintenance Building, a 16sqm Security Hut and associated barriers, 2 number 48sqm Fibre Huts (max building eaves height = 10m), 18 external standby generators, all associated external plant, a 20kV Electricity Substation, contractor facilities, a main entrance including a new right turning lane, internal access roads and associated infrastructure, proprietary waste water treatment plants including percolation areas, mains water connection, fire water storage tanks; rainwater harvesting, provision of fibre optic data connections, car parking (207 spaces, including 7 visitor spaces, 50 internal staff mobility spaces and disabled parking spaces), bike parking, an amenity walkway and associated parking, site leveling for a laydown area and a 220kV substation, 2.4m high perimeter security fencing, landscaping including supplementary tree planting and all associated works (Status: consented development).
25365	Permission to extend wind turbine testing & research site to rear of existing factory (previously granted under planning permission ref. number 13/1242) to include the following: 24 no. 20-30kw wind turbines (maximum height is 30.100 meters), includes 2 no. turbines in upper test

Planning Reference No.	Description
	site (previously granted under planning permission ref. no. 20/101), all other ancillary site works (Status: Live application, decision pending).

No significant effects on air quality as a result of construction dust were identified during the construction phases of the proposed and permitted projects and plans in Table 16-2 as part of their respective impact assessments, and similar dust mitigation measures are required as per their planning conditions to ensure there are no significant effects (i.e. construction works must be carried out with dust mitigation applied or the development will be in breach of its planning conditions).

The dust mitigation measures outlined in Chapter 7 Air Quality will be applied during the construction phase of the proposed project which will avoid significant impacts on air quality.

In combination, the proposed and permitted projects and plans will not have a significant effect on air quality due to the required application of dust mitigation measures for each development. The predicted cumulative impacts on air quality associated with the construction phase of the proposed project is *short-term, direct, negative* and *not significant*.

16.3.5.2 Operational Phase

In line with AG4 guidance (EPA, 2020), proposed and permitted developments and EPA licenced facilities within 1 km were reviewed for cumulative combustion emission sources. This is the most likely area where cumulative effects could occur based on the dispersion modelling results in Chapter 7 of this EIAR. There are no proposed and permitted projects and plans or EPA licenced facilities within 1 km of the proposed project with the potential for significant cumulative effects due to combustion emissions (i.e. combustion plant that would require registration under the Medium Combustion Plant Regulations or that would require regulation under an IE Licence).

16.3.5.3 Decommissioning Phase

As the dust emissions associated with the demolition and removal of buildings and materials during the decommissioning phase are expected to be of a similar or lesser magnitude to those identified during the construction phase, the same methodology (refer to Chapter 7) for assessing cumulative effects has been applied here.

The decommissioning phase of the proposed project may coincide with the construction or decommissioning phases (i.e. with dust generating potential) of future committed developments. These future committed developments are currently unknown, however planning applications for these will likely require a similar or greater level of assessment and be subject to a similar or stricter set of planning conditions to those currently expected by planning authorities.

As per Chapter 7, no significant effects on air quality were identified as a result of dust during the construction or decommissioning phases of the future proposed and committed developments, and similar dust mitigation measures are required as per their planning conditions to ensure there are no significant effects (i.e. works must be carried out with dust mitigation applied or the development will be in breach of its planning conditions).

The dust mitigation measures outlined in Chapter 7will be applied during the decommissioning phase of the proposed project which will avoid significant impacts on air quality.

In combination, the proposed and permitted projects and plans will not have a significant effect on air quality due to the required application of dust mitigation measures for each development. The predicted cumulative impacts on air quality associated with the decommissioning phase of the proposed project is *short-term, direct, negative* and *not significant*.

16.3.6 Climate

With respect to the requirement for a cumulative assessment the Institute of Sustainability and Environmental Professionals (ISEP) (ISEP, 2022) and TII (TII, 2022a) guidance on which the assessment is based states that:

"*the identified receptor for the GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable. By presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. This assessment approach is considered to be inherently cumulative*".

As per the above, the cumulative effect of the proposed project in relation to GHG emissions is considered is as assessed in Chapter 8 Climate and is considered *direct, long-term, negative* and *slight*, which overall is *not significant* in EIA terms.

16.3.7 Noise and Vibration

The only project of scale, which can potentially give rise to the overall noise levels at the receptors, is the datacentre development (GCC Ref. 211047). It is an extension of the Ref. 15488 and has not been constructed. It is approximately 1.5 km from the Proposed Project site. Planning conditions are set as 50 dBA for daytime period and 45 dBA for nighttime period at the nearest NSLs for the development Ref. 15488.

The closest common receptors for the Proposed Project and the Ref. 15488 project are R01, R02 and R04, (refer to Table 9-13 and Table 9-14, Chapter 9 of the EIAR) where noise levels associated with the Proposed Project of 33 and 35 dB L_{Aeq} are predicted. Even if the Ref. 15488 /211047 development were designed to the maximum allowable noise level (50 dBA for daytime and 45 dBA for night-time), the operational noise levels at receptors R01, R02 and R04 from the Proposed Project are so low, that the cumulative levels will not be affected.

It is noted that a planning application for a windfarm comprising up to 8 wind turbines has been refused (Ref. 2561412), and this decision has subsequently been appealed, as discussed previously. The windfarm is in the townlands of Gannow, Attimonmore South, Cappanasruhasun, Killimor, Cappaghnanool, Derrynamanagh, with underground grid connection cabling following the public road network, connecting to the existing Cashla Substation. The windfarm will be approximately 13 km from the Proposed Project and significant noise contribution to the receptors for the Proposed Project will not occur during the operation phase. There is therefore no potential for any cumulative noise effect associated with the Proposed Project, during the operational phase.

During the construction phase, there will be a 3 dB increase to the predicted noise level presented in Chapter 9. Having regard to the calculated noise levels in Chapter 9 and the progression rate of the cable constructions, the cumulative effect for underground cable construction remains *negative, not significant to slight to moderate and temporary*.

Planning for a telecoms mast has also been lodged (Ref. 2561637) adjacent to the Proposed Project. It is not considered likely that operation of the telecoms mast will generate significant noise to the receptors during its

operation and construction of the telecoms mast will be scheduled such that there is no concurrent activities with the Proposed Project. Therefore, cumulative impact to the Proposed Project is not likely.

The other projects on the cumulative list in Appendix 16-1, Volume 3 of this EIAR, are individual dwellings and farm buildings and there are no likely cumulative noise or vibration effects.

16.3.8 Traffic & Transportation

The planning applications listed in Table 16-3 and Table 16-4 were reviewed in the context of potential cumulative effects during both construction and operational phases.

Table 16-3 – Traffic Planning History along Grid Connection Route

Planning Ref. No.	Description of Project	Decision	Distance from the Site
21/733	To construct a 4-bay slatted shed with a calf creep. Gross floor space of proposed works: 292.56 sqm	Granted on 28/06/2021	c.200m
20/1221	For retention and completion of extension to Industrial Premises.	Refused on 30/07/2021	c.5.5m
23/60948	For retention and completion of extension to Industrial Premises.	Granted on 27/06/2024, Appealed July-24. Grant upheld Mar-25	c.5.5m
22/60533	Construction of a new detached dwelling house, Domestic Garage and proposed effluent treatment system and percolation area and all associated site works.	Granted on 29/08/2022	Within site as project boundary overlaps with public road
22/303	For the development and operation of a 150 to 500 MVA (electrical rating) synchronous condenser.	Refused on 28/04/2022	c.15m
22/1006	For the development and operation of a 150 to 500 MVA (electrical rating) synchronous condenser.	Granted on 06/03/2023	c.1.5m
23/61008	Ballymoneen Project Limited applied for permission for development that will consist of grid connection infrastructure to connect the approved solar photovoltaic (“PV”) energy development on lands at Ballymoneen & Grange East Co. Galway under register references 20/961 & 22/61105 to the ESB Cashla 220kV Substation, Cashla, Co. Galway.	Refused on 19/10/2023. Appealed in Nov-23. Appeal withdrawn Nov-23.	Within site as project boundary includes public road
23/61460	Ballymoneen applied for permission for amendments to 110kV electricity sub-station within an approved solar farm, and grid connection to Cashla sub-station at Grange East and other townlands, Co. Galway.	Granted on 18/03/2024	Within site as project boundary includes public road
23/61172	To erect dwellinghouse, domestic garage, wastewater treatment system, percolation area & all associated services.	Granted on 13/02/2024	c.1.5m

24/60331	Retention of part of agricultural shed to an office unit, and to retain treatment plant with percolation area.	Granted on 13/06/2024	Within site as project boundary includes public road
23/355	EirGrid applied for permission to upgrade the existing 220k overhead line between the existing Cashla 220kV Substation. The refurbishment works to towers will consist of: installation of replacement parts on the towers including insulators, shield wire, vibration dampeners.	Granted on 21/10/2024	Project boundary overlaps.
25/60358	To subdivide parents site and to construct a dwelling house and a garage with treatment plant and percolation area.	Refused on 29/05/2025	Project boundary overlaps.
25/60880	To extend office unit and revise site boundaries.	Granted on 26/08/2025	Project boundary overlaps/
25/61412	Gannow Ltd applied for a 10-year permission for a development consisting of 8 no. wind turbines; a permanent 38kV substation compound; permanent underground electrical (38kV) and communications cabling to the existing Cashla Substation; Underground electrical (20/33kV) and communications cabling connecting the wind turbines and meteorological mast; A meteorological mast with a height of 30 metres and all ancillary works and apparatus.	Refused Nov-25. Appealed Dec-25. Appeal decision pending	The proposed grid connection route is located on the L-7108, which is the same road identified for the grid connection in this proposed development.

Table 16-4 – Traffic - Nearby Energy/Infrastructure/Manufacturing Applications

Planning Ref. No.	Description of Project	Decision	Distance from the Site
17/1538	Soleirtricity applied for permission for a photovoltaic farm at Toberoe and other townlands, Co. Galway.	Refused on 24/10/2017. Appealed July-18. Refusal upheld Feb-19.	c.70m
17/1544	Terra Solar II Ltd. applied for a 10-year permission for a photovoltaic farm at Shantallow & Moyveela, Co. Galway.	Granted on 11/06/2018	c.2.5km
20/101	C& F Tooling Ltd applied for permission for a wind turbine test site comprising - 1 12m high turbine tower with adjacent 12m high wind measuring mast and 1 20m high turbine tower with adjacent 20m high wind measurement mast.	Granted on 08/06/2020. Appealed June-20. Grant upheld Oct-20.	c.1.5km
20/961	Renewable Energy Systems Ltd applied for permission for a period of 5 years to construct and complete a Solar PV Energy and Battery Storage development with a total site area of circa 140.9 Hectares.	Granted on 08/03/2021	c.2.5km
310141-21	Shantallow Solar Farm Ltd applied for permission for an electrical substation, 110kV and 33kV compound, underground cable (110kV) installations with associated electrical plant, equipment, control buildings and all associated works.	Granted on 17/12/2021	c.2.8km
22/406	Renewable Energy Systems Ltd applied for permission to construct and complete a Solar PV Energy development with a total site area of circa 25 hectares.	Refused on 08/08/2022	c.2.95km
22/61105	Renewable Energy Systems Ltd applied for permission to construct and complete a solar PV energy development with a total site area of circa 24.51 hectares,	Granted on 17/04/2023	c.2.95km
23/61035	Dexcom International Ltd applied for permission for a manufacturing facility to the south of Athenry town.	Granted on 27/11/2023	c.2.40km
24/60845	Coolpowra Flex Gen Limited applied for permission for a Long Duration Energy Storage (LDES) and Synchronous Condenser (SC) at Coolpowra, Co. Galway.	GCC Refused Permission. Appealed. ACP-320916-24. Decision on appeal pending.	c.40km
25/60121	APW UK WIP Limited t/a Icon Tower applied for permission to erect a 30m high telecommunications lattice structure together with antennas, dishes and associated telecommunications equipment all enclosed by security fencing at Rathmorrissey, Athenry, Co. Galway.	Further Information requested on 27/03/2025. Deemed withdrawn. (Note: second application lodged and consented,	c.120m

		refer to Appendix 16-1, Volume 3 of the EIAR)	
25/60220	Coshla Quarry applied for permission for the continued use of the existing quarry.	Granted Permission. Appealed by 3rd Party. Grant upheld (ACP) Nov-25.	c.440m

During the operational phase, cumulative impacts were discounted to due to the imperceptible impact on the transport network.

During the construction phase, the proposed and permitted projects and plans were reviewed in the context of overall traffic generation and potential impact of roadworks. In terms of traffic generation, none of these project applications are deemed to be of a similar scale to the proposed project and are accounted for in background traffic growth.

The only cumulative impact anticipated to be associated with the project is the Gannow Windfarm (25/61412) which shares a grid connection route on the L-7108 and L-7109, which is the same road identified for the grid connection in this proposed project. The sub-section below discusses this in further detail.

Gannow Windfarm (25/61412)

Review

The Gannow Windfarm proposes to connect a 38kV onsite substation by 38kV underground cabling to the existing 220kV Cashla Substation located in the townland of Barrettspark, Co. Galway, as discussed in detail in the technical note (TLI, 2026) presented in Appendix 16-2, Volume 3 of the EIAR. The underground cabling route measures approximately 21.8km of which approximately 19.5km is located within the public road corridor with the remaining 2.3km located in private land or existing track.

The Grid Connection underground cabling includes a 2.2km section of road that is common to the Gannow Wind Farm and the Cashla Peaker Project (along the existing L-7108 and L-7109). This will lead to full road closures along these roads leading to diversion of traffic. The diversion routes with reference to Table 15-31 (potential diversion routes, lengths, and additional trip distances) are as follows:

- L-7108 Road: Diversion via L7108 -> L7109 -> R339 -> L3103
  - Diversion Length: 8.3km
  - Additional Trip Length: 5.9km
- L-7109 Road: Diversion via L7109-> R339-> L3103
  - Diversion Length: 10km
  - Additional Trip Length: 9.2km

Findings

A review of the Gannow Renewable Energy Development EIAR (Chapter 15 – Material Assets, Section 15.1.7) was undertaken to assess the effects and duration of impacts on the local road network shared by both projects. It is anticipated that based on Table 15-30 (traffic management measures, link length, construction duration) of the Gannow Renewable Energy Development EIAR, estimated full road closure durations for Gannow Windfarm project are as follows:

- L-7108 Road: 24 days (0.8 month)
- L-7109 Road: 8 days (0.2 month)

Table 16-5 - Combined Closure Duration for shared section of public road

Construction Activity	Total Duration	L3103	L7108	L7109
Proposed Project				
Main Cable Construction	6 months	1 month	3 months	2 months
Resurfacing	4 months	3 weeks	2 months	1.5 months
Gannow Windfarm (25/61412)				
Main Cable Construction	1 Month (32 Days)	N/A	0.8 month (24 Days)	0.2 month (8 Days)
Cumulative Impact				
Main Cable Construction	7 months	1 month	3.8 months	2.2 months
Resurfacing	4 months	3 weeks	2 months	1.5 months

The cumulative impact assessment[96] indicates that the Proposed Project and the Gannow Windfarm (Ref: 25/61412) will result in *short-term, significant impacts* on the local road network, specifically along L-7108 and L-7109, due to full road closures during grid connection works (both projects are assumed to interact for the 2.2km section of road that is common to the Gannow Wind Farm and the Proposed Project).

The cumulative construction activities will result in:

- Main Cable Construction: Up to 7 months combined impact across affected roads.
- Resurfacing: Approximately 4 months, with localised effects.

These impacts are considered *negative and significant but temporary*, confined to the construction phase and primarily affecting local traffic and residents.

Comprehensive traffic management plans, phased construction scheduling, and clear diversion signage are proposed to reduce inconvenience and maintain safety. While short-term significant impacts are expected during the construction phase, significant mitigation measures will be implemented to reduce the overall impact, as presented in Chapter 10 – Traffic and Transportation, and in detail in the CTMP presented in Appendix 2-11, Volume 3 of the EIAR. *No other significant impacts are anticipated for the Proposed Project during any other phase.*

16.3.9 Land, Soils and Geology

All relevant proposed and permitted projects and plans (within ca. 2km) have been reviewed as part of this assessment and are presented in Appendix 16-1. All of these projects have been considered in evaluating the cumulative environmental effects of the proposed development.

[96] The assessment has been carried out assuming that construction phases would overlap, based on the information available (notwithstanding that the timing is uncertain given the lack of permission and contract), and the assumption that the Gannow connection will proceed (even though it may not be viable to connect to Cashla substation).

