Glenlara Power Reserve

Planning-Stage Construction & Environmental Management Plan

Neoen Renewables Ireland Limited

Galetech Energy Services
Clondargan, Stradone, Co. Cavan, Ireland
Telephone +353 49 555 5050
www.galetechenergyservices.com

DOCUMENT CONTROL

	Function	Name
Content	Environmental Engineer	Conor Foy
Approval	Senior Planner	Simon Carleton

RECORD OF CHANGES

Revision Number	Issue Date	Summary of change	Approved
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1	For Planning	Cork County Council	Planning Department
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Notes:			

Contents

1.0 Introduction

Galetech Energy Services ('GES'), on behalf of Neoen Renewables Ireland Limited has prepared this Planning-Stage Construction & Environmental Management Plan ('CEMP') for the construction of the Glenlara Power Reserve.

1.1 Purpose of this Report

This CEMP has been prepared to outline the management of activities during the construction of the proposed development to ensure that all construction activities are undertaken in an environmentally responsible manner. This CEMP summarises the environmental commitments made in respect of the proposed development and the measures to be adopted to ensure compliance with legislation and the requirements of statutory bodies.

This CEMP (Planning-Stage/Preliminary) is a live document and will be updated by the Environmental Manager ('EM'); to be appointed by the construction contractor; prior to the commencement of development. Prior to the commencement of construction, the updated CEMP will be reviewed, once again, by the EM to confirm the appropriateness of the measures set out therein. This CEMP will form part of the main civil construction works contract. The contractor will take account of the structure, content, methods and requirements contained within the various sections of this CEMP when further developing this document (to include environmental plans and other related construction management plans and method statement(s) as required.

1.2 Objectives of this CEMP

This CEMP has been developed in accordance with the Institute of Environmental Management and Assessment ('IEMA') *Practitioner Environmental Management Plans Best Practice Series Volume 12 (December 2008)* and has been designed to address the proposed environmental construction strategies that are to be implemented in advance of and during the construction of the project.

This CEMP aims to define good working practices as well as specific actions required to implement mitigation requirements as identified in the Planning & Environmental Report ('P&ER'), the planning process and/or other licensing or consenting processes.

1.3 Structure of this CEMP

The CEMP has been structured such that it can be read as consolidated document or, once further developed prior to the commencement of development, as discreet documents addressing specific environmental topics.

A copy of the CEMP will be maintained in the site offices for the duration of the construction phase and will be available for review at any time. The contractor's EM will be responsible for the continued development of the CEMP throughout the construction phase.

Where specific construction management plans or method statements are prepared by the contractor, these will be inserted into the relevant section of this CEMP.

1.4 Roles & Responsibilities

Neoen Renewables Ireland Limited, and its appointed Project Manager, will be responsible for the overall implementation of the environmental measures and procedures set out in the CEMP. The role of the Project Manager relates to compliance monitoring with the CEMP and other planning/environmental/licensing

requirements. Additionally, the Project Manager shall be empowered to halt works where he/she considers that continuation of the works would be likely to result in a substantial environmental risk.

The Project Manager will also carry out site checks that the works are being undertaken in accordance with the CEMP and will prepare a record of same.

The contractor will appoint an EM who will be responsible for coordination and development of the CEMP and any other surveys, reports or construction management plans necessary for the discharge of the requirements of the CEMP. The EM will also review the contractors construction management plans as required, carry out compliance auditing during the construction phase and coordinate required liaisons between Neoen Renewables Ireland Limited, the contractor, and other statutory authorities.

Prior to commencement of construction, the contractor will identify a core Environmental Management Group, comprising of specific project personnel and including the Project Manager and EM. The Environmental Management Group will meet monthly to discuss the monthly environmental report and will advise site personnel on areas where improvements may be made on site. The group will draw on technical expertise from relevant specialists where required and will liaise with other relevant external bodies as required.

1.5 Reporting Procedures

Appropriate reporting procedures are key to the proper implementation of the measures outlined within this CEMP, and include reporting between parties involved in the construction of the project and also external stakeholders, such as the relevant local authorities.

Emergency and environmental incident reporting procedures will be developed by the Environmental Management Group and a dedicated Environmental & Emergency Response Plan will be prepared and appended to this CEMP.

2.0 Description of the Project

The proposed development provides for a 10-year permission period and a 35-year operational period for an ESS. The proposed development will include the following components:-

- Energy storage containers installed on concrete plinths;
- Associated electrical inverters and transformers;
- Electrical and communications cabling;
- Upgrade of an existing agricultural entrance accessed via a shared access point from the L5039;
- Access track;
- Boundary security fencing and gates;
- Pole-mounted security cameras; and,
- All associated site development, landscaping and reinstatement works.

