

Appendix 4.2: Outline Construction Environmental Management Plan

Contents

Introduction	3
Outline Construction Methodology	6
Outline Noise and Vibration Management Plan	13
Outline Peat Management Plan	15
Outline Pollution Prevention Plan	16
Outline Ground and Surface Water Monitoring Plan	20
Dust and Air Pollution Management	25
Site Waste Management	27
Drainage Strategy	28
Outline Ecology Management Plan	29
Traffic Management Plan.	31
Archaeology Management Plan	32
Conclusions	33

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Introduction

Purpose of the Report

This Outline Construction Environmental Management Plan (oCEMP) refers to the construction of Sallachy Wind Farm, the Proposed Development by WKN GmbH (The Applicant) and will detail the best practice methods for managing the environmental impacts, including mitigation and monitoring, during construction of the Proposed Development.

The CEMP will be updated and finalised post consent in line with any relevant planning condition and in agreement with The Highland Council (THC), NatureScot and Scottish Environment Protection Agency (SEPA).

The CEMP will form part of the induction which is mandatory for all employees, contractors and visitors attending the site. All employees and contractors shall familiarise themselves with the content of this CEMP.

This document sets out the minimum standards to be adopted when constructing the Proposed Development. It also provides information about the associated Management Plans which should be read in conjunction with this CEMP:

- Outline Construction Methodology
- Outline Noise and Vibration Management Plan (oNVMP)
- Outline Peat Management Plan (oPMP);
- Outline Pollution Prevention Plan (oPPP);
- Outline Ground and Surface Water Monitoring Plan;
- Dust and Air Pollution Management Plan;
- Site Waste Management Plan (SWMP);
- Drainage Management Plan;
- Outline Ecology Management Plan;
- Traffic Management Plan; and
- Archaeology Management Plan.

Aims and Objectives

The purpose of this oCEMP is to provide an overview of potential environmental impacts of the proposed development, during its construction phase, and describe the management and mitigation measures to protect the environment and sensitive receptors, both on- and off-site, and minimise potential adverse impacts on the environment that will then be revised and updated as required and included in the final CEMP. This document has been produced to ensure individuals working on the site know their responsibilities and to ensure that measures to prevent, reduce or mitigate potentially adverse environmental impacts identified in the Environmental Impact Assessment Report (EIA Report) are carried out.

The objectives of this oCEMP are to provide:

- an overview of the Proposed Development construction impact;
- guidance on compliance with relevant environmental legislation;

- a means of implementing appropriate mitigation measures for the key environmental issues (refer to Chapter 15 Schedule of Environmental Commitments);
- a working environmental management tool to follow during the construction phase of the Proposed Development;
- definition of roles and responsibilities of the construction team;
- a guide for the interaction with relevant government authorities and other relevant stakeholders, including the community during the construction phase of the Proposed Development; and
- a basis for monitoring, reporting and maintaining compliance with regulatory requirements for the Proposed Development.

This oCEMP is a live document. The management strategies and control measures detailed within this document and the supplementary Environmental Management Plans will be reviewed and updated, where necessary, to reflect condition requested by the planning authority, changes introduced by the Applicant's construction team, site specific outcomes, non-conformances and recommendations arising out of inspections, meetings and audits.

Roles and Responsibilities

As the Proposed Development is at the application stage, the oCEMP has been developed to provide advisory guidance and describes good construction practices. This is a live document and will ultimately be provided to the contractors appointed to construct the Proposed Development and will form part of the documentation required to ensure compliance not only with planning requirements but also environmental and other legislative requirements.

The oCEMP takes account of and refers to information contained within the EIA Report.

The oCEMP will form part of the specification and contract for the works that the Applicant will impose on their contractors as contractual obligations.

It is expected that the contractor selected to construct the Proposed Development will further develop this oCEMP with respect to the following:

- task-specific method statements;
- detailed Sustainable Drainage System (SuDS) design;
- an application to Scottish Environment Protection Agency (SEPA) for a Construction Site Licence;
- Site Waste Management Plan; and,
- additional management plans as requested by THC in their conditions to consent.

The implementation of the oCEMP (including procedures, record keeping, monitoring and auditing) will be overseen by an Ecological Clerk of Works (ECoW) who will be appointed by the Applicant to ensure compliance with this document and current legislation.

It is envisaged that environmental management meetings will be held between the ECoW, the Contractor and the Applicant to report on environmental mitigation measures and performance and identify actions for improvement where necessary.

