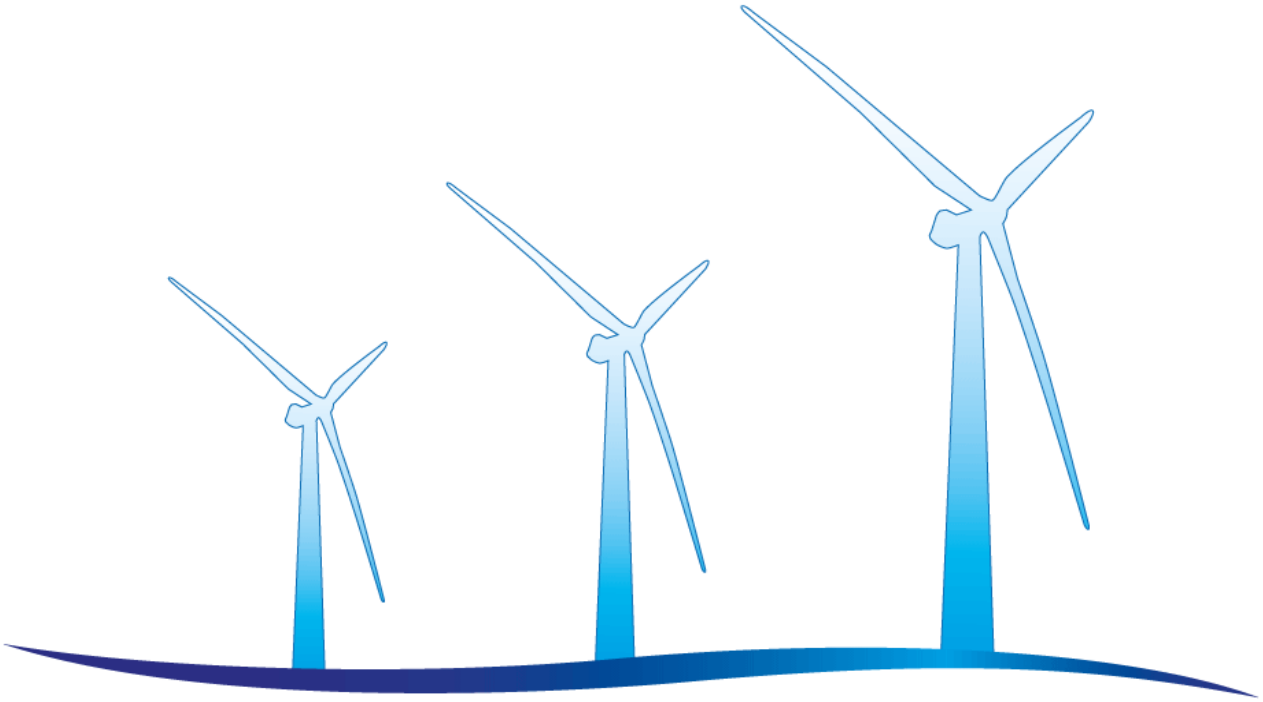


CONSTANTINE WIND ENERGY

HIGHFIELD WIND TURBINE REPOWERING SITE

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

1.0 Introduction

This document has been prepared by Constantine Wind Energy in support of planning permission 4/24/2334/0F1. A Construction Environmental Management Plan (CEMP) is required to comply with condition 15 which states:

No development shall take place until a site-specific Construction Environmental Management Plan (CEMP) been submitted to and approved in writing by the Local Planning Authority. The plan must demonstrate the adoption and use of the best practicable means to reduce the effects of noise, vibration, dust and effects on the local ecological environment during the demolition and construction phase of the works.
The development hereby approved shall be carried out in accordance with the approved CEMP.

2.0 Document Purpose

The purpose of the document details the following requirements:

adoption and use of the best practicable means to reduce the effects on the local ecological environment. The CEMP will detail how the following best practical means are implemented for:

- noise and vibration
- dust
- ecology
- complaints

Best practicable means will be used during the demolition and construction phase of works.

3.0 Document Scope

The scope of the document covers the decommissioning phase of the existing turbine and the installation of the repowered single wind turbine at Highfield Farm ("Site"). The future decommissioning of the Site will be managed by prevailing requirements, but it is expected that this CEMP will apply.

4.0 Document structure

The CEMP is structured as follows:

- Site setting
- Description of works
- Site organisation
- Training and communication
- Best Practical Means
    - Nosie & vibration
    - Dust
- Complaints Procedure
- Responding to incidents

5.0 Site Setting

The Site is located to the north of Highfield Farm, off an unnamed road off High House Road. The OS Grid Reference for the existing wind turbine is NX 98929 12784, what3words: chuckling.gifted.feasted.