In summary, a containerised ESS generally consists of a secure hardcored compound area containing a number of energy storage containers; ancillary heating, ventilation and air conditioning units; and corresponding power conversion systems (i.e. inverters and transformers usually paired together). The ESS containers and power conversion systems are generally placed on an area of hardstanding and further supported by concrete footings/plinths (as is the case in this instance). Each of the containers will

connect, via underground electrical cabling, to the associated power conversion system.

3.0 General Construction Sequence

The construction phase is likely to last for approximately 18-months from commencement of site investigations through to the installation and commissioning of the energy storage equipment and ending with site reinstatement and landscaping.

The construction phase will comprise a 6 no. day week with normal working hours from 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays. It may be necessary to undertake works outside of these hours in the event of an emergency. Where construction activities are necessary outside of the normal working hours, local residents and the Planning Authorities will receive prior notification.

3.1 Construction Method

The construction method will consist of the following general sequence:-

- Preliminary traffic management and surface water protection measures to be implemented;
- Upgrade of the existing site entrance;
- Progressive installation of surface water protection measures (including establishment of attenuation/detention basin which will act as a construction phase silt/sediment pond);
- Progressive construction of internal on-site access tracks;
- Site preparatory and ground works associated with the ESS compound (including installation of impermeable liner) and establishment of the temporary construction compound
- Construction of container footings/plinths;
- Installation (trenching and laying) of underground electrical and communications cabling;
- Installation of site security infrastructure (security fencing and CCTV);
- Installation of ESS containers;
- Installation of power conversion systems;
- Commissioning and testing of all electrical equipment; and,
- Progressive site reinstatement, restoration and landscaping including erection of post-and-rail fencing and gates at the site entrance.

The construction phase will also be supervised by a range of environmental and engineering specialist personnel; including a Project Supervisor for the Construction Stage ('PSCS'); who will liaise closely with the EM to monitor and to ensure that all applicable measures are implemented.

The detailed CEMP, which will incorporate further technical information following the undertaking of post-consent detailed design, will be submitted to the Planning Authority for approval prior to any works commencing on the project site. The CEMP shall also provide additional details of intended construction practices including:-

- Specific design details including identification of areas for the storage of construction waste, site offices and staff facilities;
- A detailed Traffic Management Plan for the timing and routing of construction traffic to and from the construction site and associated directional signage;
- Implementation-stage details for the proposed construction methods, including detailed measures regarding the management of excavated material;

- Implementation-stage measures to ensure that surface water run-off is controlled such that no silt or other pollutants enter watercourses, including method statement for the installation of the impermeable liner beneath the ESS compound and establishment of the attenuation/detention basin;
- Specific measures to prevent the spillage or deposit of clay, rubble or other debris on the public road network;
- Details of appropriate measures for construction stage noise and dust, and any monitoring of such levels;
- Storage and containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained. All such bunds shall be roofed to exclude rainwater;
- Appropriate provision for re-fuelling of vehicles;
- Off-site disposal of construction waste; and,
- Details of the intended hours of construction.

The detailed CEMP will also take full cognisance of, and incorporate, the measures outlined within the P&ER (and supplementary assessments and design strategies) and will also integrate any specific requirements set out in conditions of consent, subject to a grant of planning permission.

3.2 Temporary Construction Compound

Following the establishment of the ESS compound, it will also act as a temporary construction compound. A designated waste management area and fuels and chemicals storage area will be provided along with site offices, parking, staff welfare facilities and equipment storage areas. The compound will be fenced with temporary security fencing to restrict access. Following the completion of the construction phase, the temporary construction compound will be fully removed and integrated into the ESS compound.

3.3 Chemical Storage and Refuelling

Storage areas for oils, chemicals and fuels will comprise bunded areas of hardstand of sufficient capacity within the temporary construction compound. Bunds will have a watertight roof structure and will be supplied by a licensed manufacturer to enable adequate safe storage for the quantities of material required. An adequate supply of spill kits will be readily available in order to clean up any minor spillages should they occur. A hydrocarbon interceptor will be installed within the surface water drainage system during the construction phase to trap any hydrocarbons that may be present. As part of the design process, a 50m buffer has been observed around all natural surface water features and no fuel/chemicals shall be handled or stored within this zone.

3.4 Construction Waste Management

Waste will be generated during the construction phase and the main items of anticipated construction waste are as follows:-

- Hardcore, stone, gravel, concrete, topsoil, subsoil, timber, and miscellaneous building materials;
- Waste from chemical portaloo toilets;
- Cardboard & Plastics; and,
- Oils and chemicals.