Project Status

As the Proposed Development has not yet been consented no detailed design or intrusive ground investigation has been carried out. Therefore, some of the information provided in this oCEMP is necessarily general in nature. Task-specific method statements incorporating the requirements of this oCEMP will be developed by the selected contractors post-contract award and prior to works starting on site.

Document Control

The CEMP is a “live” document and will be subject to periodic review and updating. The document is intended for use by the Applicant and their contractors specifically involved in the construction of the proposed development. When this document is amended, the document control table will be updated (Table 1) and it will be issued to all personnel specified on the distribution list below (Table 2).

Table 1 - Document Control Table

Status	Date Issued	Prepared by	Summary of alterations
Version 1.0	March 2020	ITPEnergised	Outline CEMP

Table 2 - Distribution List

Organisation	Contact Name	Email	Telephone Number
Applicant - WKN GmbH	TBC	TBC	TBC
Principal Contactor	TBC	TBC	TBC
Ecological Clerk of Works (ECoW)	TBC	TBC	TBC
Archaeological Clerk of Works (ACoW)	TBC	TBC	TBC
The Highland Council (THC)	TBC	TBC	TBC
Scottish Environment Protection Agency (SEPA)	TBC	TBC	TBC
NatureScot	TBC	TBC	TBC
Historic Environment Scotland (HES)	TBC	TBC	TBC

Outline Construction Methodology

Introduction

This outline Construction Methodology has been prepared to provide the methods to be used in the construction of the Proposed Development. It includes details of the scope of works, structure, design strategy, programme and construction methods where available. This will be updated by the Principal Contractor prior to work commencing.

Project Details

The construction of the Proposed Development will include:

- excavation of borrow pits;
- establishment of the construction compounds which will contain a storage area for wind farm components and temporary site facilities;
- construction of access tracks, including construction of drainage, and excavation of cable trenches;
- construction of wind turbine foundations, and hardstanding areas;
- cable laying;
- erection of wind turbines;
- connection of power, earthing and communication cables;
- commissioning of the site equipment; and
- site reinstatement and restoration of temporary works areas.

Working Hours

The proposed normal construction working hours are anticipated to be prescribed by THC planning department, however as a guide the following times are suggested for audible activities:

- Monday to Friday: 07:00 to 18:00 inclusive;
- Saturday: 07:00 to 12:00 inclusive; and
- Sunday/bank holidays: no works.

Due to the exposed nature and highland location of the site, as well as the extent of the construction programme, some construction activities will be required to take place throughout the different seasons of the year, some construction activities which are highly dependent on the weather conditions require flexible working hours in order to be completed safely and efficiently. The following activities are particularly relevant:

- ground works, road and hardstanding construction (weather dependant);
- wind turbine base concrete pours (time dependant);
- wind turbine deliveries require to be undertaken when the public road network is not busy and to suit the availability of escort vehicles (time dependant); and

These operations will not generate particular excessive noise at any noise sensitive locations.

Blasting is not proposed on site, however if it is required then restrictions will be put in place ensuring no blasting is out with the hours of 10:00 and 12:00 and 14:00 to 16:00 Monday to Friday, and 10:00 to 12:00 on Saturdays, there will be no blasting on a Sunday or Bank Holidays.

Should any work need to be undertaken outside of the agreed hours, dispensation will be obtained from THC prior to the commencement of such works.

Programme

The construction programme will consist of the following principal operations, listed sequentially wherever possible. The Proposed Development will likely be phased so that certain activities will take place concurrently:

- construction of the temporary site compounds and establishment of temporary site facilities;
- construction of access tracks, including construction of watercourse crossings, and excavation of cable trenches;
- construction of wind turbine foundations, crane pad hardstanding areas and substation;
- installation of underground cabling;
- construction of concrete batching plant;
- erection of wind turbines;
- connection of on-site electrical power and signal cables;
- commissioning of site equipment; and
- site reinstatement and restoration of temporary works area.

Construction is provisionally expected to commence in 2023 and last for 18 months. A detailed construction programme will be produced prior to commencement of works.

Project Structure

Principal Contractor is responsible for co-coordinating the activities of all other parties/contractors working on the site to maintain safe working practices, including:

- management and programme control of all design and construction interfaces, including those with the related contractors;
- assuming the role of Principal Contractor under the CDM Regulations;
- meeting the requirements of all relevant planning conditions;
- security and maintenance for the full development site including but not limited to the main site compound during the contract;
- providing appropriate welfare and site accommodation for all contractors working on site;
- management of all construction related traffic entering and leaving the site; and
- liaison with, in conjunction with the Applicant, all Stakeholders and third parties including THC, NatureScot, SEPA, HES, SHEPD, relevant landowners, the Local Roads Authority and the Health and Safety Executive.