The Site comprises an area of land within an agricultural field that has undergone a degree of rewilding due to a lack of cultivation. It is situated within a wider area of agricultural land, which includes pockets of woodland. The majority of land is classed as land capable of producing moderate to high yields of a narrow range of crops. Access to the Site is via a purpose-built access track, consented under planning permission ref: 4/14/2227/0F1. This access is formed directly from the unnamed road off High House Road.

Other than Highfield Farm, the nearest residential dwellings are at Quarry Cottages, approximately 500m to the east of the existing wind turbine. The next nearest residential property is at Springbank Farm, approximately 500m west of the site.

The Site is not located within any designated site for nature conservation, cultural heritage or landscape purposes. The closest ecological designation is Clints Quarry SSSI located circa 1.7km south east of the Proposed Development with the River Ehen SSSI located circa 2.3km east.

The location of the Site is shown in Image 1 below:

The Site currently operates a single 225 kW turbine, with a 30m hub height and incorporates 29m diameter blades. This results in a 44.5m tip height. The Proposed Development would have a rated output capacity of 225kW to satisfy current grid connection arrangements. Whilst this output is consistent with the existing turbine, energy production onsite would be increased due to improved wind to energy conversion efficiency, heighted reliability, increased wind speeds at taller heights, and a larger swept area of wind capture.

The key maximum parameters of the Proposed Development are set out below:

i) Output: 225kW.
ii) Hub height: 50m.
iii) Blade length: up to 26m.
iv) Blade diameter: up to 52m.
v) Maximum height to blade tip: up to 76m.
vi) Number of blades: 3

The location of the foundation pad for the Proposed Development is shown in Image 2, for which the Applicant requests a 10m micrositing to allow for any site conditions. The final design of the foundation and reinforcement would be completed following ground investigations and detailed engineering design prior to construction.

Access track

Access for construction and maintenance of the Proposed Development would be via the existing turbine access road, therefore a new access track will not be required as part of this planning application. Widening of the right hand turn into the crane pad area will be refurbished to allow HGVs and abnormal loads turn safely.

Crane hard standing/lay down areas

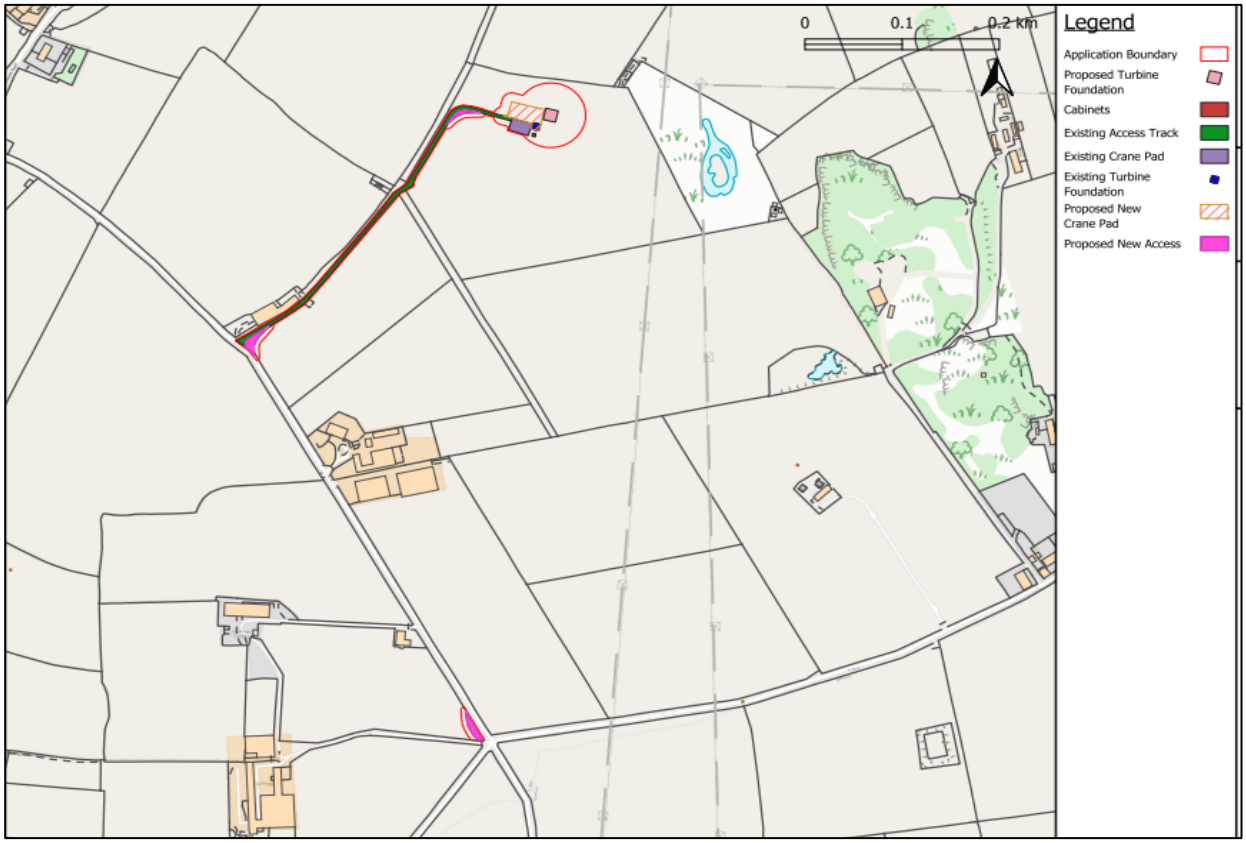
A crane hard standing area is required to accommodate removal, maintenance and erection works. The existing crane pad requires expansion to account for the larger component sizes of the proposed turbine. It is proposed that the hardstanding is extended both through the reuse of the existing turbine foundations and takeover of a small area of unused land on the northern edge of the existing crane pad. The existing hardstanding and turbine foundation area to be reused and the proposed extended crane pad area for the mobile cranes and laydown of turbine components.