Waste disposal measures proposed include:-

- On-site segregation of all waste materials into appropriate categories including, for example, topsoil, subsoil, concrete, oils/diesels, dry recyclables e.g. cardboard, plastic, timber;
- All waste materials will be stored in skips or other suitable and sealed receptacles in a designated area of the construction compound;
- Wherever possible, left over materials (e.g. timber off-cuts) shall be re-used on-site;
- Uncontaminated excavated material (topsoil, subsoil, etc.) will be re-used on-site in preference to importation of inert fill;
- Bedrock may be encountered during excavation. If bedrock is encountered, it will be utilised for infill during construction;
- All waste leaving the site will be transported by permitted contractors and taken to suitably licensed or permitted facilities and will be recycled, recovered or reused, where possible; and,
- All waste leaving the site will be recorded in accordance with legal requirements and copies of relevant documentation maintained.

3.5 Construction Traffic

Vehicular traffic required for the construction phase is likely to include:-

- Articulated trucks (HGVs) to bring initial equipment onto site and later to bring the ESS containers, power conversion systems, electrical and communication cables, and ancillary equipment;
- Tipper trucks and excavation plant involved in site development and excavation works; and,
- Miscellaneous vehicles and handling equipment, including vehicles associated with construction workforce.

Construction traffic on the local road network will be managed in accordance with a Traffic Management Plan and the requirements of the Planning Authority. Traffic mitigation measures will be implemented during the construction phase, as follows:-

- Signage at site entrances giving access information;
- Temporary traffic restrictions kept to minimum duration and extent;
- Construction traffic management; and,
- Provision of a designated person to manage access arrangements and act as a point of contact to the public.
- Provide advance countdown warning signage of the construction site access along the approaches of the L5039 to adequately alert drivers of the construction access location.
- Construction traffic should follow the construction delivery route noted in the previous section to minimise extents of the L5039 traversed to access the site. Signage shall be provided at the access junction to direct drivers.
- Outbound vehicles should yield to inbound vehicles to minimise right turning vehicles into the access junction having to stop on the L5039 for extended periods or block access to the Glenlara Substation gate.
- Scheduling of deliveries to ensure inbound and outbound delivery vehicles do not meet on the narrow L5039.
- Existing hedgerow to the west of the existing Glenlara Substation access should be maintained to ensure junction visibility isn't compromised.

4.0 Environmental Management Measures

4.1 'Designed-In' Measures

The following measures will be implemented, as standard, as part of the design of the project:-

- It is proposed to upgrade an existing agricultural access point accessed from a shared entrance from the L5039 local road to provide access to the proposed development;
- The proposed internal access point, will require the removal of vegetation (c. 10m);
- The proposed site entrance; which will be fenced off and gated for security purposes throughout the construction, operational and decommissioning phases; will be designed such that vehicular traffic entering the site will be able to pull off the road before entering the site. Gates will be set back c. 18m from the road edge thus ensuring that traffic, including heavy-goods vehicles ('HGVs') are not required to temporarily park on the public road before accessing the proposed development site;
- The temporary construction compound (within the ESS compound) will be located and designed such that all cabins, storage containers, waste management facilities and bunded areas will be located a minimum distance of 50m from all natural watercourses in order to minimise the risk of pollution and the discharge of deleterious matter to watercourses. Stormwater which may arise from the roofs of cabins, containers or from sealed bunds will be passed through an oil interceptor prior to being discharged to the local environment;
- A short section of hedgerow (c. 10m) will be removed to facilitate access to the ESS compound; however, all other hedgerow and treeline vegetation has been retained. The extent of vegetation removal has, by design, been minimised and no vegetation will be unnecessarily removed. As part of the reinstatement process; all hedgerow removed will be replaced within the proposed development site;
- The construction phase of the development will comprise a 6-day week with normal working hours from 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays. No work will be undertaken on Sundays or public holidays. It may be necessary to undertake works outside of these hours in the event of an emergency; however, in the event of same, local residents and the Planning Authority will receive prior notification;
- A detailed CEMP will be prepared in advance of all construction activities and will incorporate full details of all construction methodologies, environmental controls and mitigation measures required to construct the proposed development in an appropriate manner;
- The construction phase will be supervised by a range of environmental and engineering specialist personnel; including a PSCS; who will liaise closely with the EM to monitor and to ensure that all applicable measures are implemented;
- Due to the sloping nature of the proposed development site, the ESS compound will comprise 2 no. separate platforms, linked by ramps, to avoid excessive excavations to create a single platform;
- During construction; excavated topsoil and subsoil will be side cast, separately, for re-use in the reinstatement and landscaping of the site or, where surplus material arises, for disposal at an approved waste management facility;
- A detailed Surface Water Management Plan (SWMP) will be developed as part of the detailed CEMP prior to the commencement of development and will