Based on the location, nature and scale of these developments, and taking account of the results of the impact assessment for the proposed project (as presented in Chapter 11 – Land Soils & Geology), no significant cumulative effects will arise with respect to land, soils and geology.

Cumulative effects to land, soil and geology are considered likely to have a imperceptible impact and are therefore not significant.

16.3.10 Water

All relevant proposed and permitted projects and plans within the Study Area have been reviewed as part of this assessment. The projects that have been considered are summarised in Appendix 16-1 and includes all approved planning applications for completeness.

Cumulative effects to the Water Environment are considered likely to have an imperceptible impact and are therefore not significant.

16.3.11 Cultural Heritage

Cumulative effect is defined as 'The addition of many small impacts to create one larger, more significant, impact' (EPA 2017). Cumulative impacts encompass the combined effects of multiple developments or activities on a range of receptors. In the case of cultural heritage, the receptors are the archaeological monuments and architectural/cultural heritage sites in the immediate vicinity of the proposed project. Cumulative impacts at the construction and operational stages are considered. Cumulative impacts on setting are more likely to occur at the operational stage of the development (i.e. post-construction). In this regard in order to assess overall cumulative effects on archaeology and cultural heritage the Proposed Development is considered in the context of other developments. A summary of other developments was compiled from a desktop review of the Galway County Council public planner website and *An Coimisiún Pleanála*. The list includes developments within c. 2 km of the proposed Peaker Plant and within 250 m of the proposed grid connection.

A 2 km study area has been used throughout the assessment to assess the potential effect of the proposed Peaker Plant on the cultural heritage sites. It was decided to use same study area to assess the cumulative effect section of the Peaker Plant. This study area was chosen as the potential effects of Peaker Plant may cover a wide area. The 2 km was determined to be sufficient to assess cumulative effect on settings as the LVIA showed that the proposed Peaker Plant would not be visible from Athenry town, located over c.2 km from the site.

A 250 m study area has also been used throughout to assess the potential effect of the proposed grid connection on the cultural heritage sites. It was decided to use same study area assess the cumulative effect section of the grid connection. A 250 m study area was chosen for the proposed grid connection as its linear, underground nature means that the potential effects are reduced.

16.3.11.1 Proposed Cashla Peaker Plant

The proposed Peaker Plant is an enclosed field located to the east of M18, where it runs south to the Rathmorrisy Interchange which links the M6 Galway to Dublin motorway and M17/18 Gort to Tuam Motorway. The surrounding landscape is enclosed green fields used for agricultural purposes.

Sites which can contribute to the cumulative effect on archaeology and cultural heritage are those which have been consented and considered as having been built or to be built in the future. Developments which have been constructed to date include one-off housing, agricultural buildings (PL.Ref. 21733), wind turbine (PL. Ref. 20/101) while those under construction including a manufacturing facility (PL.Ref. 2361035). During the construction phase, development such as these will have a separate localised, direct effect on subsurface archaeology. This will combine to contribute to the cumulative effect on the subsurface archaeology.

Several developments have not been constructed including a telecommunication lattice structure (Pl.Ref. 2561637) and a solar farm (PL. Ref.. 20/961, PL. Ref.25363[97]). These proposed developments will have a potential localised direct effect on subsurface archaeology when constructed, which will combine to contribute to the cumulative effect. It also includes milking parlour (PL. Ref. 20/239) within proximity of the proposed access road, which was granted permission in 2020. However, no work has been undertaken, and the permission has lapsed. As nothing was constructed, it will not contribute to the cumulative effect on the archaeological and cultural heritage. There are no other recent planning applications lodged on land within or immediately adjacent to the Cashla Peaker Plant site.

Archaeological concerns over direct, localised effects by the proposed Peaker Plant were addressed by the preceding test excavation. This found nothing of archaeological significance within the site. As a result, the proposed development will not contribute to cumulative effect on the subsurface archaeology during the construction phase.

During the operational phase, only sites which have been constructed will contribute to the cumulative effect on the setting. In the case of one-off housing and agricultural buildings, these are not considered to be detrimental to the setting of archaeological monuments and will not contribute to cumulative effects occurring. The constructed wind turbine testing site (PL. Ref. 20/101) will affect the setting of archaeological monuments and can combine with the proposed development to contribute to the cumulative effect occurring. In addition, there is a solar farm (PL. Ref. 20/961) located outside the study area, which is considered to be a large scale project, which can potentially contribute to the cumulative effect on the cultural heritage setting.

As noted above, test excavation as an appropriate archaeological mitigation measure has already been implemented during the pre-construction stage of the project. This found nothing of archaeological significance within the site. As a result, during the decommissioning phase, no residual cumulative effects on archaeological, architectural and cultural heritage are predicted.

[97] Live application for proposed solar farm at Ballymoneen, lodged Dec-25, decision pending.

Table 16-6 – Cultural Heritage Planning Applications within the Cashla Peaker Plant site and surrounding area (1)

Pl. Ref No.	Date of Decision	Status	Development Description	Distance
191065	Granted - 14/10/2019	Constructed to date	The applicant, Francis Curran, applied for permission for the construction of new dwelling along with garage, treatment septic tank system and all associated site works. Gross floor space of proposed works: 264.5 sq m (House - 224 sq m, Garage - 40.5 sq m)	c.809 m
20961	Granted - 08/03/2021	Not constructed to date.	Renewable Energy Systems Ltd applied for permission for a period of 5 years to construct and complete a Solar PV Energy and Battery Storage development with a total site area of circa 140.9 Hectares.	c.2.5km
20101	Granted - 08/06/2020	Constructed to date	C& F Tooling Ltd applied for permission for a wind turbine test site comprising - 1 12m high turbine tower with adjacent 12m high wind measuring mast and 1 20m high turbine tower with adjacent 20m high wind measurement mast.	c.1.5 km
20239	Granted - 17/08/2020	Not constructed and permission has lapsed	The applicant, Francis & Frank Curran, applied for permission to construct i) Milking parlour building incorporating holding yard with crush/drafting yard, Office, storage rooms and plant rooms and eternal bulk tank, water tank and meal bin, ii) Cubicle shed with slatted tank iii) Calf shed, iv) Silage pits and all assorted site works; Gross floor space of proposed works 2,171 sq m	Within the red line boundary
21733	Granted - 23/08/2021	Constructed to date.	The applicant, Damien Collins, applied for permission to construct a four-bay slatted shed with a calf creep. Gross floor space of proposed works: 292.56 sq m	c. 200 m
2361035	Granted - 27/11/2023	Under construction	Dexcom International Ltd applied for permission for a manufacturing facility to the south of Athenry town.	c. 2.40km

Pl. Ref No.	Date of Decision	Status	Development Description	Distance
2561637	Granted -09/01/2026	Not constructed to date	APW UK WIP Limited t/a Icon Tower applied for permission to erect a 30m high telecommunications lattice structure together with antennas, dishes and associated telecommunications equipment all enclosed by security fencing.	c. 110 m
25363	Pending Decision – Due 24/02/2026	Not constructed to date.	Extension of Duration - of pl ref 20/961 for permission for development at this site at Ballymoneen and Grange East, Co Galway (Appendix 16.1),.	c. 1.72 km
25365	Pending Decision – Due 25/02/2026	Not constructed to date.	To extend wind turbine testing & research site to rear of existing factory (previously granted under planning permission ref. number 13/1242) ((Appendix 16.1),.)	C.100 m

16.3.11.2 Proposed 220Kv Grid Connection for the Peaker Project

The proposed UGC will be laid within the public road curtilage, with some minor sections traversing within privately owned lands. This is necessitated by the use of a horizontal directional drilling (HDD) section to cross the M6 motorway in two separate locations and the M17 motorway in one location. It will have a localised effect on the potential archaeology and cultural heritage along the proposed route.

There are a number of other developments along the red line boundary including Gannow Wind Farm (Pl. Ref. 25/61412), discussed separately below. The other developments include one-off housing, substation and grid connection and overhead lines. The other developments could combine with the proposed and permitted projects and plans and plans to contribute to the cumulative effect on the archaeological and cultural heritage during the construction phase. The underground nature of the proposed UGC means that it will not affect the setting of monuments during the operational phase.

Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the Proposed Project (i.e. Cashla Peaker Plant), no residual cumulative effects on archaeological, architectural and cultural heritage are predicted during the decommissioning phase.

Gannow Wind Farm (Pl.Ref. 25/61412)

The Grid Connection underground cabling includes a 2.2km section of road that is common to the Gannow Wind Farm and the Cashla Peaker Project (along the existing L-7108 and L-7109). There would be no cumulative effect predicted on the surrounding cultural heritage sites due to the underground nature of the cables. Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the project, no residual cumulative effects on archaeological, architectural and cultural heritage during the decommissioning phase are predicted.

Table 16-7 -Cultural Heritage Planning Applications within the Cashla Peaker Plant site and surrounding area (2)

Pl. Ref No.	Date of Decision	Status	Description	Distance
ACP 320248	Granted - 07/03/2025	Constructed to date.	Retention permission for extension to existing tooling premises and associated development (Appendix 16.1, Volume 3 of the EIAR)	Borders red line boundary as is off the L7109
21733	Granted -28/06/2021	Constructed to date.	Permission to construct a 4-bay slatted shed with a calf creep. Gross floor space of proposed works: 292.56 sqm (Appendix 16.1, Volume 3 of the EIAR).	c.200m
2260533	Granted - 29/08/2022	Constructed to date.	Permission to construct a new detached dwelling house, Domestic Garage and proposed effluent treatment system and percolation area and all associated site works (Appendix 16.1, Volume 3 of the EIAR)	Within site as red-line boundary overlaps with public road
221006	Granted -06/03/2023	Not constructed to date.	For the development and operation of a 150 to 500 MVA (electrical rating) synchronous condenser.	c.1.5m
2361460	Granted - 18/03/2024	Not constructed to date.	Ballymoneen applied for permission for amendments to 110kV electricity sub-station within an approved solar farm, and grid connection to Cashla sub-station at Grange East and other townlands, Co. Galway.	Within site as Red-line boundary includes public road
2361172	Granted - 13/02/2024	Constructed to date.	To erect dwellinghouse, domestic garage, wastewater treatment system, percolation area & all associated services.	c.1.5m
2460331	Granted -13/06/2024	Constructed to date.	Retention of part of agricultural shed to an office unit, and to retain treatment plant with percolation area.	Within site as red-line boundary includes public road

Pl. Ref No.	Date of Decision	Status	Description	Distance
23355	Granted - 21/10/2024	Not constructed to date.	EirGrid applied for permission to upgrade the existing 220k overhead line between the existing Cashla 220kV Substation. The refurbishment works to towers will consist of: installation of replacement parts on the towers including insulators, shield wire, vibration dampeners.	Red-line boundary overlaps.
2560880	Granted -26/08/2025	Not constructed to date.	To extend office unit and revise site boundaries.	Red line boundary overlaps/
2561412, ACP500493	Refused - 21/11/2025 Appeal lodged - 18/12/2025	Not constructed to date.	Gannow Ltd applied for a 10-year permission for a development consisting of 8 no. wind turbines; a permanent 38kV substation compound; permanent underground electrical (38kV) and communications cabling to the existing Cashla Substation; Underground electrical (20/33kV) and communications cabling connecting the wind turbines and meteorological mast; A meteorological mast with a height of 30 metres and all ancillary works and apparatus.	The proposed grid connection route is located on the L-7108, which is the same road identified for the grid connection in this proposed development. Refer to Cumulative impact assessment carried out by TLI (2026), Appendix 16-2, Volume 3 of the EIAR.
2561637	Granted – 10/01/2026	Not constructed to date.	Permission for telecommunications lattice structure and associated development (Appendix 16.1, Volume 3 of the EIAR).	c.100 m

Pl. Ref No.	Date of Decision	Status	Description	Distance
25363	Pending Decision – Due 24/02/2026	Not constructed to date.	Extension of Duration - of pl ref 20/961 for permission for development at this site at Ballymoneen and Grange East, Co Galway (Appendix 16.1, Volume 3 of the EIAR).	c. 1.72 km
25365	Pending Decision – Due 25/02/2026	Not constructed to date.	To extend wind turbine testing & research site to rear of existing factory (previously granted under planning permission ref. number 13/1242) (Appendix 16.1, Volume 3 of the EIAR).	C.100 m

16.3.12 Material Assets

All relevant proposed and permitted projects and plans in the immediate environs (ca. 2km) of the Proposed Project, are presented in Appendix 16-1, Volume 3 of the EIAR.

It is acknowledged that the proposed underground cable route to the Cashla Substation overlaps in part with the corridor identified for the proposed Gannow Renewable Energy Development (Ref: 25/61412).

A technical assessment has been undertaken (TLI, 2026) in order to review the proposed grid connection for the Gannow Renewable Energy Development, and any potential cumulative impacts on the Cashla Peaker Project, i.e. the subject of this EIAR. This assessment is presented in Appendix 16-2, Volume 3 of this EIAR. The findings of the report state:

- *'The application being sought by Gannow ltd is technically unviable, as the designated connecting megawatt for a distribution (DSO) connection is circa 40MW-50MW. The Gannow renewable development will not have the option to connect at Cashla unfortunately given these constraints.'*
- *'The project in which TLI Group are directly employed (Cashla Peaker Plant – 220kV Grid Connection) has obtained a connection offer to the electrical grid is subject to approval by EirGrid via an auction process. Bord Gáis Energy was successful in the SEMO T-4 2028/29 auction for a 10-year contract covering Oct 2028 – Sept 2038. This means that Bord Gais Energy were deemed successful to connect to Cashla substation by EirGrid. Bord Gáis Energy have engaged with EirGrid to present proposed grid connection route along public road (22 April 25), in lieu of the approved connection offer to Cashla substation.'*

Notwithstanding these findings, a cumulative assessment has been undertaken by TLI (2026) in order to assess the potential effects should the Gannow Renewable Energy Development proceed in combination with the Proposed Project. The findings are presented in detail in Appendix 16-2, Volume 3 of this EIAR, and summarised in the following section.

16.3.12.1 Constructability Features and Issues (TLI, 2026)

16.3.12.1.1 Utility Infrastructure

For grid routing purposes, it is assumed that non-critical utility infrastructure (such as watermains, sewers, drainage) can generally be moved/replaced if permission can be obtained from the local authority and the utility provider, in order to create space to accommodate HV cables ducts. During the preliminary route assessment phase, data collection of utility maps and service network identifiers, have been gathered to establish the presence of service arteries or high-pressure utilities.

This process for the proposed 220 kV UGC Grid Connection (i.e. the proposed project) evaluated the combined effects of the known utilities, past and present. This process now extends to the future identified project (Gannow Wind Farm Grid) and to delineate the impact, both these grid connections would have on the other service, given the presence of existing utilities, the spatial requirements to install the grid infrastructure and the road curtilages, which both projects intend to construct within.

Both projects, proposed 220 kV UGC Grid Connection (i.e. the proposed project) & 38kV Gannow Route Option (i.e. proposed Gannow development) converge on the local road L-3103, (Ch.5300m) and intend to use the L-7108, to continue towards the Cashla 220kV /110kV node. The 38kV Gannow Route Option is intended to share 2.2km of the planned route with the proposed 220 kV UGC Grid Connection, until Ch.3100m, where the 38kV Gannow Route Option will deviate to an off-road alignment. The cumulative impact for this local road section will result in 2 no. 220kV circuit Joint Bays being encountered. Whilst considering the 38kV Gannow Route Option, no joint bay locations have been identified as part of the planning application, (Reference Nr. 2561412). 38kV Joint Bays are typically placed at 850 to 900m intervals. In lieu of this, it would be expected that at a minimum, 2no. 38kV would be installed within this common section of the L-7108.

Both options, proposed 220 kV UGC Grid Connection (i.e. the proposed project) & 38kV Gannow Route Option (i.e. the proposed Gannow development) circuits do converge on different grid alignments, to avoid and navigate the Motorway crossings respectively. These circuits will converge again, within the L-7109, approximately 850m south of the Cashla 220kV/110kV substation node.

It is anticipated, that given the potential for mutual heating of cable circuits, the thermal independency would be maintained with adequate horizontal separation will need to be confirmed at detailed design, to mitigate against overheating and derating of both circuits. This would be a standard request from EirGrid to ensure that the seasonal operating current values are met and continuous (TLI, 2026).