The replacement turbine would be erected using two mobile crane units to lift the tower sections, nacelle and rotor components into position. It is anticipated that it would take approximately six weeks to complete the installation and commissioning of the turbine, after which the cranes would be removed from site.

Offsite works

Offsite works is required to facilitate site access during construction. The required works include road widening at the existing bellmouth entrance onto the Site access road and potential temporary widening road widening at a five-road junction leading up to the main entrance, see image 2 for the location.

Image 2 Red Line Boundary of the Site



Turbine removal

The existing turbine will be removed in a controlled manner in a reverse sequence to that of installation. In summary this process will include:

i) Locating and securing of mobile crane units on new foundation pad.
ii) Removal of turbine blades.
iii) Removal of blade hub.
iv) Removal of nacelle.
v) Modular deconstruction of turbine tower.
vi) Transportation of components off-site.

Switchgear container and associated cabling

The replacement turbine will make use of the existing switchgear building and cabling installed to serve the existing turbine. The switchgear container is located immediately adjacent to the turbine base. The container houses the switch gear, transformer and generation meters required for the operation of the proposed turbine.

The Site is connected via underground cabling, with the pre-existing ancillary infrastructure providing sufficient capacity for the Proposed Development. As such, no new grid connections are required with the existing cabling providing optimal functionality.

Turbine delivery
The Site, whilst somewhat isolated, is located 1.5km west of the A595, which runs from Carlisle to the A590 trunk road at Dalton-in-Furness.

The turbine delivery vehicles would access the Site via the existing arrangements, with the aforementioned required offsite works. Supporting this document is a construction traffic management plan.

6.0 Site Organisation

In conjunction with CWE, the Construction Contractor shall operate a Project Management Organisational structure for the construction and operation of the Highfield Turbine Repowering as follows:

CWE Project Manager
Site Construction Manager (Contractor)
- *Electrical Contractor*
- *Mechanical Contractor*
- *Civils Contractor*

The roles and responsibilities are defined in further detail in accordance with Construction Design Management Regulations (2015). The purpose of this document does not duplicate or intended to contradict the roles with the HSE file. The CEMP provides are basic overview of the environmental reporting lines only.

The CWE Project Manager is accountable for the project delivery and environmental compliance on site. It is the responsibility of the CWE Project Manager to communicate all requirements to the contractors and monitor their compliance.

The Site Construction Manager and associated contractors will implement compliance requirements as required by CWE Project Manager and in accordance with this CEMP. This includes:

- Ensure site documentation (method statements and environmental risk assessments) includes noise vibration and dust mitigation.
- Ensure work is carried out in accordance with the CEMP.
- Ensure staff are aware of the requirements of environmental plans and procedures.
- Ensure that BPM is implemented and maintained on site.
- Undertake Subjective and Visual Monitoring emissions as part of general site inspections
- Report complaints to the Project Manager.
- Respond to complaints within 24 hours and adjust working methods to avoid repeat complaints.