incorporate the precise implementation and siting of surface water management infrastructure;
- An impermeable liner will be installed beneath the ESS compound sub-base to prevent infiltration of potentially contaminated runoff into the underlying ground;
- Filter drains will be installed within the ESS compound to direct potentially contaminated runoff to the attenuation/detention basin. Under normal operating conditions, rainfall runoff will be attenuated within the basin, allowing any silt/sediment to settle, before being discharged (controlled by a hydrobrake to mimic greenfield rates) to the natural drainage network via a headwall to be installed at the outfall to prevent erosion. In the event of an emergency, the ESS management system will automatically close a pollution control value to be installed at the outfall of the basin thus ensuring that contaminated runoff is detained within the basin. The pollution control value can also be closed manually in the unlikely event of a failure of the ESS management system;
- Additional drains will be installed at the ESS compound (and temporary construction compound) at the base of any cut-faces to intercept groundwater which may seep from cuts and direct it to the natural drainage network. Discharge rates will be controlled to mimic greenfield runoff rates thus avoiding any long term alteration to the hydrological regime of the project site;
- Waste will be generated during the operational phase including, for example, cooling oils, lubricating oils and packaging from spare parts or equipment. All waste will be removed from site and reused, recycled or disposed of in accordance with best-practice and all regulations at a licensed facility.

4.2 Population & Human Health

No measures, specific to population and human health, are necessary during the construction phase. Local residents and communities will be protected through the implementation of measures relevant to other topics including the protection of water quality, minimisation of dust emissions, minimisation of noise emissions, and appropriate traffic management procedures.

4.3 Biodiversity

The following measures are proposed in respect of the likely effects of the project on biodiversity:-

- The construction of the project will be undertaken in accordance with the detailed CEMP to be prepared prior to construction;
- Prior to the commencement of construction, the proposed development site will be clearly delineated to ensure that construction activities do not unnecessarily encroach towards hedgerows, thereby reducing potential disturbance to birds and bats;
- There will be no removal of hedgerows within the bird breeding season (March to August inclusive);
- Existing hedgerows and trees to be retained at/near the site will be protected in accordance with current guidelines (e.g. NRA 2006);
- Replacement/new hedgerows will consist of native species of local provenance;
- Construction operations will largely take place during the hours of daylight to minimise disturbance to birds or any active crepuscular/nocturnal species;
- All site layout/design proposals will be fully adhered to regarding the implementation of buffer zones around surface water features;
- All measures described above regarding the protection of surface waters will be

implemented in full, including:-
  - No instream works are required;
  - Silt fencing and silt traps will be installed between all proposed infrastructure and drainage ditches on site during the construction phase of the proposal;
  - Prior to the commencement of earthworks, temporary silt/sediment control infrastructure (e.g. straw bales) will be placed in agricultural drains around the site until the full range of construction phase measures are installed;
  - Works shall not take place during periods of high rainfall and shall be scaled back or suspended if heavy rain is forecast;
  - Where required, soils will be stripped to facilitate the installation of infrastructure. A limited area of soils will be stripped at any one time to avoid exposing large areas of the proposed development area, thereby limiting run off onto exposed soil surfaces;
  - On-site refuelling will only take place at distances greater than 50m from the nearest surface water feature. All fuel facilities will be bunded, over-sized and roofed;
- Prior to the commencement of construction, an ecological site walkover will be conducted to confirm the absence of badger setts (or other mammals) within the footprint of the proposed development. In the event that a badger sett is identified, and may be disturbed by the proposed development; the National Parks and Wildlife Services (NPWS) will be contacted and an application for a derogation license to disturb this sett will be obtained. If a derogation is required, the mitigation approach will be agreed with NPWS prior to construction works commencing;
- Ecological input will be provided to the fencing design to avoid impeding the movement small wildlife across the site;
- Landscaping proposals will be implemented at the proposed development site to reduce the visibility of the proposed development in the landscape. Landscaping; which will comprise the bolstering of existing hedgerows, planting of new hedgerows and planting of wildflower mixes; will serve to increase the biodiversity value of the proposed development site;
- The following disturbance limitation measures will also be applied:-
  - All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 *European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996*; and,
  - Plant machinery will be turned off when not in use.