Site Compound

The Principal Contractor will establish the construction compounds. This will house temporary portable cabin structures to be used as the main site office and welfare facilities, including toilets, kitchen and provision for sealed waste storage and removal. The area will also be used for the storage and assembly of turbine components, parking for vehicles, containerised storage for tools and small parts, and oil and fuel storage.

Typically, granular fill material and a compacted capping layer will be laid over geotextile to form the construction compound area and to provide a suitable platform for heavy plant.

It is anticipated that potable water will be brought to site for use as drinking water (by bowser). A high-level storage tank will be installed on site. A suitably sized generator with integral bunded fuel tank will be located within the compound to provide temporary power during the construction period.

Welfare facilities will consist of a mess room, drying room/changing room and toilets provided by the Principal Contractor. Food and drink may only be consumed in the mess room to avoid risk of contamination and to minimise encouragement of rodents. Toilets will be served from the temporary water supply. The waste will be managed by use of sealed storage and removal from site, or by use of a septic tank and soakaway. Any septic tank discharge to the environment will be authorised by SEPA prior to use, in accordance with the requirements of the Controlled Activities Regulations (CAR).

All materials, plant and equipment shall be stored within the site boundaries within designated construction compound and laydown areas. Storage of liquids (e.g. fuel oil) and spillage mitigation measures are described fully in the Pollution Prevention Guidance.

All areas of the site including accommodation areas shall be kept clean and tidy with a regime of good housekeeping established to facilitate mobility of personnel and plant/equipment around the site and minimise potential hazards and vermin.

A Site Waste Management Plan (SWMP) will be produced by the Principal Contractor prior to starting on site. The SWMP aims to minimise waste from imported materials and waste created on site during the construction and excavation processes. The SWMP will minimise the quantities of imported materials through good design and best practice, minimise waste and optimise any waste arisings.

For the duration of the construction period an area will be set aside within the construction compound to accommodate road vehicles for the construction work force and site visitors. Parking will not be permitted in any other areas, on or off site. Segregated areas and signage will be erected within the construction compound to protect the work force from moving vehicles. At the end of the working day all construction diggers, generators, dumpers and cranes will be parked in a safe and secure area with appropriate security equipment fitted to the plant to minimise vandalism and unwanted attention from members of the public. Given the smaller extent of the site, this is likely to be at the construction compound with the exception of the cranes which could remain on the hard standings so long as adequate security was provided.

Traffic movements on local roads will be managed effectively to minimise the impact to local traffic journeys. An outline Construction Traffic Management Plan for offsite vehicular movements has been prepared (refer to Appendix 11.1). A wheel wash will be available at the security compound. All vehicles will be required to exit through the wheel wash to prevent carryover of construction debris to the public road network.

Site Works

Access Tracks

Access to the site is off the A838, along an existing access track which runs along the north-western boundary of the site. More detail of the proposed access route can be found in the Traffic Management Plan (refer to Appendix 11.1).

The design of the access tracks has been developed to minimise track length, reduce environmental impact, shorten construction time, and minimise road-stone requirement. An allowance within the planning application has been made to allow new access tracks to be routed within a micro-siting allowance of up to 50 m to avoid any sensitive ecological, hydrological features and to minimise cut/fill operations and areas of soft or boggy ground or peat.

The access tracks shall have a minimum width of 5 m, with additional local widening on bends, and at passing places. A construction thickness of approximately 250 mm to 600 mm of compacted crushed aggregate will be

applied. This will depend on the construction method and ground conditions established once Ground Investigation is carried out.

Access tracks will be set out at between 500 m and 1,000 m to suit site layout, prior to removal of vegetation and topsoil using GPS surveying equipment. The vegetation and topsoil will then be stripped to formation level ensuring that all turves are stored vegetated side up.

The access tracks shall be constructed on the subsoil. Dependant on ground conditions a Geogrid may be utilised to provide structural stability and a geotextile membrane installed to limit the migration of fines. The geogrid/geotextile shall be laid directly on the subsoil.

All of the upper topsoil layer, together with turves will be stored separately from the rest of the subsoil in piles adjacent to, or near the access tracks for later reinstatement. All soil will be stored in accordance with NatureScot guidance - Good Practice during Wind Farm Construction, General principles for reinstatement of soils.