16.3.12.2 220kV Joint Bays Construction (TLI, 2026)

The review identifies three joint bays where constructability may be constrained, primarily due to limited working space, the proximity of existing infrastructure, and potential implications for traffic management.

Key considerations include the following (TLI, 2026).

16.3.12.2.1 Narrow road profiles or single-lane sections

The joint bay locations are constrained by the limited width of local roads, which prevents installation within the non-wheel-bearing strip without impacting traffic flow. In these cases, a temporary passing bay would be envisaged for the HIAB vehicle, to install the Joint bays at the desired location, to allow for sufficient working space for cable drums, pulling equipment, and maintenance vehicles. This is typically left with the contractor, in advance of works commencing, to detail the traffic management required to achieve the necessary space during construction (TLI, 2026).

16.3.12.2.2 Public Roads v's Third party lands

It is the preference of EirGrid to install UGC within the existing public road network where possible. Should third-party land be used eg for storing of materials and equipment, relevant permission would need to be obtained from the landowner.

The easement is defined as "the use of someone else's property or land for a stated reason". A wayleave is defined as "access to property granted by a landowner in return of payment" (TLI, 2026).

16.3.12.2.3 Passing Bays

- Passing bays to be constructed in the public road and verge to avoid road closure where feasible.
- Passing bay shall consist of minimum 250mm thick layer of compacted CL.804 granular material laid on 6F1/2 granular, material on approved geotextile liner. Exact layer thickness shall be determined by the Contractor at each location based on the Contractor's temporary works design.
- The enabling works area shall be reinstated to match the original ground levels and profiles. Fence lines, drainage and planting shall be reinstated to original condition, or as per the relevant specification.
- The designer shall consider whether the joint bay can be installed within the carriageway during a stop/go system or road closure.
- Temporary Heras Fence to comply with NRA Drawing RCD/300/4 (TLI, 2026).

Therefore, no significant cumulative effects are likely to occur, during the construction or operational stages of the proposed project, in combination with the proposed Gannow Wind Farm Grid, notwithstanding the fact that this development has been refused and subsequently appealed (outcome pending), and that the proposed Gannow Wind Farm Grid connection is considered to be '*technically unviable'* (TLI, 2026).

With the implementation of mitigation measures for the Proposed Project it is considered that there will be no likely significant effects regarding built services and waste management due to cumulative effects.

16.3.13 Major Accidents and Disasters

The Land Use Planning assessment (AWN, 2026), presented in Appendix 15-1, Volume 3 of the EIAR, concluded that the individual location-based risk contours corresponding to tolerable levels for new COMAH establishments do not extend to an off-site work location or to an indoor area where the public are present. Therefore, it is concluded that the criteria in Table 1 of the *Guidance on Technical Land Use Planning advice (HSA, 2023)* are met, and level of off-site risk at the Proposed project is acceptable. Therefore, it is concluded that the risk from a major accident, at the Proposed project, to human health and environment in the surrounding area, will be not significant.

There are no expected impacts from project within 5km of the Proposed project, from a major accidents and disasters perspective, as such, there are no significant cumulative effects with the Proposed project from a major accidents and disasters perspective. The projects were identified in Chapter 15 Major Accidents & Disasters, and the method has been outlined in Chapter 15 previously.

During the construction, operation and decommissioning phase, since there are no likely negative impacts on the project or to off-site receptors, the cumulative impacts, of major accidents and disasters, are considered imperceptible and neutral to the Proposed project and to proposed and permitted projects and plans in the surrounding area.

16.3.13.1 Indirect or Secondary Impacts

The Proposed project will be a COMAH facility as it will store above threshold quantities of hazardous materials, which are in excess of the defined COMAH thresholds set out in Schedule 1 of the COMAH Regulations. The Health and Safety Authority (HSA), which is the central competent authority for regulatory control of COMAH sites, require COMAH sites to have a ‘consultation distance’. A consultation distance (CD) is a distance around an establishment, within which there are potentially significant consequences from major accidents to people (or to the environment).The developers of future developments within the consultation distance of the Proposed project would be required to complete a Land Use Planning assessment. Therefore, the Proposed project could not have indirect impacts on the type of project that are permitted within its consultation distance.

A proposed consultation distance has been provided in the Land Use Planning assessment, attached as Appendix 15-1, Volume 3 of this EIAR.

The overall character of the surrounding area is a low density population. Therefore, the indirect impacts are considered not significant.

17. Interactions

17.1 Introduction

This chapter describes interactions between impacts on different environmental factors. All potential interactions have been addressed as required throughout the EIAR. During each stage of the assessment, contributors have liaised with each other (where relevant) to ensure that all such potential interactions have been robustly addressed. The description of the existing site and the Proposed Project are provided in Chapter 1 and Chapter 2 of the EIAR, and in the Planning Statement.

This section has been prepared in accordance with EPA '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* (2022), which states:

'Some topics could be placed under more than one heading, for example where hydrogeology is a relevant topic it may be relevant under the heading of 'Aquatic Ecology' as well as under 'Water' or 'Ground Water.' Another example would be amenity which may be relevant under 'Population and Human Health' and 'Landscape'. The requirement for the EIAR to consider 'Interactions' addresses this issue by ensuring that effects are cross-referenced between topics, thus reducing the need to duplicate coverage of such topics.'

17.2 Summary of Interactions

The interactions between each of the technical topics have been considered to determine the potential direct and indirect significant environmental impacts, via. various pathways.

A summary matrix showing key interactions and interdependencies between environmental attributes is presented in Table 17-1, for the construction phase and the operational phase. Given that the decommissioning phase will be less impactful on the environment than the construction phase, it is conservatively considered that the construction phase is suitably representative of potential effects and impacts during the decommissioning phase. Each environmental topic is discussed below, from Section 17.3 (Population and Human Health) to Section 17.14 (Major Accidents and Disasters).

All potential effects arising from interactions and interdependencies between environmental attributes were identified during the design phase process as part of the preparation of this EIAR, and either avoided through design measures, or addressed through specific mitigation measures, as presented in Chapter 4 Population and Human Health, to Chapter 15 Major Accidents and Disasters, and summarised in Chapter 18 Schedule of Environmental Commitments.

Table 17-1 - Summary Interactions Matrix

	Chapter 4 – Population & Human Health		Chapter 5 - Biodiversity		Chapter 6 – Landscape & Visual		Chapter 7 – Air Quality		Chapter 8 - Climate		Chapter 9 – Noise & Vibration		Chapter 10 - Traffic		Chapter 11 – Land, Soils & Geology		Chapter 12 - Water		Chapter 13 – Cultural Heritage		Chapter 14 – Material Assets	
	Con.[98]	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*
Chapter 4 – Population & Human Health			✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗
Chapter 5 - Biodiversity	✗	✗			✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗
Chapter 6 – Landscape & Visual	✗	✗	✓	✓			✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗
Chapter 7 – Air Quality	✓	✓	✓	✓	✗	✗			✓	✓	✗	✗	✓	✓	✓	✗	✓	✗	✗	✗	✓	✓
Chapter 8 - Climate	✓	✗	✗	✗	✗	✗	✓	✓			✗	✗	✓	✓	✓	✗	✓	✗	✗	✗	✓	✓
Chapter 9 – Noise & Vibration	✓	✗	✓	✓	✗	✗	✗	✗	✗	✗			✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
Chapter 10 – Traffic	✓	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓			✗	✗	✗	✗	✗	✗	✗	✗

[98] Note: *Con.* Refers to Construction Phase. *Op.* refers to Operational Phase

Legend: ✗ denotes no interaction / interdependency; ✓ denotes interaction / interdependency identified, further consideration warranted. Grey cells denote topic under assessment.

	Chapter 4 – Population & Human Health		Chapter 5 - Biodiversity		Chapter 6 – Landscape & Visual		Chapter 7 – Air Quality		Chapter 8 - Climate		Chapter 9 – Noise & Vibration		Chapter 10 - Traffic		Chapter 11 – Land, Soils & Geology		Chapter 12 - Water		Chapter 13 – Cultural Heritage		Chapter 14 – Material Assets	
Chapter 11 – Land, Soils & Geology	✓	✗	✗	✗	✗	✗	✓	✗	✓	✓	✗	✗	✗	✗			✗	✗			✓	✓
Chapter 12 - Water	✓	✗	✓	✗	✗	✗	✓	✗	✓	✓	✗	✗	✗	✗	✓	✗					✓	✓
Chapter 13 – Cultural Heritage	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗				
Chapter 14 – Material Assets	✗	✗	✗	✗	✗	✗	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✗				

Legend: ✗ denotes no interaction / interdependency; ✓ denotes interaction / interdependency identified, further consideration warranted; Grey cells denote topic under assessment.

17.3 Population and Human Health

Population and human health attributes interact with other environmental attributes, as outlined in Chapter 4 of this EIAR; summarised as follows:

- **Climate Change** – Potential impacts on the climate environment could result in associated human health impacts. However, the mitigation measures described in Chapter 4 – Population and Human Health, and those relevant in Chapter 8 – Climate will ensure that this will not occur. The proposed project is aligned with advancing Irelands energy transition goals, as detailed within the MHC letter (Appendix 1-2, Volume 3 of the EIAR).

- **Air Quality** – Potential impacts on the receiving air quality could also result in associated human health impacts. However, the mitigation measures described in Chapter 4 – Population and Human Health, and those relevant in Chapter 7 – Air Quality will ensure that this will not occur.

- **Water Quality** – Potential impacts on the receiving water environmental could also result in associated human health impacts. However, the mitigation measures described in Chapter 4 – Population and Human Health, and those relevant in Chapter 12 – Water will ensure that this will not occur.

- **Landscape and Visual Impact**- Potential impacts on the receiving land, soils and geology environmental could also result in associated human health impacts. However, the mitigation measures described in Chapter 4 – Population and Human Health, and those relevant in Chapter 11 – Land, Soils and Geology will ensure that this will not occur.

- **Noise & Vibration** - Potential impacts on the receiving noise and vibration environmental could also result in associated human health impacts. However, the mitigation measures described in Chapter 4 – Population and Human Health, and those relevant in Chapter 9 – Noise and Vibration will ensure that this will not occur.

- **Traffic & Transportation**: At least one route (a section of Lisheenkyle East Road) will require temporary closure during the construction phase and access may be temporarily affected for some residential properties, businesses and community assets such as Lisheenkyle National School, and Athenry Golf Club in the wider area. Temporary significant residual effects are anticipated. However, significant mitigation measures will be implemented to reduce the overall impact, as presented in Chapter 10 – Traffic and Transportation, and in detail in the CTMP presented in Appendix 2-11, Volume 3 of the EIAR, and these effects will be temporary in duration.

No other interactions or interdependencies have been identified, in relation to Population and Human Health.

17.4 Biodiversity

Biodiversity attributes interact with other environmental attributes as outlined in Chapter 5 Biodiversity of this EIAR and summarised as follows:

- **Noise and Vibration-** There are no European, National or local designated sites within 450 m of the proposed project. Acoustic modelling was carried out to predict noise levels which could be generated at various receptor locations. Based on the results of the baseline noise assessment (day time levels ranged from 47- 62 dB) it is not anticipated that there will be any impact on sensitive protected sites. Given that the UGC is located along an existing road network, any species in the area will be acclimatised to a similar level of noise associated with busy rural roads. As such no noise impact is expected for the cable route.

  During the operational phase, given that there are no European or nationally important sites within 6km of the site there will be no impact on any site due to noise or vibration.

The implementation of mitigation measures as per Chapter 5 – Biodiversity and relevant mitigation from Chapter 9 – Noise and Vibration will ensure any interactions between these topics, during the construction and operational phases, will be minimal in nature, and no significant adverse effects will occur.

- **Air Quality -** Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability of the plant, as well as other effects. Dust impacts to vegetation can occur up to 50 m from the site, 50 m from site access roads, and up to 250 m from the site entrance. There are no sensitive ecological receptors within the proposed project site. Therefore, there is no potential for impacts on sensitive ecology from construction dust emissions and no further assessment is required. Air Quality impacts relating to biodiversity within the Proposed Project were assessed and it was found that the effect on ecology during the operation of the Proposed Project will be not significant. The implementation of mitigation measures as per Chapter 5 – Biodiversity and relevant mitigation from Chapter 7 – Air Quality, as well as the implementation of the CEMP (Appendix 2-10, Volume 3 of the EIAR) will ensure that any interactions between these topics will be minimal in nature, and no significant adverse effects will occur.

- **Climate** – Potential impacts on the receiving climate environment could also result in associated biodiversity impacts. However, the mitigation measures described in Chapter 5 Biodiversity and those relevant in Chapter 8 – Climate will ensure that such impacts do not occur.

- **Water** – During the Construction Phase, there is potential for groundwater exposure during excavation and drilling. The proposed project site is located in a karst area which is sensitive to potential groundwater contamination, and located in the '*Clarinbridge'* groundwater body and groundwater dependent terrestrial ecosystem (GWDTE) *'Galway Bay Complex Fens'*. As such, there is the potential for flora, fauna and habitats (including the Annex I habitats which are dependent on these ground waterbodies) to be indirectly impacted by reduced water quality. In the absence of mitigation measures, this could potentially constitute a short-term, significant and negative impact (pre-mitigation) on water quality. However, mitigation measures as outlined in Chapter 5 – Biodiversity, Chapter 11 – Land, Soils and Geology and Chapter 12 – Water, will ensure that potential impacts as a result of these topics interacting will be minimal in nature, and not significant.

- **Landscape and Visual** - Potential impacts on the receiving landscape could also result in associated impacts on biodiversity. However, the mitigation measures described in Chapter 5 – Biodiversity, and those relevant in Chapter 6 – Landscape and Visual will ensure that this will not occur.

No other interactions or interdependencies have been identified, in relation to Biodiversity.

17.5 Landscape and Visual

Landscape and visual interactions are summarised below and in the relevant sections of Chapter 6 of this EIAR as follows:

- **Land, Soils and Geology** - Grading/ tunnelling of landform required to facilitate the proposed project may affect superficial deposits and bedrock. Once the project is completed the change will not be readily discernible. Areas of soil within the site will be stripped, stored and reused for landscaping purposes where feasible within the development. The magnitude of the effect on local character is moderate, adverse and short-term during construction, and negligible and long-term during the operational phase.

- **Biodiversity** - Existing trees on the proposed project site will be largely retained. Some small areas of scrub and trees may need to be removed to facilitate the access road to. Areas of existing vegetation will need to be removed to facilitate horizontal directional drilling to cross the M6 motorway in 2no. separate locations and the M17 motorway in 1no. location. The vegetation will be reinstated after completion. The proposed project site and access road will include additional hedgerow, woodland planting and grassland

areas. The magnitude of the effect on local character is minor, short-term and unfavourable during construction. As planting matures, the long-term effects are predicted to be moderate and beneficial.

- **Material Assets -** Land-use will change from an area of agricultural pasture land to industrial development, mostly screened by woodland and adjacent to the motorway network. This form of change is consistent with existing types and patterns of built development in the immediate area. The magnitude of the effect on local character during construction is expected to be moderate, adverse during and short term. The magnitude of effect during the operational phase is expected to be moderate, adverse and long term.

No other interactions or interdependencies have been identified, in relation to Landscape and Visual Impacts.

17.6 Air Quality

- **Air Quality and Human Health and Population**

  Construction Phase

  An adverse air quality impact during the construction phase can cause health and dust nuisance issues. There is a low risk of dust-related human health impacts during the construction phase of the proposed project. Best practice mitigation measures (as per Chapter 7) will be implemented during the construction phase to ensure that the impact of the proposed project complies with all ambient air quality legislative limits. Therefore, the predicted impact is direct, short-term, negative, localised and not significant with respect to Population and Human Health during the construction phase.

  Operational Phase

  Vehicles accessing the site will emit pollutants which may impact Air Quality and Human Health. However, the increased number of vehicles associated with the proposed project will not cause a significant change in air pollutant emissions in the locality. Emissions from the operation of the turbine have the potential to impact human health. It has been assessed that emissions will be in compliance with the ambient air quality standards which are set for the protection of human health. Impacts will be localised, direct, not significant, negative and long-term.

- **Air Quality and Climate -** Air Quality and Climate have interactions via. emissions during the construction, and operational phases generate both air quality and climate impacts. There is no impact on climate due to air quality.

- **Air Quality and Land, Soils and Hydrogeology**

  Construction Phase

  Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between Air Quality and Land and Soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils during the construction phase.

  Operational Phase

  There are no potentially significant interactions identified between Air Quality, and Land and Soils during the operational phase.