4.4 Land & Soil

The following avoidance and design measures are proposed to reduce effects on land and soils:-

- The proposed development site will be marked out and delineated prior to commencement of construction. Plant and machinery will be restricted to movements within the delineated development footprint;
- Excavations will be by mechanical digger;
- Excavations will not be undertaken during periods of prolonged or intense rainfall;
- Topsoil and subsoil excavated during the construction phase will be side-cast, stored separately and locally for use during reinstatement;
- A detailed Surface Water Management Plan will be prepared prior to construction to avoid soil erosion and to ensure that any sediment entrained in runoff is appropriately attenuated. The plan may include silt fences, silt traps, swales and buffered outfalls;

- All plant and machinery used will be regularly inspected for leaks and fitness for purpose;
- Spill kits will be readily available to deal with accidental spillage at all times;
- There will be no permanent stockpiles of excavated materials left on-site following completion of the proposed development. Materials will be reused for backfill or landscaping purposes. Should excess material arise following the completion of the construction phase, same will be removed from site and disposed of at a licensed facility;
- Fuel and oil volumes stored on site during the construction phase will be minimised. Storage areas, where required, will be located within the temporary construction compound and bunded appropriately for the fuel storage volume for the required time period and fitted with a storm drainage system and an appropriate oil interceptor; and
- An emergency plan for the construction phase to deal with accidental spillages will be contained within the detailed CEMP.

4.5 Water

The proposed development has been designed to implement a Sustainable Drainage System ('SuDS') which seeks to:-

- Minimise any change to the surface water and groundwater conditions within the site;
- Avoid sensitive areas where possible by employing hydrological constraints (i.e. buffer zones);
- Replicate the natural drainage of the site;
- Minimise sediment loads in the runoff, with particular attention being given to the construction phase of the proposed development;
- Maintain runoff rates and volumes at greenfield rates for a range of storm events (to be incorporated into final detailed design); and,
- Avoid high flow velocities internally within new drain networks and at outfall locations to prevent erosion.

The purpose of a SuDS is:-

- To provide sufficient detail to ensure that water pollution will not occur as a result of construction and operational activities at the site and to minimise the risk of any such occurrence;
- To regulate the rate of surface water run-off downslope to prevent scouring and to encourage settlement of sediment locally; and
- To minimise the quantity of sediment laden stormwater and resulting settlement pond sizes by separating 'clean' water from the 'dirty' development runoff.

4.5.1 Mitigation Measures

Best practice measures are also proposed to minimise impacts to water quality, as follows:-.

- All site personnel will be made aware of their environmental responsibilities at the site;
- Contractors will be required to include contingency plans to deal with spillages, should they occur;
- Land disturbance will be kept to minimum and disturbed areas will be stabilised as soon as possible; and
- Soil excavation will be undertaken during dry periods, whenever possible.

4.5.2 Control of Silt/Sediment

The following construction phase drainage controls will be put in place:-

- Prior to the commencement of any earthworks, a silt fence perimeter will be placed down-gradient of all construction areas;
- This fencing will be embedded into the local soils to ensure all site water is captured and filtered;
- As construction advances there will be a requirement to collect and treat surface water runoff and ground water from the site works area itself. This will be completed using a down-gradient collector drain around the perimeter of the ESS compound. This collector drain will direct runoff to silt/settlement ponds;
- In the event that the removal of water from excavations (via pumping) is required, no pumped construction water will be discharged directly into any off-site drain or watercourse. All pumped water will be directed to the collector drains;
- Daily monitoring of the excavation/earthworks and collector drains will be completed by a suitably qualified person during the construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter will enter drains;
- If high levels of silt or other contamination is noted in the collector drain or silt/settlement ponds, all construction works will be stopped. No works will recommence until the issue is resolved and the cause of the elevated source is remedied;
- Any surface water runoff or pumped water will not be permitted to leave the site unattenuated;
- All temporary stockpiles of excavated material will be sealed/damped down or covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation;
- A perimeter of silt fencing will be placed around all temporary stockpiles;
- Earthworks will take place during periods of low rainfall to reduce run-off and potential siltation of drainage routes; and,
- Good construction practices such wheel washers and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites (*Control of Water Pollution from Construction Sites, guidance for consultants and contractors*, CIRIA, 2001) provides information on these issues. This will ensure that surface water arising during the construction activities will contain minimum sediment.

4.5.3 Release of Hydrocarbons during Construction and Storage

Mitigation measures proposed to avoid release of hydrocarbons at the site are as follows:-

- A dedicated refuelling location will be established within the ESS compound;
- The dedicated refuelling area will drain into a temporary hydrocarbon interceptor located at the compound;
- Spill kit stations will be provided at the fuelling location for the duration of the works;
- Staff will be provided with training on spill control and the use of spill kits;