The access track and running surface will then constructed by tipping and compacting crushed stone to a thickness which allows the required bearing strength to be achieved. This thickness will depend on the underlying ground conditions. The capping layer of stone will comprise finer material to provide a smooth-running surface.

The methodology of construction of the new and upgraded access tracks will be determined following ground investigations and agreed with SEPA.

Snow poles and edge protection will be installed alongside the access tracks.

Following construction, the appropriate topsoil and vegetation shall be used to reinstate the track shoulders and wind turbine foundation areas. Excessive soil, peat and turves will be re-used at suitable pre-determined locations on the site in consultation with the ECoW; avoiding double handling where possible.

The access track layout is shown on Figure 1.2 and construction details in Figure 4.1 to 4.7.

Aggregates will be imported from local quarries with all material being UKAS certified to be free of contamination and/or from onsite borrow pits. Concrete will be delivered from local ready-mix plants.

Sufficient signage will be installed on site to clearly define the boundary of the works and to advise of any hazardous areas accessible to the public. This is detailed further in the Traffic Management Plan (refer to Appendix 11.1). Secure and appropriate boundaries shall be established to ensure that entry to specific hazardous areas of the site by unauthorised persons is prevented.

Watercourse Crossings

Environmental mitigation measures in line with standard good practice guidelines will be adopted during construction to prevent any pollution of the watercourses across the site.

The proposed site infrastructure requires approximately 48 new watercourse crossings comprising four watercourses and 44 minor land drains.

All structures will be designed to allow safe passage of mammals and fish.

The design and installation of the crossings and culverts shall follow appropriate guidance from the following documents:

- SEPA, WAT-PS-06-02: Culverting of Watercourses Position Statement and Supporting Guidance v2 (2015);
- SEPA, WAT-SG-25, Engineering in the Water Environment Good Practice Guide River Crossings (November 2010); and

➤ CIRIA (1997). Culvert Design Manual - Report 168.

Wind Turbine Foundations

Wind turbine foundations are expected to comprise gravity bases. The anticipated construction methodology is described below.

Prior to any excavations the Principal Contractor will ensure that a suitable Sustainable Drainage System (SuDS) drainage system is installed to prevent silt pollution to surrounding area. Once complete the Principal Contractor will strip and set aside existing vegetation, strip and stockpile topsoil from the affected area. They will then excavate subsoil and stockpile in accordance with best practice guidance, locating away from drainage paths and buffer zones to minimise the possibility of silt pollution.

Once excavation has been completed to foundation formation level, a layer of compacted crushed stone will be laid to provide a firm working surface. The blinding concrete will be placed on this to provide a level work surface for the fabrication of reinforcement cages.

Next the steel reinforcement will be lifted into place and the cages will be established. Following completion of the cages the Principal Contractor will place concrete shutters and then commence first phase concrete pours. Once the concrete has cured to the specified strength the shutters will be stripped and set aside for reuse. Electrical ducting will be included within the foundation to ensure cabling is not impeded.

The second phase reinforcement with wind turbine anchor ring will then be installed. Followed by the placing of concrete shutters second phase concrete phase pour. Once the concrete has cured to the specified strength the shutters will be stripped and set aside for reuse.

The Principal Contractor will then backfill around the foundation from stockpiled materials ensuring materials are replaced in layers encountered during initial excavation. Topsoil will be placed to depths encountered during initial excavation. Turves will then be replaced where possible. Alternatively, the Contractor will reseed the area with an approved seed mix.

All earthworks, the storage and movement of materials and reinstatement will be undertaken in accordance with the Peat Management Plan.

Wind Turbine Works

Wind turbine components will be transported to site in accordance with the Traffic Management Plan and Route Survey Review. (refer to Appendix 11.1) Some wind turbine components may be pre-delivered and offloaded at the crane hardstandings or temporary laydown areas. Remaining wind turbine components will be delivered as just-in-time to be lifted directly from haulage vehicles. This will be dependent on the final wind turbine supplier's method statements.

Adverse weather may delay lifting operations. If this is the case and components cannot be lifted just-in-time suitable provision will be made for offloading on hardstandings, or laydown areas. Bog mats may be required to temporarily lay-down components on the ground adjacent to hardstandings.

Wind turbine components will be lifted by adequately sized cranes (a main 1,000 tonne crane and smaller tail crane up to 400 tonne capacity) positioned and fixed as per the wind turbine suppliers method statements.