- **Air Quality and Biodiversity**

  Construction Phase

  Dust generation can occur during extended dry weather periods due to traffic along haul routes and activities such as excavations and infilling works. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability as well as other effects. A high level of dust mitigation is proposed to ensure no significant effects occur. With the implementation of these mitigation measures dust emissions will be minimised and impacts will be direct, short-term, negative, localised and not significant with respect to biodiversity.

  Operational Phase

  There are no potentially significant interactions identified between Air Quality and Biodiversity during the operational phase.

- **Air Quality and Material Assets – Traffic & Transport**

  Construction Phase

  With increased traffic movements and reduced engine efficiency, the emissions of vehicles can increase. The impacts of the proposed project on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between Traffic and Air Quality are considered to be direct, short-term, neutral, localised and not significant during the construction phase.

  Operational Phase

  Given the minor traffic volumes which will occur as a result of the proposed project during the operational phase, the impact of the interactions between Traffic and Air Quality are considered to be long-term, direct, negative and not significant during the operational phase.

No other interactions or interdependencies have been identified, in relation to Air Quality.

17.7 Climate

Climate has the potential to interact with a number of other environmental attributes.

- **Land, Soils, Geology and Hydrology -** The impact of flood risk has been assessed and the surface water drainage network will be designed to cater for increased rainfall in future years as a result of climate change. The effect of the interactions between climate and land, soils, geology and hydrology are direct, short-term, negative and imperceptible during the construction phase and direct, long-term, negative and imperceptible during the operational phase, which is overall not significant in EIA terms.

- **Air Quality -** Air quality and climate have interactions via. emissions during the construction, and operational phases generating both air quality and climate impacts. Air quality modelling outputs are utilised within the Climate Chapter (Chapter 8). There is no impact on climate due to air quality.

- **Traffic and Transportation -** During the construction, and operational phases, there is the potential for interactions between climate and traffic. Vehicles accessing the site will result in emissions of CO_2, a

greenhouse gas. The effects of the proposed project on climate are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the effects of the interactions between traffic and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase, which is overall not significant in EIA terms.

- **Waste -** Waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling. The effect of the interactions between waste and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase, which is overall not significant in EIA terms.

No other interactions or interdependencies have been identified, in relation to Climate.

17.8 Noise and Vibration

The construction phase will involve site clearance, excavation, construction of the site buildings and the ancillary structures. Due to the nature of the activities undertaken on a construction site, there is potential for generation of high levels of noise to the surrounding environment. There will also be vehicular movements to and from the site that will make use of existing roads. In addition, there will be boreholes and trial pits for ground investigation works within the site and underground cable route from the site to Cashla Substation. However, the construction phase can be classed as a short-term phase.

- **Population & Human Health** – The appointed contractor will be required to comply with regulations and provide appropriate noise exposure mitigation measures where necessary.
  - Construction noise levels at the nearest noise sensitive locations to the Proposed Project were measured, as described in Chapter 9 Noise and Vibration of the EIAR, and considered to be negative, not significant and short-term for the Peaker Plant site and negative, not significant and temporary for the underground cable route. Locations where HDD is to be conducted were found to be negative, slight to moderate and temporary on sensitive receptors.
  - Construction Vibration levels due to excavations were considered neutral, imperceptible and short-term. Construction vibration due to HDD was found to be negative, not significant and temporary to short-term and due to construction traffic neutral, imperceptible and short-term in respect of their impact on nearest sensitive receptors (residential properties).
  - Operational Phase noise and vibration assessments relating to plant noise found that the resultant noise effects would be Negative, Imperceptible to Slight to Moderate Impact and Long-term with respect to impact on the nearest sensitive receptors. The impact of additional traffic on public roads surrounding the proposed project once operational was found to be neutral, imperceptible and long-term with respect of impact on sensitive receptors.

The mitigation measures described in Chapter 4 – Population and Human Health, and those relevant in Chapter 9 – Noise and Vibration will ensure that any noise impacts resulting from the Proposed Project are mitigated and managed, and not significant.

- **Biodiversity** - Potential impacts on the receiving noise and vibration environment could also result in associated impacts to biodiversity. However, the mitigation measures described in Chapter 5 – Biodiversity, and those relevant in Chapter 9 – Noise and Vibration will ensure any impacts are limited, and not significant.

- **Traffic and Transport** – Increased traffic volumes during all phases of the Proposed Project are expected, however the implementation of mitigation measures as per Chapter 9 – Noise and Vibration and relevant

mitigation measures as per Chapter 10 – Traffic and Transport will ensure these impacts are minimised when these topics do interact, and are not significant.

No other interactions or interdependencies have been identified, in relation to Noise and Vibration.

17.9 Traffic and Transportation

- **Population and Human Health:** Due to limited road width along Lisheenkyle East (L7108) and L7109 roads, full road closures will be required. A section of approximately 3 km will be closed on both roads, resulting in a diversion route of around 8 km. This adds approximately 5 km of extra travel for local residents and workers. Mitigation measures as detailed in Chapter 10 – Traffic and Transportation of the EIAR will ensure that potential effects are managed. While full closure is shown on these roads, only through traffic will be affected. This will be facilitated via limiting trench lengths to sequential 30 to 50 m sections which will reduce to very short 2 to 5 m sections adjacent individual property access points. This will ensure residents entry and egress from one side of a property access point is maintained at all times. Closure segments will avoid local driveways in order to reduce impacts on local residents.

- **Air Quality** – The impacts of the proposed project on air quality are assessed in Chapter 7 – Air Quality by reviewing the change in annual average daily traffic on roads close to the site, with the impact of the interactions between Traffic and Air Quality considered to be direct, short-term, neutral, localised and not significant during the construction phase. The impact of the interactions between Traffic and Air Quality during the operational phase are considered to be long-term, direct, negative and not significant during the operational phase.

- **Climate** – During the construction, and operational phases, there is the potential for interactions between climate and traffic. Vehicles accessing the site will result in emissions of CO_2, a greenhouse gas. The effects of the proposed project on climate are assessed in Chapter 8 – Climate by reviewing the change in annual average daily traffic on roads close to the site, and the effects of the interactions between traffic and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase, which is overall not significant in EIA terms.

- **Noise and Vibration** – Increased traffic volumes during all phases of the Proposed Project are expected, however the implementation of mitigation measures as per Chapter 9 – Noise and Vibration and relevant mitigation measures as per Chapter 10 – Traffic and Transportation will ensure these impacts are minimised when these topics do interact, and are not significant.

No other interactions or interdependencies have been identified, in relation to Traffic and Transportation.

17.10 Land, Soils and Geology

- **Population and Human Health** - Potential impacts on the receiving land, soils and geology environment could also result in associated human health impacts. However, the mitigation measures described in Chapter 11 – Lands, Soils and Geology, will ensure that this will not occur, and residual impacts are not significant.

- **Air Quality** - Potential impacts on the receiving land, soils and geology environment could also result in associated air quality impacts. However, the mitigation measures described in Chapter 11 – Land, Soils

and Geology, and those relevant in Chapter 7 – Air Quality will ensure that this will not occur, and residual impacts are not significant.

- **Climate** - Potential impacts on the receiving land, soils and geology environment could also result in associated Climate impacts. However, the mitigation measures described in Chapter 11 – Land, Soils and Geology and those relevant in Chapter 8 – Climate will ensure that this will not occur, and residual impacts are not significant.

- **Water** - Potential impacts on the receiving land, soils and geology environment could also result in associated water quality impacts. However, the mitigation measures described in Chapter 11 – Land, Soils and Geology and those relevant in Chapter 12 – Water will ensure that this will not occur, and residual impacts are not significant.

- **Material Assets** - Potential impacts on the receiving land, soils and geology environment could also impact on material assets. However, the mitigation measures described in Chapter 11 – Land, Soils, and Geology and those relevant in Chapter 14 – Material Assets will ensure that this will not occur, and residual impacts are not significant.

No other interactions or interdependencies have been identified, in relation to Land, Soils and Geology.

17.11 Water

- **Population & Human Health** – Potential impacts on the receiving hydrology and hydrogeology environment could also impact on human health. However, the mitigation measures described in Chapter 12 – Water and those relevant in Chapter 4 – Population and Human Health will ensure that this will not occur, and residual impacts are not significant.
- **Biodiversity** - Potential impacts on the receiving hydrology and hydrogeology environment could also impact biodiversity. However, the mitigation measures described in Chapter 12 – Water and those relevant in Chapter 5 – Biodiversity will ensure that this will not occur, and residual impacts are not significant.
- **Land, Soils and Geology** - Potential impacts on the receiving hydrology and hydrogeology environment could also impact the receiving land, soils and geology environment. However, the mitigation measures described in Chapter 12 – Water and those relevant in Chapter 11 – Land, Soils and Geology will ensure that this will not occur, and residual impacts are not significant.
- **Material Assets** - Potential impacts on the receiving hydrology and hydrogeology environment could also impact on material assets. However, the mitigation measures described in Chapter 12 – Water and those relevant in Chapter 14 – Material Assets will ensure that this will not occur, and residual impacts are not significant.

No other interactions or interdependencies have been identified, in relation to Water.

17.12 Cultural Heritage

- **Noise and Vibration -** The proposed 220 kV Grid Connection will use horizontal directional drilling (HDD) to cross the M6 motorway in two separate locations and the M17 motorway in one location. Provided mitigation set out in Chapter 13 – Cultural Heritage and Chapter 9 – Noise and Vibration are implemented there will be no significant effect from the noise and vibration of HDD on the known Cultural Heritage sites within the vicinity, due to the distance.

- **Landscape and Visual -** Potential indirect effects at the construction and operational stage would largely occur as a result of effects on the setting of site (notably visual effects) and on the integrity and character. The landscape and visual impact assessment prepared as part of Chapter 13 – Cultural Heritage found that impacts on the landscape would result in a direct, physical effect on the unknown subsurface remains of CH057 while the proposed UGC will have a direct, physical effect on the unknown subsurface remains of CH059. The proposed UGC could also have an indirect effect on CH019 and CH020 (via. effects to potentially unknown subsurface archaeology related to the monuments). However, the potential to excavate this site through the construction phase will provide data to the archaeological community from the potential subsurface sites. Therefore, the potential to gain knowledge outweighs the potential negative effects.

Provided mitigation measures as per Chapter 13 – Cultural Heritage and relevant mitigation in Chapter 6 – Landscape and Visual for the proposed grid connection are implemented, the impacts will be slight and/or moderate, and, slight and/or negligible.

No other interactions or interdependencies have been identified, in relation to Cultural Heritage.

17.13 Material Assets

Traffic is one of the environmental attributes typically assessed under Material Assets. For the purposes of this EIAR, a full Traffic Impact Assessment has been undertaken and is presented in Chapter 10 – Traffic and Transportation, along with all relevant mitigation measures.

- **Land, Soils and Geology, Water, Air Quality and Climate** – Waste management strategies during the Construction phase of the Proposed Project have been informed by the receiving environment. Refer to Chapter 11 – Land, Soils and Geology, Chapter 12 – Water, Chapter 7 – Air Quality, Chapter 8 Climate and relevant sections including mitigation measures described in Chapter 14 – Material Assets.

No other interactions or interdependencies have been identified, in relation to Material Assets.

17.14 Major Accidents and Disasters

Major accidents and disasters can interact with land, soils and geology, water quality, human health, and biodiversity.

During the construction phase, mitigation measures as detailed in Chapter 15 – Major Accidents and Disasters and relevant mitigation measures from Chapter 4 – Population and Human Health, Chapter 5 – Biodiversity, Chapter 11 – Land, Soils and Geology, and Chapter 12 – Water, will ensure that any such impacts will be minimal and not significant

During the operational phase, the Major Accidents and Disasters assessment has considered the substances present at the Site. Chapter 15 Major Accidents and Disasters of the EIAR identified that the design of the Proposed Development will incorporate all appropriate standards and mitigation measures necessary to reduce the potential risk of accidents and disasters to an acceptable level, as described in detail in Chapter 15 Major Accidents and Disasters. As such there are no expected interacting effects between Major Accidents and Disasters and environmental receptors such as land, soils and geology, water quality, human health, and biodiversity.

18. Schedule of Environmental Commitments

All mitigation and monitoring commitments detailed within this EIAR are presented in Table 18-1 and Table 18-2 below. Together these tables form the Schedule of Environmental Commitments which will be implemented during the demolition and construction, operational, and decommissioning phases of the proposed project. In addition, the following reinstatement commitments must be fully implemented upon completion of the construction phase:

- Removal of all temporary construction compounds and site entrances upon completion of construction phase. Such areas must be reinstated in accordance with the landscape architects plan and engineer's drawings;
- Removal of all construction waste and / or scrapped building materials upon completion of construction phase;
- Decommissioning of oil, fuel etc. storage areas on completion of the construction phase; and,
- Removal of any remaining liquids and disposal at an appropriately licenced waste facility.

All of the mitigation and monitoring commitments have been incorporated into the Construction Environmental Management Plan (CEMP), presented in Appendix 2-10, Volume 3 of the EIAR. This is a live document which will be added to in the Detailed CEMP, prepared by the Contractor, which will include any future additional mitigation measures.

Table 18-1 - Schedule of Environmental Commitments - Mitigation Measures

Item Ref	Environmental Topic	Schedule of Environmental Commitments – Mitigation Measures	Construction Phase	Operational Phase	Decommissioning
1	Chapter 4 – Population and Human Health	It is recognised that a Construction Environmental Management Plan (CEMP) and Construction Traffic Management Plan (CTMP) will be enacted during the construction phase, as is standard for projects of this scale. The CEMP will include mitigation measures to minimise impacts on land use and agricultural holdings during construction.			
		Where required, mitigation measures have also been listed under respective technical chapters Climate change mitigation and adaptation (Chapter 8), Air Quality (Chapter 7), Water (Chapter 12), Land Soils and Geology (Chapter 11), Noise and Vibration (Chapter 9), and Major Accidents and Disasters (Chapter 15).			
2	Chapter 5 - Biodiversity	Mitigation of habitat loss/damage during construction Refer to the landscape plan (as presented in the planning drawings for this submission) for proposed planting to offset any habitat loss and in fact lead to a significant increase in biodiversity value of the area due to the planting of a significant number of trees, hedgerows and wildflower meadows. Pre-Construction Survey Prior to any site clearance and/or construction, a walkover survey will be carried out by a suitable qualified ecologist, as appointed by the Contractor. Should any rare or protected species be observed then consultation shall be made with the relevant parties on how to proceed (e.g. consultation with NPWS and subsequent provision of derogation licences) before construction can proceed. There is currently no requirement for a derogation licence for any species with regards to the proposed project and these pre-construction surveys are solely			

to ensure there has been no change between the application for planning and the start of construction.

Bats

Loss of Foraging/Commuting Habitats

- The proposed trees and hedgerows to be planted as per the Landscape Plan will increase both foraging and commuting habitats available to bat species present in the area.

Lighting Disturbance

- To minimise light disturbance to bats during the Construction Phase, no construction activities will take place after dark where possible. Where construction works require lighting during evening time, directional lighting will be used to direct light away from trees and hedgerows used by bats.

Birds: Loss of Habitats

- To reduce the impact of habitat loss on the local breeding bird assemblage, all vegetation clearance will be carried out outside of the breeding bird season; from 1st March to 31st August inclusive.
- The proposed trees and hedgerows to be planted as per the Landscape Plan will increase both foraging and commuting habitats available to bird species present in the area.

Fox Den

To ensure that no foxes are using the den, a pre-construction survey will be carried out by a suitably qualified ecologist and coupled with the deployment of camera traps in the weeks leading up to the removal of the den. If cubs are using the den, then removal of the den will occur after summer months (when cubs will leave the den). By doing this, the impact to local fox

		populations will be greatly reduced as no mortality will occur, instead the population(s) will source new den(s). Amphibians During the Construction Phase there is the potential for groundwater related impacts to smooth Newt habitat (pond to the east of access route). Detailed groundwater mitigation measures are presented in Chapter 12 Water of the EIAR. The key mitigation measures to reduce impact on groundwater include bunding, and containment. Groundwater Detailed mitigation measures are presented in Chapter 12 Water of the EIAR. The key mitigation measures to reduce impact on groundwater include a karst protocol during construction, bunding, and containment.			
		Spread of Invasive Species During landscaping and habitat creation there exists the possibility of accidental introduction of invasive alien plant species. To mitigate against this, native plant species (Irish providence) should be used for all planting, and periodic inspections every 6 months for 2 years (see Chapter 5 - Biodiversity) following planting should be conducted by a suitably qualified ecologist as appointed by the Contractor. Bats *Lighting* The operational lighting for the proposed project has been design in line with Bat Conservation Trust guidance (GN 08/23) as much as feasibly possible given operational requirements.			
3	Chapter 6 – Landscape and Visual	This section identifies additional mitigation to reduce any potential adverse effects. Landscape planting including screen planting to the proposed main project site has been included within the project design.			