- All fuel storage containers will be appropriately bunded, roofed and protected from vehicle movements. These bunds will provide added protection in the event of a flood event on site;
- All chemicals will be stored as per manufacturer's instructions. A dedicated chemical bund will be provided on site;
- The dedicated refuelling area will be underlain by concrete hard standing. All fuel and oil tanks will be inspected on a regular basis for signs of spillages, leaks and damage during use. A record of these inspections should be maintained, and any improvements needed carried out immediately;
- The risk of fuel spillages on a construction site is at its greatest when refuelling plant. Therefore, only designated trained and competent operatives will be authorised to refuel plant on site;
- Plant and equipment will be brought to the designated refuelling area rather than refuelling at numerous locations about the site;
- Chemicals used on site will be secured in a lockable and sealed container overnight in proximity to the fuel storage area;
- Drip trays will be utilised on site for all pumps;
- Procedures and contingency plans will be established to address cleaning up small spillages as well as dealing with an emergency incident;
- A stock of absorbent materials such as sand, spill granules, absorbent pads and booms will be kept at the site refuelling area;
- Daily plant inspections will be completed by all plant operators on site to ensure that all plant is maintained in good working order. Where leaks are noted, the plant will be removed from operations; and,
- All personnel shall observe standard precautions for handling of materials as outlined in the Safety Data Sheets (SDS) for each material.

4.5.4 Release of Cement-Based Products

The following mitigation measures are proposed to ensure that the release of cement-based products is avoided:-

- A designated concrete wash-out area will be established on the site. Typically, this will involve washing the chutes into a designated IBC tank before removing the wastewater off site for disposal;
- Best practice in bulk-liquid concrete management will be employed on site addressing pouring and handling, secure shuttering, adequate curing times, emergency clean up etc; and,
- Where concrete shuttering is used, measures will be put in place to prevent shutter failure.

4.6 Air Quality & Climate

The implementation of the following measures will minimise any localised air quality and climate effects during the construction phases:-

- Activities capable of generating notable levels of dust (e.g. access track and ESS compound construction) will not be undertaken during periods of wind when dust soiling of nearby properties could occur. It should be noted that the separation to dwellings has been maximised, where possible, to avoid, by design, dust soiling insofar as possible;
- The access track and construction area will be cleaned on a regular basis to prevent soil built-up and from migrating around the site and off-site;
- A mechanised road sweeper will be used at site entrances and along the access track if required;

- 'Damping down' of the access track will be implemented if dust levels are assessed to be resulting in adverse effects;
- Vehicles delivering materials (e.g. aggregates for access track and ESS compound) to the site will be covered appropriately to ensure no fugitive dust emissions occur;
- Speed restrictions on the access track will be implemented to reduce the likelihood to dust becoming airborne; and
- Temporary stockpiling of materials will be carried out in such a way as to minimise their exposure to wind where possible and damping down will be carried out where needed.

4.7 Landscape

Aside from construction stage methods/practices to minimise land and vegetation disturbance and dust emissions (which may reduce visual amenity), there are no specific mitigation measures to be implemented.

The appropriate management and reinstatement of excavations, in a timely manner, will ensure that any adverse effects caused, for example at site entrances, are minimised insofar as possible. Similarly, the progressive reinstatement and landscaping of the site will remediate any short term adverse effects on the local landscape.

4.8 Cultural Heritage

Archaeological, architectural and cultural heritage resources will be protected through the following mitigation and monitoring measures:-

- Archaeological monitoring will be carried out of all excavation works associated with the proposed development. Monitoring will be carried out under Licence to the Department of Housing, Local Government and Heritage and the National Museum of Ireland. Provision will be made for the full excavation and recording of any archaeological features or deposits that may be exposed during monitoring.

4.9 Noise & Vibration

The various contractors involved in the construction phase will be obliged, under contract, to take specific noise abatement measures and comply with the recommendations of *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise*.

The following list of measures will be implemented, as relevant, to ensure compliance with construction noise criteria:-

- No plant or machinery will be permitted to cause a public nuisance due to noise;
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the construction phase;
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers;
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use;
- Any plant, such as generators or pumps, which may be required to operate outside of general construction hours will be surrounded by an acoustic

enclosure or portable screen;
- During the course of the construction programme, supervision of the works will include ensuring compliance with the limits detailed in *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise*; and
- The hours of construction activity will be limited to 07.00-19.00 Monday to Friday and 07.00-13.00 on Saturdays. No works will be undertaken on Sundays or public holidays.