7.0 Training and Communication

7.1 Induction

All persons prior to commencing operations on site shall receive a full safety, health and environmental induction/ briefing from the CWE Project Manager.

The Site induction will cover a range of health, safety and environmental topics. Critical to the inductee's retention is the requirement that the induction will cover the main hazards or risks. Noise, vibration, dust and spill management will be included within the induction. Inductees will be briefed on the sensitivity of the local environment and the mitigation measures.

Visitors to site, after signing in, will receive a visitor's induction unless always accompanied by a previously inducted person who will take responsibility whilst on site. If relevant, the visitor will also be briefed on groundwater sensitivity.

7.2 Toolbox Talks

To retain information and maintain standards, toolbox talks will be communicated during morning briefings. Environmental protection will form part of the series of toolbox talks to reinforce the requirements of commitments made within this CEMP. It is expected that for the short duration of activities two briefings, as a minimum, will be made during the project.

7.3 Site Rules

Site rules will be communicated to all site personnel and visitors at induction and posted on the site notice board.

The following rules apply to all persons entering the site to protect groundwater:

1) No unauthorised persons are allowed on site.
2) All operatives entering the site for the first time must report to the site office for a visitors or full site SHE induction.
3) All operatives must sign in and out of site each time they enter/exit site.
4) All visitors are to report to the site office and shall sign the visitor's book.
5) No unauthorised vehicles shall be allowed on site. Parking in designated areas only. Site plant and transport routes to be specified.
6) All accidents and unsafe situation or occurrences must be reported to the site manager immediately.
7) No plant, materials or material waste shall be removed from the site without the authorisation of the site manager and by authorised waste contractors.
8) Permits for hot works, breaking ground or excavations are required prior to the start of works.
9) Plant and equipment must be operated by authorised and trained persons only.
10) No temporary or permanent part of the works shall be damaged or defaced.
11) Relevant test certificates or certificates of thorough examination for plant and equipment shall be submitted to the site manager before use.
12) All instructions and directions of the site manager must be complied with.
13) Risk assessment and method statement to be strictly complied with.
14) No smoking on site, except in designated areas.

15) Disciplinary procedure for safety or environmental related breaches on this site consists of verbal and written warnings. Serious breach will be treated as gross misconduct and liable to instant removal from site.

8.0 Noise & Vibration Best Practicable Means

In accordance with the following legislation, best practicable means (BPM), as defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990, be applied during all works (demolition and construction) in order to minimise impacts at sensitive receptors.

Suitable measures, pertinent to the proposed activity for consideration during all works are:

- Lift or lower material rather than dropping from height, and where possible eliminate drop heights.
- Where an enclosure is in place it must be used, e.g. mobile generators.
- Where reasonably practicable, vehicles and mechanical plant associated with the works will be fitted with effective exhaust silencers and shall be maintained in good working order.
- Vehicles to conform to the EU emissions standards and, where reasonably practicable, their emissions should meet upcoming standards prior to the legal requirements date for the new standard.
- Plant will be located away from site boundaries which are close to sensitive receptors, where reasonable and practicable.
- The movement of delivery materials outside of daytime working hours shall be kept to minimum and handled in a manner that minimises noise.
- All employees shall be provided with an appropriate induction and ongoing briefings regarding the management of environmental issues and BPM. This will involve emphasising the need for employees to show consideration to the sensitive receptors, including residential neighbours, and keeping raised voices to a minimum. They will be briefed on not generating unnecessary noise when on site or when leaving and arriving.
- Various sub-groups or construction sub-teams will be formed wherever possible in order to maximise the efficiency and keep the noise emissions to a minimum.
- The moving plant operators (machinery etc.) will be briefed on a regular basis to reinforce the importance of noise and vibration mitigation, and where possible, to avoid movements over irregular surfaces (which can create increased noise emissions).
- At all times, it will be ensured that workers' shouting is kept to a minimum especially during near site access, and line of the delivery route.
- Access arrangements for heavy plant such as excavators will be undertaken during daytime in order to avoid high levels of noise at the site entrances, especially in temporary compounds near sensitive residential receptors.
- All plant and equipment will comply with the noise limit and noise marking requirements prescribed by the "Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001" and the "Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005" implementing the EU Directives 2000/14/EC.
- All plant, equipment and noise control measures applied to plant and equipment shall be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable. As far as reasonably practicable, any plant,

equipment or items fitted with noise control equipment found to be defective will not be operated until repaired.

- Site perimeter monitoring of vibration and noise levels to verify mitigation methods are working.