		The proposed main project site will include screen planting to the site perimeter, earth mounding and planting to the western site boundary and hedgerows and grassland. Vegetation removed as part of the underground cable works including site compound areas will be reinstated following completion. Careful consideration will be given to the material finishes and colours to the proposed buildings and structures within the proposed main project site. The proposals will include neutral finishes to buildings and structures.		
4	Chapter 7 – Air Quality	<u>Communication: Construction Compound/Site Boundary and throughout</u> ▪ An Environmental Manager (EM) will be in assigned by the appointed contractor. The EM will be responsible for co-ordinating the day-to-day management of environmental impacts during the Construction Phase. The EM will be responsible for performing inspections as deemed necessary and manage responses to environmental incidents. The name and contact details of the EM responsible for construction dust management and air quality issues will be displayed at the construction compound/site boundary hoarding, as well as head/regional office contact details. ▪ A complaints register will be kept by the appointed contractor detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out; ▪ Previously established community engagement with neighbouring business will continue for the remainder of the construction works.		

Construction Works Area Management: Compound

- Construction compounds will be laid out so that machinery and dust causing activities such as stockpiles are located away from receptors, as far as is practicable.
- The appointed contractor will provide a site hoarding of 2.4 m height along noise sensitive boundaries, at a minimum, at the Construction Compounds, which will assist in minimising the potential for dust impacts off-site. Construction works area fencing, barriers and scaffolding will be kept clean using wet methods.
- Stockpiles will be covered to prevent wind whipping and any chutes and conveyors will be enclosed and skips will be covered.
- Drop heights from any conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised. Fine water sprays will be used on such equipment where visible dust plumes are generated.
- Cutting, grinding or sawing equipment will be fitted with or used in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Equipment will be readily available in the construction works areas site to clean any dry spillages. Spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods.
- An adequate water supply for effective dust or particulate matter suppression and mitigation will be ensured, and non-potable water will be used where possible and appropriate.
- Construction works area runoff of water or mud will be managed as per the Construction Environment Management Plan (CEMP, Appendix 2-10, Volume 3 of this EIAR).

Operating Vehicles/Machinery: Construction Compound

- Engines of all vehicles will be switched off when stationary - idling vehicles are not permitted.
- The use of low sulphur diesel - or petrol-powered generators will be limited and mains electricity or battery powered equipment will be used where practicable.
- A Construction Traffic Management Plan (CTMP) has been developed to minimise use of the Local Road Network (refer to Appendix 2.11, Volume 3 of the EIAR). The CTMP will be adhered to be the appointed contractor.
- The appointed contractor will promote the use of public transport, and cycling by personnel. Private parking at the Construction Compounds will be limited. Vehicle-sharing will be encouraged, subject to public health guidelines, where travel by private vehicle is a necessity (e.g. for transporting heavy equipment).

Demolition Activities

- Works will be carried out by a competent demolition contractor under the supervision of the PSDP and PSCS in accordance with the Safety, Health and Welfare at Work (Construction) Regulations. Demolition will be conducted using hand and mechanical methods appropriate to the scale of the structures.
- During the demolition process, any cutting, grinding or sawing equipment will be fitted or used in conjunction with a suitable dust suppression technique such as water sprays or local extraction.

Earthwork Activities

- Materials with the potential to produce dust, such as excavated material, will be removed from the construction works area as soon as possible, unless being re-used within the construction works area. Management of

extracted material is detailed in the Construction and Demolition Resource and Waste Management Plan (RWMP, Appendix 2-5, Volume 3 of this EIAR).

- Areas exposed by earthworks will be re-vegetated to stabilise surfaces as soon as practicable. Hessian, mulches or tackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. Cover will only be removed in small areas during work and not all at once.
- During dry and windy periods and when there is a likelihood of dust nuisance (defined under "Onsite Monitoring" measures below), water-based dust suppression (e.g. bowser) will operate to ensure soil moisture content is high enough to increase the stability of the soil and thus suppress dust.

Construction Activities

- Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out, unless this is required for a particular process.
- Smaller supplies of fine power materials bags will be sealed after use and stored appropriately to prevent dust escaping.

Measures specific to trackout (from the construction works areas onto public road network)

- A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles.
- Vehicles transporting loose materials (e.g. spoil or sand) entering and leaving the proposed project works areas and construction compounds will be covered with tarpaulin to prevent escape of materials during transport. Before entrance onto public roads, trucks will be checked to ensure the tarpaulins are properly in place.
- Where construction work area or construction compound

conditions result in large amounts of mud building up on truck wheels, wheel washing will be carried out for trucks before they use the public road network.

- Water-assisted dust sweeper(s) will be used at the access points to a construction compound and the immediate adjoining local road, to remove, as necessary, any material tracked out of the compound.
- Any on-site haul routes will be inspected for integrity and necessary repairs to the surface will be carried out as soon as reasonably practicable.

Onsite Monitoring

- To determine if any short-term dust impacts will occur, a minimum of daily visual inspections for dust soiling of receptors (including roads, and surfaces such as street furniture, cars and windowsills) adjoining the construction works areas will be undertaken. Inspection results will be recorded in the site inspection log. Cleaning will be provided if necessary, such as in the event of a dust complaint resulting from the Proposed Project construction works.
- The potential for dust generation increases when rainfall is less than 0.2 mm/day and at wind speeds of greater than 10 m/s. To determine if these conditions are likely to affect the site, the weather forecast will be consulted daily, specifically the hourly forecasts for wind speeds as well as 12 hour rainfall radar showing anticipated amounts of precipitation in mm.
- The frequency of site inspections by the Environmental Manager responsible for dust management will be increased to a minimum of twice daily during the above conditions. The effectiveness of dust control methods will be monitored via visual inspections and work that would generate dust (e.g. moving materials from stockpiles, or

	transferring loose dry materials from trucks) will be limited in so far as is practicable during these weather conditions. ▪ Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the construction phase will be carried out to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m2/day during the monitoring period of 30 days (+/- 2 days).			
	No site-specific mitigation measures are proposed for the operational phase as impacts are predicted not to be significant.			
	As the dust emissions associated with the demolition and removal of buildings and materials during the decommissioning phase are expected to be of a similar or lesser magnitude to those identified during the construction phase, the mitigation measures applicable to construction phase dust emissions are also considered suitable for those during the decommissioning phase and will be implemented in full throughout the decommissioning phase. The Peaker plant will be regulated by the EPA under an Industrial Emissions licence, which will require the Licensee to prepare and maintain an Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP). The final site closure plan will be subject to approval from the EPA once all closure, restoration and aftercare requirements are nearing completion. The site cannot be surrendered and formally closed until the			

		EPA is satisfied that all closure, restoration and aftercare requirements have been met, in accordance with the Industrial Emissions licence.			
5	Chapter 8 - Climate	During the construction phase the following best practice measures will be implemented on site to minimise Greenhouse Gas (GHG) emissions and reduce impacts to climate: ▪ Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. ▪ Ensure all plant and machinery are well maintained and inspected regularly. ▪ Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. A construction waste management plan will be implemented to minimise construction waste sent to landfills. Recycling of materials will be promoted to and reduce the environmental footprint of the site. The majority of excavated material will be reused on site, which represents emissions savings of approx. 363 tCO2e. ▪ Sourcing materials locally will be prioritised. This will help to reduce transport related CO2 emissions and helps support local suppliers, further promoting economic sustainability. ▪ Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible. In terms of impact on the proposed project due to climate change, during construction the Contractor will prepare site risk assessments and method statements prior to commencement of works which will assess the risk of extreme rainfall/flooding, extreme wind/storms, temperature extremes, fog, lighting and hail to the construction works areas, which will set out how the works will be carried out to avoid or minimise any of the risks			

	identified in the risk assessment. Temperatures can affect the performance of some materials, and this will require consideration during construction. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures			
	There are no specific measures proposed to mitigate the GHG emissions of the operational phase of the proposed project. In terms of climate change vulnerability, a number of measures have been adopted as part of the project design, primarily in terms of reducing risk to the project from climate change hazards. These have been discussed in detail previously in Chapter 8 of this EIAR, and summarised as follows: ▪ The design for the storm-water drainage for the proposed site is to take into consideration all other standards for drainage design; ▪ Suitable Sustainable Urban Drainage systems (SUDs) are to be used within the proposed site to reduce surface water runoff from the site where feasible and designed in accordance with the relevant standards; and ▪ High quality, durable building materials will be selected for the proposed project to reduce their sensitivity to extreme temperatures.			
	Transport of waste materials, plant use for material removal and disposal of materials themselves will be the primary sources of climate impacts during the decommissioning phase. During the decommissioning phase the following best practice measures will be implemented on site to minimise GHG emissions and reduce impacts to climate: ▪ Building and structural materials will be removed from site by licenced contractors for potential re-use in as much as the legislation allows and viable commercial options exist.			

- Concrete foundations and roads will be broken by mechanical means and removed off-site by licenced contractors for potential re-use in as much as the legislation allows and viable commercial options exist.
- At the end of life of the plant, unused fuel, fluids and chemicals will be removed from site and sold for re-use or repurposed within the operator's other facilities. If no viable re-use option exists, the fluids will be removed by a licenced waste contractor for processing in a suitable treatment plant.
- Process equipment will be removed and repurposed with the operator's other facilities if possible or will be sold to the used equipment market where such demand exists. If there is no viable re-use option the equipment components will be removed to licenced recycling facilities and recycled as much as is possible.
- The peaker plant will also be regulated by the EPA under an Industrial Emissions licence, and in accordance with this Licence the Licensee will prepare and maintain an Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP).

In terms of impact on the proposed project due to climate change, during decommissioning the Contractor will prepare site risk assessments and method statements prior to commencement of works which will assess the risk of extreme rainfall/flooding, extreme wind/storms, temperature extremes, fog, lighting and hail to the construction works areas, which will set out how the works will be carried out to avoid or minimise any of the risks identified in the risk assessment.

6	Chapter 9 – Noise and Vibration	A specific construction noise mitigation measure which will be implemented is the installation of a temporary noise barrier at the HDD3 location, for the duration of the HDD works. The following comments are made in relation to construction noise mitigation: With regard to construction activities, BS5228 Parts 1 and 2, which offer detailed guidance on the control of noise and vibration from demolition and construction activities, will be followed. All construction equipment will be: ▪ Correctly operated and maintained to minimize ground-borne vibration and noise. ▪ Located away from noise-sensitive receptors where practicable. ▪ Selected for low noise/vibration potential where possible. ▪ Switched off when not in use ▪ Maintenance records for equipment will be kept on-site. Compliance with the following regulations is mandatory: ▪ European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001 SI No. 632 of 2001 & SI No. 241 of 2006 (Outdoor Equipment Noise Emissions) Measures that will be implemented to reduce impulsive noise consist of: ▪ Minimizing material drop heights. ▪ Restricting hammering and rock breaking to morning hours. ▪ Site access roads will be kept even to reduce vibration from HGVs		

The noise mitigation measures described in the following sections are incorporated or 'designed-in' mitigation measures, thus the effects of the measures are already reflected in the predicted noise levels provided Chapter 9 of this EIAR.

Enclosure

Noise from the gas turbine body is treated with appropriately designed acoustic enclosure. The acoustic enclosure will be constructed from steel panels with internal acoustic absorbing lining, panels will be properly sealed. By appropriate selection of sound absorbing material and thickness, noise breakout from the main body will be reduced from 133 dBA to 104 dBA.

Silencers

Noise reducing silencers are included to mitigate noise produced from the gas turbine.

The gas turbine air inlet and exhaust duct silencers are of passive and absorptive design with the selected attenuation sufficient to reduce the emitted noise to an acceptable level at nearby sensitive receptors. The silencers are contained within the air flow ducting and consist of fibrous material sealed in packages and enclosed between perforated metal plates. The fibrous material within the sealed packages serves to absorb sound energy from the gas turbine compressor and turbine by converting some of the sound pressure to heat.

For the gas turbine intake, it is proposed to install a silencer to reduce sound power from 154 dBA to 105 dBA. For the exhaust, a silencer is also proposed. It is estimated that sound power levels will be reduced from 162 dBA to 96 dBA.

Noise Levels from Modelling

With implementation of acoustic treatment in Chapter 9 - Noise sound power emission of the gas turbine is reduced. As shown in Appendix 9-2 and 9.3, Volume 3 of the EIAR and Table 9-22

		the predicted noise levels at the identified NSLs complies with the target criteria. <u>Additional Vehicular Traffic on Public Roads</u> No mitigation measures are required for noise or vibration from operational traffic serving the proposed project.			
		Mitigation applied during the construction phase will be implemented during the decommissioning phase			
7	Chapter 10 – Traffic and Transport	Prior to the commencement of the construction phase, the contractor will produce an updated Construction Traffic management Plan (CTMP) which will align with the CTMP provided with this application (Refer to Appendix 2-11, Volume 3 of the EIAR), updated to reflect any conditions imposed as part of any planning permission. The CTMP is a statutory requirement which focuses on mitigating the impacts of traffic on the surrounding environment. The contractor will produce the updated plan in consultation with the local council as well as suppliers and sub-contractors. The CTMP will focus on the following key issues: ▪ Working hours ▪ Road closures and procedures during construction ▪ Traffic management signage ▪ Detailed traffic management programme ▪ Emergency Procedures <u>Peaker Plant Site Construction:</u> ▪ During the construction phase, clear construction warning signs will be placed on the approach to the site access point, in accordance with Chapter 8 of the Traffic Signs Manual. The site entrance will have appropriate signage.			

	Access to the construction site will be controlled by onsite personnel and all visitors will be asked to sign in and out of the site by security/site personnel. Site visitors will receive a suitable Health and Safety site induction and Personal Protective Equipment (“PPE”) will be worn. ▪ A community liaison officer will be appointed in order to keep residents informed of ongoing works which related to the public road network. ▪ A dedicated person will be appointed for the management of the deliveries during the construction stage. It will also be this person’s duty to make sure the construction routes are adhered to at all times. ▪ A pre- and post-construction condition survey will be carried out on the public road, with the developer liable to repair any damage to the public road attributed to the construction of the proposed project. ▪ Deliveries will be scheduled to avoid morning and evening peak hours. This will avoid HGV traffic arriving during the morning peak hours and creating conflict with local residents’ commute or school run. Construction personnel will be encouraged to car-pool, or to travel to site in minibuses. ▪ All deliveries will be transported via local roads L3103 and L7109. The contractor will develop a detailed Logistics Plan to identify the delivery schedule requirements. The contractor will operate a “Just in Time” delivery philosophy to minimise materials stored on site and reduce congestion in and around the works compound. ▪ To control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, the following mitigation measures will also be implemented.		

- Wheel washing facilities will consist of a water bowser with pressure washer. The bowser will contain water only and no other additives. Run-off from this activity will be directed to the drainage situated on the lower boundary of the construction compound. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site.
- Drivers will adopt driving practices that minimise dust generation including a 30km/h internal access road speed limit; and
- Any dust generating activities will be avoided or minimised, wherever practical, during windy conditions.

- Any construction outside of the standard working hours should be agreed with the local authority in advance.
- Once construction of the Proposed Project is completed, all machinery and equipment will be removed and hard standing within the Proposed Project site excavated. The area will be regraded with the stockpiled topsoil to a natural profile. Road surfaces, road markings, etc. will be fully reinstated as is and in such a manner that there is no change to the operation of the local road network.
- Once a suitable quarry site has been identified, the contractor will undertake a traffic assessment to ensure that it does not impact on the surrounding road network.

Extraordinary Abnormal Loads

- As part of the abnormal load delivery process, Pre-construction and post-construction surveys of the public road network proposed for use as haul routes, including inspections of bridges, culverts, and other relevant structures, shall be carried out by the applicant in advance

of any phase of the proposed project that involves the movement of abnormal loads.

- These requirements shall not apply to earlier phases of the proposed project that do not involve such movements.
- The locations and scope of the surveys and inspections shall be agreed upon in advance with Galway County Councils Roads Authority and shall include structural capacity assessments, where required, to confirm the network's suitability to accommodate the proposed load types and volumes.