4.10 Transport & Access

In order to ensure the avoidance of significant effects and reduce the predicted magnitude of effects to the greatest possible extent, a suite of mitigation measures are available which will reduce any likely effects during the construction phase. The following mitigation measures will be implemented:-

- Traffic movements will be limited to 07:00-19:00 Monday to Friday and 07:00–13:00 on Saturdays. No works will be undertaken on Sundays or public holidays. In the event that construction activities are necessary outside of the normal working hours, local residents and the Planning Authority will receive prior notification;
- A Traffic Management Plan shall be agreed with the Planning Authority prior to the commencement of development. The Traffic Management Plan shall include *inter alia* a materials delivery programme including refined traffic volumes and details of warning signage;
- Due to the site being located on a narrow local road the delivery route for construction traffic should aim to minimize impact on the L5039.
- A two-way delivery route to the east has been proposed as it would minimise the impact on the L5039 as delivery vehicles would traverse a 2.4km section of the L5039 which is significantly less than the 5.2km traversed by a possible one-way delivery route.
- The two-way delivery route would be the most appropriate option as it would minimise the extents of the L5039 that delivery vehicles would mix with local traffic.
- A dry wheel-cleaning facility will be installed, as necessary, to prevent any debris being transferred from site to the adjacent public roads. All drivers will be required to ensure that their vehicle is free from dirt and stones prior to departure from the construction site. Where conditions exist for dust to become friable, techniques such as damping down of the affected areas will be employed and vehicles/loads will be covered to reduce dust emissions;
- Adequate signage shall be provided at the site entrance providing access, safety and warning information;
- Speed limit compliance will be emphasised to all staff and contractors prior to the commencement of construction during site induction, and will be strictly enforced throughout the construction phase;
- Sufficient car parking spaces will be available within the temporary construction compound during the construction phase. No parking of cars by persons associated with the proposed development will be permitted on any part of the public road;
- All reasonable steps shall be taken to ensure that national and regional routes are used to transport materials to the site in so far as is practicable;
- Maximum axle loadings shall be strictly enforced in accordance with the Road Traffic (Construction and Use of Vehicles) Regulations 2003 (S.I. No. 5 of 2003);

- A designated contact point and coordinator will be put in place to manage all access arrangements and to interface with the public and the Planning Authority; and
- The site shall be closed, and strictly secured, to the public during the construction phase.

4.11 Agriculture

No specific mitigation measures are proposed in respect of the construction of the proposed development.

4.12 Waste Management

The contractor shall ensure that all waste generated at the project site is managed in an appropriate manner. The precise methods to be implemented will be detailed in a Waste Management Plan, to be prepared prior to construction and appended to the detailed CEMP, which shall ensure that waste is managed in accordance with all relevant legislation, best practice methods, and in accordance with the waste management priority hierarchy.

Excavated spoil material, which also constitutes 'waste', shall be managed in accordance with the provisions of a Spoil Management Plan which, again, shall be prepared prior to construction and appended to the detailed CEMP. Only material which cannot be re-used for reinstatement or landscaping shall be removed from the proposed development site and disposed of at an approved waste management facility.

5.0 Implementation of Environmental Management Measures

In the first instance, the construction phase of the proposed development shall be undertaken in strict compliance with all measures set out in the P&ER; unless where revised or where required to be revised in order to ensure compliance which a condition of planning consent. All relevant conditions of consent shall be inserted at **Table 1** below.

Planning Conditions		
Condition No.	**Content**	**Relevance to Construction Phase (Yes/No)**

Table 1: Planning Conditions

This CEMP; which will be further developed prior to the commencement of construction; all associated documentation, construction management plans, and construction method statements shall be prepared to ensure strict accordance with each of the measures of the P&ER and conditions of consent. As stated at **Section 1.4** above, it will be the responsibility of the EM to ensure coordination between this CEMP, all associated construction management plans & method statements, and the requirements set out in relation to the project.

6.0 Communication Plan

Given the multitude of stakeholders to be involved in the construction phase of the project, a clear and concise communications plan will be implemented to ensure that all matters arising are appropriately reported and recorded. The Communications Plan, which will be developed by the contractor prior to construction and appended to the detailed CEMP, will include a reporting strategy including, but not limited to, the following personnel:-

- Neoen Renewables Ireland Limited Project Manager;
- Contractor Project Manager;
- Neoen Renewables Ireland Limited PSCS;
- Contractor Site Foreman;
- Environmental Manager; and,
- Archaeological Clerk of Works.

Additionally, Neoen Renewables Ireland Limited shall appoint a Community Liaison Officer ('CLO') who shall be responsible for engaging with members of the local community regarding the provision of project updates, etc., and shall also be responsible for relaying any matters raised to the project team.

A list of project contacts, to be developed prior to the commencement of construction and included within the detailed CEMP, shall be made available to all construction staff while a copy shall also be provided at the site offices.

7.0 Staff Training & Environmental Awareness

Only staff who have received appropriate training and have the necessary safety training/certification shall be permitted on-site.