Upon completion of the erection, all anchor bolts will be tightened and the internal fit out of the wind turbine completed. The wind turbines will then be connected to the sites electrical cable network. Wind turbine testing and commissioning will be undertaken by specialist qualified and experienced engineers.

Adequate temporary lighting will be available for use after dark or in poor lighting conditions.

Upon completion of the erection of the wind turbines, the relevant records will be made available in hard copy, for review and incorporation into the Proposed Developments quality plan.

Wind turbine component deliveries will be co-ordinated by the wind turbine supplier. Specialist haulage vehicles of varying length, dependent upon the component, will be used. The police will be in attendance to escort abnormal loads.

Delivery of wind turbine components will generally be timed to avoid transportation between the hours of 08:30 – 09:30 and 15:30 – 16:30, Monday to Friday to avoid school and commuter traffic on the A9 and local roads.

Maintenance

During construction, the access track network will be subject to continuous heavy plant movements and as a result will likely deteriorate, develop pot-holes or ruts. Any areas, which fail, suffer deterioration or rutting during construction will be restored as part of the ongoing maintenance obligation of the Principal Contractor.

Reinstatement

Reinstatement and restoration of the site will be undertaken as soon as practicable following the completion of each element. Following completion of construction works and when most of the heavy plant has left site, the contractor shall undertake final restoration works. Further detail is provided in the Peat Management Plan.

Environmental Training

Inductions

All project personnel and sub-contractors will receive an Environmental Induction. No personnel, including sub-contractors, will be permitted to undertake any work on site without undertaking a site induction. The site induction will evolve to reflect changes in the CEMP as the project develops. Environmental topics covered in the induction shall include, but will not be limited to:

- Water Resources;
- Pollution Prevention;
- Emergency Response Procedures;
- Waste Management and Housekeeping;
- Management Structure;
- Duties and Responsibilities;
- Relevant Procedures;
- Ecologically and Ornithological Sensitive Areas and Times;
- Incident and Non-Conformance Reporting;
- Consents and Licenses and compliance;
- Legislation; and
- Environmental Good Practice.

Toolbox Talks

Toolbox Talks (TBT) on specialised topics shall supplement the induction course. Toolbox talks shall be used to highlight issues of concern and to disseminate any new information or responsibilities. They will also be used as a means of providing basic environmental training to crews on a specialised topic, e.g. water management. The TBT also offer site personnel the opportunity to provide feedback.

- There is a change to existing legislation, which requires an operational change;
- Site inspections or audits have identified corrective actions which require rolling out;

- Work is being undertaken in particularly sensitive areas; and
- There are significant changes in environmental conditions, e.g. heavy rainfall.

Records of all TBTs undertaken, including attendance, will be maintained.

Outline Noise and Vibration Management Plan

A Noise and Vibration Management Plan will detail the mitigation measures that will be implemented by the Principal Contractor to minimise noise impacts arising from activities relating to the construction of the Proposed Development.

All noise during construction will be managed under the UK Statutory Instruments that limit noise emissions of construction plant, including:

- guidance set out in BS 5228-1:2009+A1:2014 which covers noise control on construction sites; and
- the powers that exist for local authorities under Section 60 of the Control of Pollution Act 1974 to control environmental noise on construction sites; and
- the adoption of Best Practicable Means (as defined in Section 72 of the Control of Pollution Act 1974).
- All sub-contractors of the Principal Contractor will be formally required through contract to comply with the noise mitigation measures outlined below.

The following mitigation measures will be implemented by the Contractor to minimise noise impacts on noise sensitive receptors:

- Where it is reasonable and feasible, the quietest construction methods will be used. The Principal Contractor will aim to reduce all noise emissions, regardless of the threshold limits.
- The Principal Contractor's appointed Principal Designer will monitor construction activities at regular intervals to ensure that appropriate Personal Protective Equipment is being used by staff during activities identified by Risk Assessments.
- Site inspections shall be undertaken to ensure that plant is being operated with any specified acoustic covers in place. Any excessively noisy plant will be removed from the Proposed Development site for repair or maintenance.
- Local hoarding, screens or barriers to be erected as necessary to shield particularly noisy activities.
- Plant and equipment:
 - All equipment will be switched off when not in use (including during breaks and down times of more than 30 minutes).
 - The Principal Contractor will ensure that where possible, noisy plant will not be used simultaneously and/or close together to avoid cumulative noise impacts.
 - Any compressors brought on to site to be silenced or sound reduced models fitted with acoustics enclosures.
 - All pneumatic tools to be fitted with silencers or mufflers.
 - All plant items to be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise.
 - All plant to be sited so that the noise impact at nearby noise-sensitive receptors is minimised.
 - If required fixed plant will include a noise mitigation scheme to ensure that noise limits are achieved.