Underground cable route construction

- Material deliveries and UGC Grid Route works will be restricted between 9 am till 4 pm during weekdays, and for material deliveries, 9 am till 2pm on Saturday.
- The contractor will be required to liaise with the management of other construction projects and the local authority to co-ordinate deliveries and to schedule deliveries in such a way that construction activities and deliveries activities do not run concurrently e.g. avoiding pouring of concrete on the same day as material deliveries in order to avoid conflict
- UGC Grid Route works will be suspended on the days of any major agricultural shows, sports events, etc. that have the potential to cause larger than normal traffic volumes to the road network. The contractor will be required to communicate, via the community liaison officer, with members of the local community to ensure that deliveries and UGC Grid Route works will not conflict with sensitive events such as funerals and avoiding passing schools at opening and closing times where it is reasonably practical.

Underground Cable Route on Private Lands

- Where the route is within public road carriageways, and where possible, the trench will be installed in the non-trafficked strip between the wheel marks on the road.
- The cable route will be micro-sited based on the presence of existing utilities and the nature of the road and the adjoining terrain.
- It is preferable to excavate a trench within the middle of the roadway to reduce vehicle loading traversing over the ducting. Temporary reinstatement may be provided to allow larger sections of road to be permanently reinstated together.

Underground Cable Route on Private Lands

- The access track will consist of a 3m minimum wide track with a ten-tonne axle weight load bearing capacity, capable of supporting construction vehicles.
- The contractor(s) will be required to utilise the local public road network in the vicinity of the work area and from there utilise private tracks, where appropriate. Before the commencement of the proposed project, precise access arrangements will need to be agreed upon with the respective landowners.
- Where access tracks within private lands are not possible along the route, work areas will be reinstated with excavated soil and either seeded with native species, allowed to vegetate naturally or reinstated with excavated grass turves and will be restored to their original condition.

Operational Phase

The only trips associated with the operational phase of the project are associated with periodic maintenance, sporadic fuel supply and wastewater removal. These trips are considered so imperceptible that mitigation measures are not required.

8	Chapter 11 – Land, Soils and Geology	▪ The excavation of material will be minimised as much as possible to reduce the impact on land, soils and geology. Where possible, and if suitable with certainty for use, excavated material will be re-used as part of earthworks and as backfill. Topsoil and subsoil that has been stripped as part of the construction works will be reinstated as part of landscaping works, where possible. ▪ Where soil material is unsuitable for use or where excess soil is generated with no certainty for use, soils (including Made Ground) will be appropriately sampled and tested prior to offsite removal. Soils will be classified in accordance with the EPA Guidance Document 'Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (2015). It will be the contractors responsibility to ensure that all waste soils are classified correctly and managed, transported and disposed of offsite in accordance with the requirements of the Waste Management Act 1996, as amended, the Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste and any relevant subsequent waste management legislation. ▪ All waste products (general waste, plastic, timber, etc.) arising during the construction phase will be managed and disposed of under the provisions of the Waste Management Act 1996 and associated amendments and regulations. All waste material will be disposed of at a fully licensed disposal / recovery facility. ▪ It will be the contractors responsibility to ensure that a project specific Detailed Resource and Waste Management Plan (developed in accordance with relevant 2021 EPA Guidance) is fully implemented onsite for the duration of the project.		

- A suitably experienced and qualified Environmental Manager will have a presence onsite during the construction phase.
- The Construction Environmental Management Plan (CEMP) will include specific provisions for vibration monitoring, setting appropriate threshold values based on site-specific conditions and relevant standards. The construction methodology and vibration management measures will ensure that any areas identified as being of higher karst sensitivity are subject to appropriate controls, such as the use of low vibration piling (if needed) techniques, controlled excavation, and enhanced monitoring and alert systems will enable immediate action should vibration levels approach the agreed limits. This approach ensures that karst conditions will be fully managed prior to construction, allowing targeted and effective vibration management measures to be applied.

A robust **karst protocol** will be adapted during foundation construction comprising the following:

- Soil strip across each foundation footprint to expose the bedrock surface.
- Targeted closely spaced proof coring to confirm the presence of any possible Karst within 15 to 20m of the bedrock surface.
- If no significant voids or Karst features are encountered during the proof coring process then Foundation Solution 1 will be adapted.
- If a significant Karst feature is encountered during the proof coring process then Foundation Solution 2 will be adapted.

Foundation Solution 1

- In the event the targeted proof coring confirms no significant Karst features are present it is envisaged that traditional reinforced concrete raft and strip foundations (founded directly on the limestone bedrock) will be adequate for the proposed plant and single storey buildings. For the single storey buildings a traditional reinforced concrete strip foundation will be founded directly on the weathered bedrock. For the heavier items of plant / tanks we expect the top surface of weathered bedrock will be 'ripped' down to unweathered bedrock with the reinforced concrete foundations founded on this un-weathered rock. These reinforced foundations will be designed to span over any minor surface karst fissures encountered at the bedrock formation level (exposed as part of the local soil strip at the foundation locations).

Foundation Solution 2

- In the event that the abovementioned targeted proof coring exercise identifies a Karst feature under the footprint of a heavy item of plant it is envisaged that a piled foundation solution will be required locally at the karst feature. This piled foundation solution will comprise cased Odex drilled piles. The piles will be cased to mitigate the risk of grout loss and negate the risk of aquifer contamination. In terms of piling plant, an Odex piling rig is typically used for piling through karst. A reinforced concrete pile cap or ground beams (located just below ground level) will be built on top of the piles to support the plant or building above. In terms of reinforced concrete foundation footprint (on plan), Solution 1 and Solution 2 will be virtually identical with the only varying item being the introduction of local piling at any karst voids encountered.

Site Access Road

The site access road construction will typically comprise granular 6F2 capping material (founded on competent subgrade confirmed via on-site California Bearing Ratio (CBR) testing) with a Clause 804 granular sub-base and hot-rolled asphalt wearing and surface courses as is typical for standard road construction. The access road crosses a suspected karst feature identified as part of the site investigation work and again a robust karst protocol shall be adapted here as follows.

- The formations in the vicinity of the suspected karst feature will be proof rolled and observed for signs of weakness with CBRs taken to confirm capacity. In any areas of low CBRs the top soil and overburden clay will be removed to expose the weathered rock surface. Any dips in the limestone rock surface will be infilled with granular 6F2 capping material laid and compacted in accordance with the TII specification for roadworks. The road construction above any karst features will incorporate a high strength geotextile. This geotextile shall have a 100-year design life. The above measures hence present a robust engineering solution to mitigate any risks associated with the presence of karst (AtkinsRealis, 2026).
- In the event that subsurface karst features (caverns, caves etc.) are identified during the construction phase, the onsite Environmental Manager will be notified immediately and will ensure the above karst protocol is implemented, in consultation with the Engineer, Site Manager and Client.

Horizontal Direct Drilling Specific

- A geotechnical assessment shall be carried out prior to horizontal directional drilling and drilling shall only be carried out at locations where conditions are suitable for the control of drilling materials.

- All works will be supervised by a qualified environmental engineer.
- Stockpiling of construction materials, refuelling of machinery and overnight parking will take place in the temporary compound on the proposed Athenry Peaker Plant site. Concrete truck chute cleaning will take place in a separate appropriate location.
- The area around the bentonite batching, pumping, and recycling plants shall be bunded using terram and sandbags in order to contain any spillages.
- Silt fencing will be erected 5m from the reception and launch pits used for directional drilling.
- Horizontal directional drilling works shall not take place at periods of high rainfall and shall be scaled back or suspended if heavy rain is forecast.

Invasive Species

Good site organisation and hygiene management will be maintained always on-site, and best practice measures will be implemented.

- The contractor will prepare an Invasive Species Action Plan to be implemented during construction, and all personnel will be made aware of the requirements contained within.
- Plant and machinery will be inspected upon arrival and departure from site and cleaned/washed as necessary to prevent the spread of invasive aquatic/ riparian species such as Japanese knotweed *Fallopia japonic*a and Himalayan Balsam *Impatiens glandulifera*. A sign off sheet will be maintained by the contractor to confirm the implementation of measures.

- Site hygiene signage will be erected in relation to the management of non-native invasive material. Waste Management.

Further mitigation measures for the prevention of soil / bedrock contamination during construction are proposed below. The contractor will be responsible for ensuring these measures are fully implemented. Mitigation measures outlined in Chapter 12-Water of this EIAR are also applicable to the protection of soils and geology during the construction phase:

- Health and safety risk assessments, method statements (RAMS) and appropriate Personal Protective Equipment (PPE);
- Temporary onsite groundwater monitoring wells will be either suitably protected for the duration of the works and / or appropriately decommissioned in accordance with best practice guidance (SEPA guidance document “Good Practice for Decommissioning Redundant Boreholes and Wells“).
- Earthworks / piling plant and vehicles delivering construction materials to site will be confined to predetermined haul routes around the site for each phase of the Proposed Project;
- The need for vehicle wheel wash facilities will be assessed by the Contractor depending on the phasing of works and onsite activity and will be installed as needed, near any site entrances and road sweeping implemented as necessary to maintain the road network in the immediate vicinity of the site;
- Dust suppression measures (e.g., dampening down) will be implemented as necessary during dry periods;
- All excavated materials will be stored away from the excavations / immediate works area, in an appropriate

manner at a safe and stable location. The maximum height of temporary stockpiles will be 3m;

- A comprehensive monitoring and supervisory regime including monitoring of all excavations and stability assessments as required will be put in place to ensure that the proposed construction works do not constitute a risk to the stability of the site;
- In the unlikely event that ground contamination is encountered beneath the site during the construction works, all works will cease. Advice will be sought from an experienced contaminated land specialist and a phased environmental risk assessment (specifically to assess any associated potential environmental and/ or human health risks) will be undertaken in accordance with relevant EPA guidance 'Guidance On The Management Of Contaminated Land And Groundwater At EPA Licensed Sites' (EPA, 2013) and UK Environment Agency Guidance 'Land contamination risk management (LCRM)' (UK EA, 2025);
- The employment of good construction management practices will serve to minimise the risk of pollution from construction activities at the Proposed Project in line with the Construction Industry Research and Information Association (CIRIA) publication entitled, Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, CIRIA - C532 (2001) which are also detailed in Chapter 12– Water;
- All fill material imported to the site for the Proposed Project will be clean, uncontaminated, suitable engineering grade fill material;
- Specifically, regarding pollution control measures, the following will be adhered to; - Fuels, lubricants and hydraulic fluids for equipment used on the construction site,

as well as any solvents, oils, and paints will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice;

- Waste oils and hydraulic fluids to be managed in accordance with best practice requirements and pollution measures as detailed in the CEMP, Appendix 2-10, Volume 3 of the EIAR;
- Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the site. This will minimise the risk of soils and bedrock becoming contaminated through site activity; and,
- The highest standards of site management will be maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. The Environmental Manager (as set out in the CEMP, Appendix 2-10, Volume 3 of the EIAR) will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively

Reinstatement Post Construction

All temporary construction compounds and site entrances will be removed upon completion of the construction phase. Such areas will be reinstated in accordance with the landscape site layout plan and engineer's drawings. All construction waste and / or scrapped building materials will be removed from site on completion of the construction phase. Oil, fuel etc. storage areas will be decommissioned on completion of the construction phase. Any remaining liquids will be removed from site and disposed of at an appropriately licenced waste facility.

		The Proposed Project will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques and pollution prevention. An Industrial Emissions (IE) Licence will be required from the EPA to operate the facility. Furthermore, it should be noted that the proposed design, from concept throughout to preliminary design, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environmental, and water (groundwater) environment is negligible. Pollution prevention measures, such as engineered drainage, double bunded tanks, hardstanding and designated waste storage incorporated within the design will mitigate the risk of ground contamination.			
9	Chapter 12 - Water	With regard to groundwater and surface water quality effects the following mitigation measures are proposed. The Contractor will be responsible for ensuring these measures are fully implemented: ▪ The construction management of the Site will take account of the recommendations of the Construction Industry Research and Information Association (CIRIA) guidelines 'Control of water pollution from construction sites. Guidance for consultants and contractors (C532)' and 'Groundwater control: design and practice (second edition) (C750)' and CIRIA 2015 'Environmental good practice on site guide (fourth edition) (C741)' to minimise as far as possible the risk of pollution. Design measures will incorporate stormwater drainage in accordance with the Greater Dublin Strategic Drainage Study Volume 2 – New Developments and Sustainable Urban Drainage Systems (SuDS) as per CIRIA C753 to manage surface water runoff effectively. ▪ All of the mitigation measures (for the protection of soils and geology) listed in Chapter 11 Land, Soils and Geology of			

this EIAR will be implemented onsite during the construction phase.

- During construction, surface water run-off from excavations will be captured in sumps and pumped to a temporary soakaway lagoon with non-permeable berms and a geotextile filtration layer, allowing controlled infiltration to ground. This approach prevents uncontrolled runoff and minimises any risk of localised flooding.
- A suitably experienced and qualified Environmental Manager will have a presence onsite during the construction phase.
- The Construction Environmental Management Plan (CEMP) will include specific provisions for vibration monitoring, setting appropriate threshold values based on site-specific conditions and relevant standards. The construction methodology and vibration management measures will ensure that any areas identified as being of higher karst sensitivity are subject to appropriate controls, such as the use of low vibration piling (if needed) techniques, controlled excavation, and monitoring and alert systems will enable immediate action should vibration levels approach the agreed limits. This approach ensures that karst conditions will be fully managed prior to construction, allowing targeted and effective vibration management measures to be applied.

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Foundation Solution 2

- In the event that the abovementioned targeted proof coring exercise identifies a Karst feature under the footprint of a heavy item of plant it is envisaged that a piled foundation solution will be required locally at the karst feature. This piled foundation solution will comprise cased Odex drilled

piles. The piles will be cased to mitigate the risk of grout loss and negate the risk of aquifer contamination. In terms of piling plant, an Odex piling rig is typically used for piling through karst. A reinforced concrete pile cap or ground beams (located just below ground level) will be built on top of the piles to support the plant or building above. In terms of reinforced concrete foundation footprint (on plan), Solution 1 and Solution 2 will be virtually identical with the only varying item being the introduction of local piling at any karst voids encountered.

Site Access Road

- The site access road construction will typically comprise granular 6F2 capping material (founded on competent subgrade confirmed via on-site CBR testing) with a Clause 804 granular sub-base and hot-rolled asphalt wearing and surface courses as is typical for standard road construction. The access road crosses a suspected karst feature identified as part of the site investigation work and again a robust karst protocol shall be adapted here as follows.
- The formations in the vicinity of the suspected karst feature will be proof rolled and observed for signs of weakness with CBRs taken to confirm capacity. In any areas of low CBRs the top soil and overburden clay will be removed to expose the weathered rock surface. Any dips in the limestone rock surface will be infilled with granular 6F2 capping material laid and compacted in accordance with the TII specification for roadworks. The road construction above any karst features will incorporate a high strength geotextile. This geotextile shall have a 100-year design life.

- In the event that subsurface karst features (caverns, caves etc.) are identified during the construction phase, the onsite

Environmental Manager will be notified immediately and will ensure the above karst protocol is implemented, in consultation with the Engineer, Site Manager and Client. A Hydrogeological assessment to consider impacts from ground stabilisation in response to karst features will be carried out, if required.

- The Contractor will be responsible for ensuring that the existing drainage network will be suitably protected (via. the use of physical barriers and / or the implementation a Site-specific water run-off management plan as required).
- In order to prevent any potential surface water / groundwater impacts via. release of hydrocarbon / chemical contaminants the following standard measures will be implemented:
  - Fuels, lubricants and hydraulic fluids for equipment used on the construction Site, as well as any solvents, oils, paints and chemicals (a full list of chemicals stored and used on site is given in Chapter 2, the Project Description) will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice;
  - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Proposed Project for disposal or re-cycling.
- A site Environmental Manager will be responsible for implementing the response procedure to deal with any accidental pollution events and for the training of all operatives. Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the Proposed Project and properly disposed of in accordance with all relevant waste management legislation;

- All Site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area.
- An on-site Environmental Manager will be present at all times and be tasked with site management during construction as well ensuring trained operatives adhere to spill control procedures.
- Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-Site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. This will minimise the risk of groundwater becoming contaminated through Site activity.
- All oil stored on Site for construction vehicles will be kept in a locked and bunded area;
- Generators, pumps and similar plant will be placed on drip-trays to prevent contamination;
- All Site vehicles used will be refuelled in bunded areas;
- All temporary construction fuel tanks will also be located in a suitably bunded area and all tanks will be double skinned. Relevant Material Safety Data Sheets along with oil absorbent materials will be kept on Site in close proximity to any fuel storage tanks or bowsers during proposed Site development works; and,
- All fuel / oil deliveries to on-Site oil storage tanks will be supervised, and records will be kept of delivery dates and volumes.