All construction phase personnel will receive environmental awareness information as part of their initial site induction. The extent of their induction shall be tailored to the scope of their work; however, as a minimum, all environmental protection matters will be addressed in full. This will ensure that staff are familiar with environmental obligations associated with the construction process and the procedures and measures to be implemented. Staff will also be advised of the likely effects of any non-compliance with the relevant environmental measure.

As described at **Section 1.4**, the EM shall provide regular environmental updates to personnel and shall advise of any improvements which can be implemented.

Tool box talks will be held by the EM, or other relevant personnel at the commencement of each day or at the commencement of new activities. The aims of the tool box talks are to identify the specific work activities that are scheduled for that day or phase of work. In addition, the necessary work method statements will be identified and discussed. Additionally, any non-compliance with a measures in this CEMP will also be discussed with the aim of avoiding a re-occurrence of the same non-compliance.

8.0 Emergency Response Procedures

Prior to the commencement of construction, the contractor shall prepare a comprehensive emergency response procedure to be implemented by on-site personnel. This on-site procedure shall be incorporated within the Environmental & Emergency Response Plan to ensure that appropriate procedures are in place to manage any incident and report same to the relevant stakeholders.

9.0 Recording & Reporting

Over the course of the construction phase, a substantial volume of reporting will be undertaken to record the activities, methodologies, and measures implemented during the construction phase. With regards to environmental recording, the following is a non-exhaustive list of reports/records which are likely to be appended to the CEMP as the construction phase progresses:-

- Site Sign-In Records;
- Weekly Environmental Reports;
- Monthly Environmental Reports;
- Site Visual Inspection Checklists;
- Environmental Audits;
- Archaeological Monitoring Reports;
- Traffic Management Plans;
- Waste management documentation;
- All relevant licences, consents, and permits;
- All correspondence (internal and external) regarding environmental matters; and
- Staff Training Records.

10.0 Compliance & Review Procedures

10.1 Site Inspections & Environmental Audits

Routine inspections of construction activities will be carried out on a regular basis by the Contractor Project Manager, PSCS, Contractor Site Foreman, and EM to ensure all environmental controls, relevant to the construction activities taking place at the time, are in place. Environmental inspections will ensure that the works are undertaken in accordance with this CEMP and all other relevant documentation.

10.2 Auditing

The contractor will be responsible for ensuring that all construction staff are aware of the requirement to, and understand the importance of, strictly implementing the procedures of the CEMP. Environmental audits will be undertaken during the construction phase of the project. In contrast to monitoring and inspection activities, audits are designed to identify the underlying causes of non-compliances, and not to merely detect the non-compliance itself.

Moreover, audits are the means by which system and performance improvement opportunities may be identified. Environmental audits will be carried out by the contractor or by external personnel acting on their behalf. The impartiality and objectivity of the audit process is crucial in the identification of improvements to the activities being undertaken at the project site. Environmental audits will be scheduled and conducted at regular intervals to determine whether the CEMP is being appropriately implemented. The findings of the audits will be provided to the Neoen Renewables Ireland Limited Project Manager, Contractor Project Manager, PSCS, and EM.

10.3 Environmental Compliance

As has been set out in the preceding sections, construction activities will be continuously and rigorously assessed to ensure that works are undertaken in accordance with the provisions of the detailed CEMP (to be prepared prior to

construction). Where an environmental 'event/occurrence' has been identified, the following definitions shall apply:-

- Near-Miss: An event which has not resulted in an adverse environmental effect but which, if not addressed, could re-occur and result in adverse effects;
- Incident: An event which has occurred and which, if un-controlled, could result in substantial effects; however, on-site measures/procedures avoided such effects;
- Exceedance Event: Where an event has resulted in identifiable adverse effects which exceed the appropriate limit value (e.g. a deterioration of downstream water quality below acceptable limits). An exceedance event usually triggers the cessation of particular activities until an investigation has been completed and additional measures implemented; and
- Non-Compliance: The identification of an un-agreed deviation from prescribed procedures/measures set out in this CEMP.

10.4 Corrective Actions

A corrective action relates to the implementation of revised measures/procedures to rectify an identified environmental matter/concern/issue. Corrective actions will be implemented by the Contractor Project Manager, as advised by the PSCS and EM,

Corrective actions may be required as a consequence of:-

- Environmental Audits;
- Environmental Inspections; Environmental Monitoring;
- Environmental Incidents; and,
- Environmental Complaints.

A Corrective Action Notice will be used to communicate the details of the action required. A Corrective Action Notice will describe the cause and effect of the environmental issue/concern and will detail the recommended corrective action to be implemented.

If an environmental matter/concern/issue arises which requires immediate intervention; direct communications between the Contractor Project Manager, PSCS and EM will be conducted. A Corrective Action Notice will be completed subsequently.