9.0 Dust Management

In accordance with Institute of Air Quality Management (IAQM) construction guidance (IAQM, 2024[1]), a detailed construction dust assessment is required where a:

- Human receptor is located within 250 m of the Site, and/ or within 50 m of routes used by construction vehicles, up to 250 m from the Site entrance(s); and/ or
- Ecological receptor is located within 50 m of the Site, and/ or within 50 m of routes used by construction vehicles, up to 250 m from the Site entrance(s).

Image 2 250m proximity to human receptors

Orange circles represent a 250m radius from residential receptors

[1] IAQM, Guidance on the assessment of dust from demolition and construction, January 2024 (Version 2.2)

The construction activities for the Site are predominately over 250m from any residential receptor. The access route works is within 150m of the landlord property. Due to the minor (small <18,000m²) works at the access point, <20 outward heavy-duty vehicles (HDV) trips in any one day, and the existing road built on hardstanding, the following general mitigation advice applies to all works:

- Display the name and contact details of person(s) accountable for dust issues on the site boundary.
- Inspect compliance with this plan.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Avoid site runoff of water or mud.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked.
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the local authority when asked.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.

10.0 Ecology

The following commitments were made in the preliminary ecological survey (PEA) Axis, 12.09.2024, will be implemented on site during the construction and operation phases.

- any vegetation removal required (if necessary, at all) takes place outside of the bird breeding season (March-August inclusive). If vegetation works are necessary during the breeding season, suitable nesting habitat should be hand searched by a suitably experienced ecologist prior to works commencing. Only when the ecologist is satisfied that no offence will occur under the legislation will works be permitted to proceed

- Any lighting required during construction will be restricted and directed away from retained boundary habitats to maintain dark corridors for foraging and commuting. Light spill can be avoided in a number of ways, including the use of low-level lighting and use of hoods and careful selection of lighting; further information is available in Bats and Lighting in the UK, Bats and the Built Environment Series, Bat Conservation Trust and Institute for Lighting Engineers[2]. As long as lighting is designed and implemented in a sensitive manner, no discernible effects are anticipated on foraging/commuting bats.
- As a precaution a pre-construction survey should be undertaken to confirm continued absence of badger setts within and adjacent to the Site prior to the commencement of works. The survey should check for any newly constructed setts in and surrounding the Site (i.e., up to 30m from the application boundary). If a sett is found, suitable advice should be sought from the project ecologist to ensure necessary protection, avoidance or mitigation measures are in place before works proceed such as a licence from Natural England or works under a Reasonable Avoidance Measures (RAMs) Method Statement.
- Proportionate (due to no records of presence) RAMs for terrestrial mammals (brown hare, hedgehog and polecat) will also safeguard small mammals, during the works; including the removal of suitable habitat within the Site.
- If any invasive species be encountered within or immediately surrounding the Site during construction, the advice of a suitably qualified ecologist should be sought and the appropriate measures taken to prevent the inadvertent introduction or spread of such plants.

11.0 Complaints Procedure

It is important that members of the public or interested parties are able to make valid complaints about construction works and operational activity. Such complaints can provide a valuable feedback mechanism which could help reduce potential impacts on sensitive features and also allow the construction and maintenance techniques to be refined and improved.

Contact details shall be placed at the entrance to the construction site to allow complainants to contact the site management team. Nearby residential receptors will be letter dropped with these details. This CEMP will be held by CC Environmental Health Officers, and will be updated should any contact details required amending.

Any complaints made by members of the public regarding construction activities will be reported in the first instance to the site management team. Complaints shall be reviewed and documented appropriately within a logbook and acted upon within 24 hours of receiving a valid complaint.

The site manager shall instruct corrective / mitigation actions if required.

Site Manager: Nick Barrell
Operations Manager: CWE
Contact @ operations@constantinewindenergy.com

[2] Institution of Lighting Professionals & the Bat Conservation Trust. (2023). Guidance Note 08/23: Bats and artificial lighting at Night.

12.0 Responding to Incidents

A site incident response plan will follow these logical steps:

- **Assess** the spill to establish what has been spilt and what measures (such as PPE) are required to deal with the contents.
- **Stop** the spill at the source, if safe to do so e.g. lifting container up or blocking the leak, turning equipment off.
- **Contain** the spill using spill kits e.g. booms, spill mat, granules.
- **Protect** watercourses, land using spill kits to prevent the spill percolating into the ground.
- **Clean Up** and dispose of waste granules, spill mats into the designated hazardous waste containers.
- **Record** the spill location and quantity and report to the site manager.