- In order to prevent any potential surface water / groundwater impacts via. release of cementitious materials the following measures will be implemented where poured concrete is being used on Site;

- The production, transport and placement of all cementitious materials will be strictly planned and supervised. Site batching/production of concrete will not be carried out on Site and therefore these aspects will not pose a risk to the waterbodies present, namely any temporarily exposed perched water;
- Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed;
- Any spillages will be cleaned up and disposed of correctly;
- Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening;
- Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete;
- Mixer washings and excess concrete will not be discharged directly into the drainage network, or any drainage ditches, surface water bodies or exposed groundwater; and,
- Surplus concrete will be returned to batch plant after completion of a pour.

- Foul drainage from Site offices and Site compounds will be contained and disposed of off-site in an appropriate manner and in accordance with the relevant statutory regulations.
- In the event that ground contamination is encountered beneath the site during the construction works, all works will cease. Advice will be sought from an experienced contaminated land specialist and a phased environmental risk assessment (specifically to assess any associated potential environmental and/ or human health risks) will be

undertaken in accordance with relevant EPA guidance '*Guidance On The Management Of Contaminated Land And Groundwater At EPA Licensed Sites'* (EPA, 2013) and UK Environment Agency Guidance *'Land contamination risk management (LCRM)*' (UK EA, 2021).

- If piling is required then consideration will be given to good practice within piling with regards to preventing pollution. The mitigation measures outlined in the CL:AIRE guidance *'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention'* (2025) will be applied where appropriate. This includes:
  - Isolating contamination around piles from groundwater flow and infiltration
  - Using bentonite during boring/driving
  - Grouting pile or stone columns after installation
  - Coating of pile with protective product
  - Using a permanent or temporary casing
  - Using piles with pointed or convex butt end or driving shoes
- Given the water environment present any change in groundwater systems could have an impact upon the GWDTE, a GWDTE Assessment will be completed during detailed design to ensure this ecosystem is not negatively impacted.
- The temporary construction compound and site entrance will be removed upon completion of the construction phase. Such areas will be reinstated in accordance with the landscape site layout plan and engineers drawings. All construction waste and / or scrapped building materials will be removed from Site on the completion of the construction phase. Oil, fuel etc. storage areas will be decommissioned on completion of the construction phase. Any remaining

liquids will be removed from Site and disposed of at an appropriately licenced waste facility.

- Piling risk assessments will be completed in advance, if piling is required.
- Dewatering risk assessments will be completed in advance, if dewatering is required.

Underground Cable

Cable Installation

- If dewatering is required as part of the works e.g. in trenches for underground cabling or in wet areas, water will be treated prior to discharge
- For smaller volume dewatering requirements, a standard Hi-flow silt dewatering bag can be used. For large volume dewatering requirements settlement tanks will be used.
- Excavations will be left open for minimal periods to avoid acting as a conduit for surface water flows.
- Measures will be taken to avoid concrete or concrete contaminated water run-off from entering any watercourses. Any pouring of concrete (delivered to site ready mixed) will only be carried out in dry weather. Washout of concrete trucks shall be strictly confined to a designated and controlled wash-out area within the temporary construction compound at the substation site, remote from watercourses, drainage channels and other surface water features;
- A designated trained operator experienced in working with concrete will be employed during the concrete pouring phase;
- Concrete wastewater will be pumped into a skip to settle out; settled solids will be appropriately disposed of off-site;

- Wash-down water from exposed concrete surfaces will be trapped to allow sediment to settle out and reach neutral pH before clarified water is released to the drain system or allowed to percolate into the ground.

Horizontal Direct Drilling

- A geotechnical assessment shall be carried out prior to horizontal directional drilling and drilling shall only be carried out at locations where conditions are suitable for the control of drilling materials.
- The drilling process will be constantly monitored to detect any possible leaking of bentonite into the surrounding geology and possible breakout. This will be gauged by monitoring pumping rates and pressures as well as observing for a bentonite plume. If any of these signs appear, then drilling and bentonite pumping will be stopped immediately, and an attempt made to bypass the affected section by using a higher viscosity bentonite mix. If this fails, then an alternative crossing alignment or an alternative crossing method will be considered. This will only arise in cases where the soil through which the HDD was directed is unsuitable for this process.
- Stockpiling of construction materials, refuelling of machinery and overnight parking will take place elsewhere in the temporary compound on the proposed main project site. Concrete truck chute cleaning will take place in a separate appropriate location.
- The area around the bentonite batching, pumping, and recycling plants shall be bunded using terram and sandbags in order to contain any spillages.
- Spills of bentonite or bentonite contaminated with drill arisings from any aspect of the bentonite handling process

will be cleaned up immediately and transported off site for disposal at a licensed facility.

- Any bentonite spills on the road will be immediately visible and be removed to secure skips on site.
- Silt fencing will be erected 5m from the reception and launch pits used for directional drilling.
- Horizontal directional drilling works shall not take place at periods of high rainfall and shall be scaled back or suspended if heavy rain is forecast.
- The area around the bentonite batching, pumping and recycling plant will be bunded using terram (as it will clog) and sandbags in order to contain any spillages;
- Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area; Spills of drilling fluid will be cleaned up immediately and contained in an adequately sized skip before been taken off-site;
- If rainfall events occur during the works, there will be a requirement to collect and treat small volumes of surface water from areas of disturbed ground (i.e. soil and subsoil exposures created during site preparation works).
- Fracture Blow-out (Frac-out) Prevention and Contingency Plan will be prepared.
    - The drilling fluid will be non-toxic and naturally biodegradable (i.e., Clear Bore Drilling Fluid or similar will be used);
    - The area around the drilling fluid batching, pumping and recycling plants will be bunded using terram and/or sandbags to contain any potential spillage;
    - One or more lines of silt fencing will be placed between the works area and the adjacent river; Spills of drilling fluid will be cleaned up immediately and transported off-site for disposal at a licensed facility;

	▫ Adequately sized skips will be used where temporary storage of arisings are required; ▫ The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse; This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur then drilling will be immediately stopped; ▫ Any frac-out material will be contained and removed off-site; The drilling location will be reviewed, before re-commencing with a higher viscosity drilling fluid mix; and, If the risk of further frac-out is high, a new drilling alignment will be sought at the crossing location.		
	The Proposed Project will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques and pollution prevention. An Industrial Emissions (IE) Licence will be required from the EPA to operate the facility. Furthermore, it should be noted that the proposed design, from concept through to preliminary design, has been developed to ensure that any potential risk of contamination to the receiving land soils and geology environmental, and water (groundwater) environment is negligible. Pollution prevention measures, such as engineered drainage, double bunded tanks, hardstanding and designated waste storage incorporated within the design will mitigate the risk of ground contamination. Further details of design mitigation measures are provided in Chapter 2 Project Description, and Chapter 11 Land Soils and Geology. With regard to groundwater and surface water quality effects the following mitigation measures are proposed;		

- All plant and equipment utilised onsite during maintenance works will be checked and in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. Relevant maintenance contractors will be responsible for ensuring that these measures are fully implemented.
- All discharges to the environment beyond rainwater runoff will have appropriate consent via. EPA licence.
- Any minor volumes of fuel, oil or chemicals required during routine maintenance works will be brought to and from Site by the maintenance contractor. While temporarily onsite all chemicals will be kept in secure and bunded areas, with relevant Material Safety Data Sheets available onsite. Any fuel / oil tanks temporarily stored on Site will be located in a suitably bunded area and all tanks will be double skinned, with oil / chemical absorbent materials held onsite in close proximity to the tanks. Relevant maintenance contractors will be responsible for ensuring that these measures are fully implemented.
- Hazardous chemicals and their anticipated volumes to be stored are detailed in Chapter 2. These chemicals will be stored in sealed containers in a store room of the plants workshop building. The exception being sulphuric acid which will be stored in the demineralised water treatment plant in a double walled or bunded Intermediate Bulk Container (IBC).
- In the unlikely event of a fuel / oil or chemical spill / leak during routine maintenance works, emergency spill response measures will be implemented with the aim of limiting the volume spilled and recovering as much of the lost product as possible (relevant maintenance contractors will be responsible for ensuring that these measures are fully implemented);

	▪ A maintenance programme for the proposed surface water drainage system should be implemented. The Contractor, in consultation with the Client and the design team, will be responsible for ensuring that these measures are fully implemented. ▪ The gas pipeline and tank are all subject to regular maintenance (to check for and fix any leaks) as well general good practice for contaminant handling. Additionally, the pipeline and tankers will be constructed above the groundwater level, therefore even in the event of a leak it is unlikely for significant interaction with groundwater. ▪ Wastewater from both the foul water tanks and the contaminated fire water tanks will be removed as required by tanker for off-site disposal, no discharge to ground at the site. All tanks will be inspected as per the management plan. ▪ For the operational phase, the site drainage system incorporates Sustainable Urban Drainage Systems (SuDS) including filter drains, sealed permeable paving, and a soakaway pond sized for the 1 in 100-year storm event plus 20% climate change allowance. Stormwater will pass through hydrocarbon interceptors before infiltration. The drainage network is zoned with actuator valves to isolate contaminated firewater during an emergency, diverting it to a dedicated containment tank (1,087 m³ capacity) for off-site disposal. These measures ensure that flood risk remains negligible throughout the lifecycle of the project.		
	With regard to the groundwater and surface water effects during decommissioning of the Cashla Peaker Plant and the associated underground transmission gas pipeline the following is noted:		

		Full decommissioning of the plant and pipeline will be done in accordance with prevailing best practice and undertaken by GNI. It is not anticipated that best practice decommissioning will adversely impact the water environment and requires no specific mitigation. All decommissioning works will be carried out in accordance with the Environmental Liabilities Risk Assessment (ELRA) and a Closure, Restoration and Aftercare Management Plan (CRAMP) which will be subject to approval from the EPA prior to commencement of the operational phase. Once decommissioning works are completed, the site will be reinstated and returned to a condition compatible with the surrounding land use, including the application of suitable soils and reseeding where required.		
10	Chapter 13 - Archaeology	The current state policy is that preservation *in situ* of archaeological material is the preferred option. Where this cannot be achieved then appropriate measures need to be adopted to ameliorate the impacts that the proposed project may have on features of archaeological, architectural and/or cultural heritage within the study area, during both the construction and operational phases of the works. The following mitigation measures are recommended: ▪ A suitably qualified licence-eligible archaeologist under license from the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor: ▫ Any sub-surface groundworks undertaken in proximity to known Record of Monuments and Places (RMP)s. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the licenced		

archaeologist prior to the commencement of works in the vicinity of the recorded monument.

- Areas targeting CH059 where the groundworks for proposed HDD exit pit under the M6 will take place.
- The footprint of the proposed grid connection cable route in areas not previously disturbed by services, road or other modern construction
- Should any archaeological material be encountered, works will cease, and the County Archaeologist and National Monuments Service shall be notified. A strategy will be proposed to the County Archaeologist and National Monuments Service to suitably record any archaeological material identified, and preserve any archaeological material in situ, where possible. Where preservation in situ cannot be achieved, either in whole or in part, then a programme of archaeological excavation will be proposed, to ensure the preservation by record of the area of the proposed project that will be directly impacted upon. Further work will then only be carried out following consultations with the County Archaeologist and the National Monuments Service.

- Direct drilling should not take place in the vicinity of recorded monuments, and all excavations in these areas should comprise open cut trenching. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the licenced archaeologist prior to the commencement of works in the vicinity of the recorded monument.

The resulting archaeological report will be submitted to the County Archaeologist and to the National Monuments Service Section of the Department of Housing, Local Government and Heritage.

11	Chapter 14 – Material Assets	**Pre- Construction Phase** Built Services The following mitigation measures will be implemented during the pre-construction phase: ▪ **Underground cable route** ▫ Prior to commencement of any excavation works, it will be the responsibility of the Contractor to locate all existing services, and to safeguard same during construction, including the requirement to provide a location plans, maps and other relevant information to the local authority and the employed crews to mitigate against any conflicts with existing buried services. ▫ In advance of any construction activity, the contractor will undertake detailed surveys and scans of the proposed HV route to confirm the presence or otherwise of any services. If services are found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific clearance requirements, excavation or relocation methods and to schedule a suitable time to carry out works. ▫ Relevant information will also be provided to the local authority and the employed crews to mitigate against any conflicts with existing buried services. It is an obligation of the developer/licence holder to install underground cable infrastructure in line with EirGrid functional specifications, for safety, constructability, and maintenance reasons. ▫ The new infrastructure shall be designed / installed as per these standards, to ascertain a separation from any existing 3rd party services (i.e. Water, Telecom, etc)

and inclusive from any High Voltage /Medium Voltage or Low Voltage cables that may also be present. This minimum clearance requirement is incorporated into the H.S.A. Code of Practice on “Avoiding Danger from Buried Services”. Electricity cables/ducts must not be laid above other existing services except at crossing positions.

- **High Voltage Underground Cable Crossings & Parallel Runs**
  - The proposed HV route may be required to cross existing High voltage UGC apparatus surrounding the Cashla 220kV substation compound. Each individual crossing or parallel run will need to be individually assessed on a case-by-case basis. The EirGrid/ESB Networks preferred undercrossing method will be used where possible. Where undercrossing of the existing UGC routes is not possible an overcrossing method will be used. All UGC crossings will need to be agreed with EirGrid/ESB Networks as part of the design approval process. The UGC crossings have been designed in line with EirGrid/ESB Networks specifications.
- **Water Mains**
  - Uisce Eireann will need to be consulted and advised on details of the project proposals in the form of a completed Building-over or Near an Irish Water Asset Application Form and associated technical information largely comprising drawings and schedules with details of proposed crossings etc with as much available information as possible. It is noted that pre-application engagement has already been undertaken, as documented in Appendix 1-1, Volume 3 of the EIAR.
  - Uisce Eireann will be involved in the early engagement on projects that may involve any infrastructure which

may be located near their assets with the intention of identifying as early as possible, if bespoke design measures or diversions are necessary.

- The water supply will be turned off by the utility so work can commence on diverting or crossing the service. The section of the existing pipe will be removed and will be replaced with a new pipe along the new alignment of the service. The works will be carried out in accordance with the utility standards.

- **Gas Mains**
  - All work in the vicinity of a Gas Transmission Pipeline must be completed in compliance with the 'Code of Practice 2021'. The Gas Transmission Pipelines exist within Gas Networks Ireland Wayleaves. No excavation may take place within any such Wayleave unless consent, in the form of a valid Excavation Permit, has been granted by Gas Networks Ireland.
  - Where the cable route intersects with the existing Gas Network, a detailed construction method statement will be prepared by the Contractor prior to the commencement of construction. Where possible, crossing existing gas lines be implemented using open trenching with either an undercrossing or an overcrossing, depending on the depth of the Gas Network Pipe. During the laying of the HV cable there will be coordination between BGE and GNI to specify the appropriate construction methodology where the HV line crosses the transmission line.

Construction Phase

Built Services

The following mitigation measures will be implemented during the construction phase:

- Under crossings of Uisce Eireann assets required will be carried out in strict accordance with UE Code of Practice for Water Infrastructure with all separation requirements adhered to and the works carried out in strict accordance with the Uisce Eireann Code of Practice. Design for the under-crossings will be carried out in agreement with both parties. UE Asset Locations have been obtained from existing UE asset drawings and a GPR survey (in combination with slit trenches) on the cable route will be carried prior to construction to verify same prior to installation of the cable route.
- Stormwater drainage infrastructure will be identified along the cable route at detailed design stage when GPR surveys are carried out. Any requirements to modify or protect the existing infrastructure will be shown on detailed design drawing and will be included as part of compliance
- All works associated with the existing utilities for the Proposed Project will be carried out in strict accordance with the guidelines of the relevant stakeholders (specifically ESB, and Uisce Éireann), Health and Safety Authority and any additional site-specific requirements;
- A project-specific Detailed Construction Environmental Management Plan (CEMP) will be prepared by the appointed Contractor prior to the commencement of construction works. This document will take account of all of the environmental considerations (including water, dust and noise nuisance control; soil / stockpile management; temporary groundwater management; appropriate Site management of compound area; fuel, oil and chemical storage and use; and waste management) set out in the

Outline CEMP presented in Appendix 2-10, Volume 3 of this EIAR ;

- The construction compound will include adequate temporary welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the compound will be removed off site to an appropriately licensed facility for disposal for the duration of the construction and commissioning phase;
- All newly installed utilities/ services will be assessed, tested and certified as required prior to being fully commissioned;
- A copy of all available existing, and as built utility plans will be maintained on Site during the construction of the Proposed Project.
- Any underground utilities including but not limited to power lines, water mains, foul sewers, storm sewers, GNI, ESB and Uisce Éireann services, located within the red line boundary of the project will be clearly marked and all construction personnel will be made aware of the known location of any onsite underground or over ground services during the construction phase;
- During the laying of the HV cable there will be coordination between BGE and GNI to specify the appropriate construction methodology where the HV line crosses the transmission line.
- Outdoor Lighting will be implemented in accordance with the report prepared by Lighting Reality (2025), Appendix 2-3, Volume 3 of this EIAR.

Waste

Construction Phase

The following mitigation measures will be implemented during the construction phase:

- All waste management procedures implemented onsite during the construction phase will be in accordance with the RWMP (AtkinsRéalis, 2026) presented in Appendix 2-5, Volume 3 of this EIAR. In advance of commencement onsite, the Contractor will prepare a project specific detailed RWMP which will further develop this plan, and will provide specific details in terms of proposed permitted haulage contractors, and permitted / licenced waste disposal / recovery facilities;
- All waste materials will be segregated onsite into the various waste streams, via dedicated skips and storage areas. All waste will be removed from Site by one or more waste haulage contractor(s) who hold a current valid waste collection permit issued by the National Waste Collection Permit Office (NWCPO). All waste materials generated during the construction phase will be removed offsite to an appropriately permitted or licenced waste disposal / recovery facility. All waste removed offsite will be appropriately characterised (under the correct LoW code), transported and disposed of in accordance with relevant waste management legislation (including but not limited to the Waste Management Act of 1996, 2001 and 2003 and all subsequent waste management regulations as amended). All waste management and disposal / recovery records will be maintained onsite throughout the project and will be made available for viewing by the Client, Employer's

	Representative and statutory consultees (GCC, EPA) as required. ▪ Waste arising from the site clearance, primary infrastructure and earthworks is expected to comprise made ground/topsoil, gravels and clay/silt material, and would be either re-used onsite or removed offsite for appropriate reuse, recovery and/or disposal as required. ▪ Any contaminated excavated material found on site will be removed by licensed waste carriers and disposed of at appropriately licensed facilities. ▪ Disposal of surface water in excavations during construction will be by captured in sumps and disposed to ground via infiltration by pumping to proposed temporary lagoons. This will allow slow seepage of the surface water runoff to ground with the benefit of filtration as the water percolates to ground in the lagoon. ▪ Scheduling and planning the delivery of materials will be carried out on an 'as needed' basis to limit any surplus materials; ▪ Materials will be ordered in sufficient dimensions so as to optimise the use of these materials onsite, and will be carefully handled and stored so as to limit the potential for any damage; ▪ Where feasible, sub-contractors will be responsible for the provision of any materials they require onsite in order to help reduce any surplus waste; ▪ All loaded trucks entering and exiting the Site will be appropriately secured and covered; and, ▪ Dust will be controlled at entry and exits to the Site using wheel washes (as required) and/or road sweepers, and tools and plant will be washed out and cleaned in		

designated areas. Wheel / road sweeper washings will be contained and treated prior to discharge.

Operational Phase

Built Services

The following mitigation measures will be implemented during operation:

- Bord Gáis Energy will enter into a contract with a licensed disposal company to maintain the on-site waste water treatment plant which will include servicing and desludging.

Waste

Waste management during the operational phase of the Proposed Project will be undertaken by private waste contractors (in accordance with statutory waste management and environmental requirements, regional waste related policy, and best practice waste management guidance), and regulated by Galway County Council. . Therefore, no further mitigation measures are required with regard to the transport and disposal or recovery of all waste streams which will be generated during the operational phase.

The following mitigation measures will be implemented during the operational phase in order to minimise the potential impact of litter pollution and prevent water contamination;

- Suitably sized waste receptacles will be provided at the main project site (Peaker Plant) by private waste contractors;
- During the operational phase waste shall be collected on a fortnightly basis from the main project site;

- It will be the responsibility of the staff and maintenance workers to ensure that all waste generated is disposed of appropriately and responsibly;
- Waste management during the operational phase of the Proposed Project will be undertaken by private waste contractors (in accordance with statutory waste management and environmental requirements, regional waste related policy, and best practice waste management guidance), and regulated by Galway County Council / EPA. Therefore, no further mitigation measures are required with regards to the transport and disposal or recovery of all waste streams which will be generated during the operational phase;
- Wastewater from the proposed WWTP domestic plant will be discharged to underground storage tanks which will be emptied by tanker once a week and taken to a nearby WWTP for disposal.
- To manage the contaminated firewater tank, it is proposed that the storm network will be divided into multiple individual areas. Each area will have a pH-controlled actuator valve. In the event of a fire, the firewater from the affected area will be diverted to the firewater tanks, while any rainfall during the fire in other areas will continue to flow unimpeded to the soakaway pond northeast of the site. This division into separate areas helps reduce the size of the contaminated firewater storage tanks. The contaminated firewater will be disposed of off-site by tanker to a suitably licenced external wastewater treatment facility.
- Wastewater from the onsite treatment plant used to produce demineralised water will be stored in a tank and removed off-site as required to a wastewater treatment plant for disposal and;

	▪ Routine maintenance of the turbine involves cleaning the machine with solvents. These solvents are injected internally and drain down for collection beneath the machine. The collection system is closed and discharges all solvents to an underground tank, from where they are collected by tanker and disposed of off-site at a licensed facility capable of handling hydrocarbon waste. It is anticipated that this maintenance will occur several times a year, generating no more than 2m^3 of waste hydrocarbons each time.		
	The following mitigation measures will be implemented during decommissioning: ▪ The full decommissioning of the gas pipeline in accordance with prevailing best practice will be undertaken by GNI in accordance with GNI's established procedures and prevailing best practice at the time of closure; ▪ Materials will be segregated and sent for re-use, recycling, or licensed disposal in line with legislative requirements and commercial viability; ▪ Any foundations or hardstanding associated with the AGI will be broken up and removed to licensed facilities where practicable. Sub-surface foundations, if present, may be broken to a depth of 1m below ground level, with the remainder left in situ; ▪ Some equipment associated with the Peaker Plant will be decommissioned during the lifespan of the plant and removed to a suitable recycling facility where the materials will be recycled to the extent that a commercially viable demand exists; ▪ At the end of life of the plant, unused fuel, fluids and chemicals will be removed from site and sold for re-use or repurposed within the operator's other facilities. If no viable		

		re-use option exists, the fluids will be removed by a licenced waste contractor for processing in a suitable treatment plant; ▪ The Environmental Liabilities Risk Assessment (ELRA) and/or a Closure, Restoration and Aftercare Management Plan (CRAMP) will be prepared and maintained by Bord Gáis Energy and/or associated contractors; and ▪ In addition, the mitigation measures outlined herein for the Construction Phase, will be applied as appropriate, during any future decommissioning			
12	Chapter 15 – Major Accidents and Disasters	The Proposed Project has been designed in line with good industry practice, and mitigation against the risk of major accidents and/or disasters is embedded through the design, in accordance with planning and legislative requirements. There is a layered suite of mitigation measures embedded across design, construction, operation and decommissioning to prevent, detect and respond to major accidents and disasters, see Chapter 2 for detail description of mitigation measures in place for the Proposed Project. These include, regulatory compliance with COMAH and IE licensing and adherence to national and international codes and standards. Enhanced security measures will be implemented when the existing pipeline is exposed and will be confirmed in consultation with the on-site Inspection Personnel & Engineering Contractors. These measures may include temporary backfilling of exposed pipe sections or the deployment of 24-hour on-site security personnel, depending on the assessed risk and site-specific requirements. A site Major Accident Prevention Policy, including an Emergency Response Plan, will be developed prior to the			

	commencement of operations and will include detailed procedures in the event of a major accident. Engineering controls that are built into the design and will be implemented comprise double-skinned low sulphur diesel tanks with interstitial leak detection, continuous emissions monitoring (CEMS), hydrocarbon interceptors, SuDS where viable, a dedicated static firefighting tank, and contaminated-firewater capture tanks sized for two hours of firefighting plus concurrent storm runoff with licensed off-site removal. A detail description of all the mitigation measure that will be used for Proposed project is available in Chapter 2.		
	Operational controls consist of: ▪ Routine inspections ▪ Integrity monitoring ▪ Maintenance regimes ▪ Safe chemical storage ▪ Licensed waste removal and clear decommissioning provisions (ELRA/CRAMP). ▪ Traffic management plan ▪ Emergency response plan ▪ Restricted access to relevant people in different areas of the site ▪ Security facilities/fencing/CCTV ▪ Gravel topping on soil, lined with impermeable membrane underneath with a series of land drains to collect infiltrated runoff ▪ Hard standing areas for low sulphur diesel fuel offloading and collection of any spilled diesel		

	▪ Bunds to contain fuel ▪ Site wide firefighting system and alarms Collectively, these prevention, detection, containment and emergency-response measures coupled with regulatory oversight are presented as proportionate and robust.		

Table 18-2 - Schedule of Environmental Commitments - Monitoring Measures

Item Ref.	Environmental Topic	Schedule of Environmental Commitments – Monitoring Requirements	Construction Phase	Operational Phase	Decommissioning Phase
1	Chapter 4 – Population and Human Health	The monitoring of the effects of this proposed project on Population and Human Health will take place in line with the recommendations set out within the specific chapters of the EIAR including air quality and noise and vibration (Chapters 7 and 9 respectively).			
2	Chapter 5 - Biodiversity	General monitoring during the Construction Phase will be carried out by the site Ecological Clerk of Works (ECoW). The ECoW will carry out monitoring of the successful implementation of the construction phase mitigation measures at frequencies set out in the CEMP, Apendix 2-10, Volume 3 of the EIAR.			
		During the Operational Phase, monitoring is required to ensure no accidental invasive alien plant species become established in any of the planting areas in the landscape design. This monitoring will be carried out twice per year for two years following the completion of planting, and shall be carried out by the Contractor's appointed ecologist.			
3	Chapter 6 – Landscape and Visual	The proposed landscape planting to the site will include an initial 3 year post completion establishment maintenance period. The success of planting establishment and landscape management on the site will be checked and reviewed on a regular basis to ensure successful long term establishment. For this reason a landscape management plan for the site will be prepared prior to construction detailing what operations will be undertaken to ensure the successful establishment of landscape planting at the site.			

4	Chapter 7 – Air Quality	Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the construction phase of the proposed project will be carried out to ensure mitigation measures are working satisfactorily. This will be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m^2/day during the monitoring period of 30 days (+/- 2 days).			
		The proposed project will be subject to an Industrial Emissions Licence, which will be required for the facility to operate and is issued and regulated by the EPA. As part of an Industrial Emissions Licence, air emissions from the stack will be monitored continuously any time the plant is in operation. This monitoring will be undertaken using regulated and independently verified permanent monitoring equipment, which is subject to regular maintenance and calibration routines in line with statutory requirements. The relevant EU monitoring requirements for the peaker plant are given in BAT 4 of the *Commission Implementing Decision (EU) 2021/2326 of 30 November 2021 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants*. The Licensee will provide these results to the EPA under the conditions of an Industrial Emissions Licence, and they will also be available to the public on the EPA's website. The EPA will make regular unannounced inspections to the facility at their discretion and undertake monitoring of their own to verify			

		the accuracy of the monitoring data being reported by the Licensee.			
		In terms of decommissioning activities, monitoring will be carried out in line with the implementation of the Closure, Restoration and Aftercare Management Plan (CRAMP), in line with EPA Industrial Emissions Licence requirements. Monitoring will remain in place for the duration of the decommissioning phase as required by the EPA. The site cannot be surrendered and formally closed until the EPA is satisfied that all closure, restoration and aftercare requirements have been met, in accordance with an Industrial Emissions Licence.			
5	Chapter 8 - Climate	There are no monitoring requirements in relation to climate.			
6	Chapter 9 – Noise and Vibration	As the nearest sensitive location is at least 450 m away from the project and the calculated noise levels are sufficiently below the adopted thresholds, monitoring is not required.			
		If required by the planning conditions, noise monitoring will be undertaken at periodic sample periods at the nearest NSL to the project works to confirm compliance with the operation noise criterion. Noise monitoring will be conducted in accordance with the ISO 1996-1, and BS 5228-1:2009 + A1:2014.			
		Similar to the construction phase, noise and vibration monitoring is not required			
7	Chapter 10 – Traffic and Transport	The proposed project will have the following monitoring requirements: ▪ The Applicant will conduct a pre- and post-construction condition survey on the public road, with the developer			

		liable to repair any damage to the public road attributed to the construction of the proposed project.			
8	Chapter 11 – Land, Soils and Geology	A comprehensive monitoring and supervisory regime including monitoring of all excavations and stability assessments as required will be put in place to ensure that the proposed construction works do not constitute a risk to the stability of the site.			
		The Peaker Plant will operate under an IE licence issued by the EPA, ensuring that all emissions are strictly controlled. These regulatory safeguards will ensure that the plant operates safely, minimising environmental impact. The plant's performance data will be accessible via. a Licence & Enforcement Access Portal (LEAP), the EPA's public-facing interface. Routine monitoring in relation to land, soils and geology will not be required once the plant is operational, unless specific conditions arise or unless requested by the EPA.			
9	Chapter 12 - Water	Regular checks and maintenance of the Proposed Project will be implemented as per the Project Description in Chapter 2 of this EIAR. Groundwater monitoring may be required pending completion of a Detailed Piling Risk Assessment and Hydrogeological Assessment			
		The Peaker Plant will operate under an IE licence issued by the EPA, ensuring that all emissions are strictly controlled. These regulatory safeguards will ensure that the plant operates safely, minimising environmental impact. The plant's performance data will be accessible via. a Licence & Enforcement Access Portal (LEAP), the EPA's public-facing			

		interface. Routine monitoring in relation to groundwater will be determined by the EPA.			
10	Chapter 13 - Archaeology	The current state policy is that preservation *in situ* of archaeological material is the preferred option. Where this cannot be achieved then appropriate measures need to be adopted to ameliorate the impacts that the proposed project may have on features of archaeological, architectural and/or cultural heritage within the study area during both the construction and operational phases of the works. The following mitigation measures are recommended: ▪ A suitably qualified licence-eligible archaeologist under license from the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor: ▫ Any sub-surface groundworks undertaken in proximity to known Record of Monuments and Places (RMPs). These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the licenced archaeologist prior to the commencement of works in the vicinity of the recorded monument. ▫ Areas targeting CH059 where the groundworks for proposed HDD exit pit under the M6 will take place. ▫ The footprint of the proposed grid connection cable route in areas not previously disturbed by services, road or other modern construction ▫ Should any archaeological material be encountered, works will cease, and the County Archaeologist and National Monuments Service shall be notified. A			

		strategy will be proposed to the County Archaeologist and National Monuments Service to suitably record any archaeological material identified, and preserve any archaeological material in situ, where possible. Where preservation in situ cannot be achieved, either in whole or in part, then a programme of archaeological excavation will be proposed, to ensure the preservation by record of the area of the proposed project that will be directly impacted upon. Further work will then only be carried out following consultations with the County Archaeologist and the National Monuments Service. ▪ Direct drilling should not take place in the vicinity of recorded monuments, and all excavations in these areas should comprise open cut trenching. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the licenced archaeologist prior to the commencement of works in the vicinity of the recorded monument. ▪ The resulting archaeological report will be submitted to the County Archaeologist and to the National Monuments Service Section of the Department of Housing, Local Government and Heritage.		
11	Chapter 14 – Material Assets	The Construction Resource and Waste Management Plan (RWMP) (AtkinsRéalis, 2026) presented in Appendix 2-5, Volume 3 of this EIAR ` states the Contractor will be responsible for maintaining waste records and documentation for the full duration of the construction phase. The Contractor will track and monitor all waste volumes transported offsite. All waste records will be maintained onsite throughout the project and will be made available for viewing		

	by the Client, Employer's Representative and statutory consultees (GCC, EPA) as required.			
	Monitoring for compliance with EPA licence conditions will occur. Otherwise, no monitoring is required during the operational phase of the Proposed Project			

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