- Fixed and mobile plant used within the site during the construction period shall not incorporate bleeping type warning devices that are audible outwith the site boundary unless required for health and safety reasons.
- Where practicable, and required, noise from fixed plant and equipment will be contained within suitable acoustic enclosures or behind acoustic screens.
- Traffic and deliveries:
 - Where possible loading and unloading will be undertaken away from residences.
 - The majority of deliveries will be programmed to arrive during normal working hours only.
 - Care will be taken when unloading vehicles to minimised noise. Delivery vehicles to be routed so as to minimise disturbance to local residents.
 - Construction traffic would be prohibited from un-necessary idling within the site boundary or at the site access points.
 - Night-time deliveries will be minimal and will only be undertaken with special consideration. Care will be taken to minimise noise when unloading vehicles.

Noise Complaints

The Principal Contractor's Site Environmental Representative (likely to be the Site Manager) will be the first point of contact for any queries and/or grievances regarding the construction of the Proposed Development. They will be responsible for recording all queries and/or issues raised, for responding in an appropriate and timely manner, for monitoring any actions that require to be implemented.

The Contractor's Site Environmental Representative will be responsible for recording all complaints raised regarding noise, for liaison with the Contractor and construction staff, and for ensuring that appropriate action is undertaken. The Contractor's Site Environmental Representative will also be responsible for responding to the complaint and explaining the actions undertaken to address the complaint. A record of all complaints made and the actions taken will be maintained and will be available to THC Environmental Health Officer upon request.

Should a noise complaint be made to THC relating to noise emission from construction of the Proposed Development, the Contractor will, within 28 days and at their own expense, employ an independent noise consultant to measure the level of noise emission from the Proposed Development at the property to which the complaint relates. The Contractor shall obtain approval of the employment of the independent noise consultant by THC prior to the noise measurements being undertaken.

The Contractor will provide THC with the independent noise consultants assessment and conclusions (including all calculations, recordings and raw data) within three months of the date of the written request of THC.

Outline Peat Management Plan

An Outline Peat Management Plan is provided in Appendix 12.2.

This will be updated prior to construction commencing and details will be referenced within the CEMP.

Outline Pollution Prevention Plan

Introduction

This outline Pollution Prevention Plan (oPPP) details the controls which, in conjunction with the mitigation measures outlined throughout the CEMP, aims to avoid pollution incidence. It also provides details of the measures to be implemented should a pollution event occur.

Legislation

The legislation and guidance relevant to the oPPP includes but is not limited to:

- Control of Pollution Act 1974;
- Environmental Protection Act 1990;
- The Environment Act 1995;
- Control of Substances Hazardous to Health Regulation 2002;
- Clean Neighbourhoods and Environment Act 2005;
- Environmental Liability (Scotland) Regulations 2009;
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- The Water Environment (Controlled Activities) (Scotland) Regulations – A Practical Guide; and
- Guidance for Pollution Prevention 21: Pollution incident response planning (NetRegs, 2017).

Contacts

The following contacts within Table 3 should be contacted in the case of an emergency by any member of staff:

Table 3 - Emergency Contacts

Contact	Office hours	Out of hours	Address
Fire Department	999 (01862 811044)	999	Main Street, Lairg, Highland, IV27 4DB
Police Department	999 (01786 289070)	999	A837, Lochinver, Lairg, IV27 4XF
Ambulance Service	999	999	Lawson Memorial Hospital 5 Ben Bhraggie Terrace, Golspie KW10 6SU

The following staff in Table 4 should be contacted following any pollution incidence by the site operations staff:

Table 4 - Internal Contacts for any Pollution Incidence

Contact	Office hours	Out of hours	Address
Principal Contractor Emergency Response	TBC	TBC	TBC
Applicant's ECoW	TBC	TBC	TBC

The following should only be contacted by the Applicant's ECoW or the Principal Contractor's Site Manager as required following a pollution incidence.

Contact	Office hours	Out of hours	Address
SEPA	01349 862021 (Dingwall office)	N/A	10 Fodderty Way, Dingwall, IV15 9XB
NatureScot	01349 865333 (Dingwall office)	N/A	6 Fodderty Way, Dingwall, IV15 9XB
Scottish Water	0800 0778 778	0800 0778 778	-
Scottish Hydro Electric Power Distribution	105	105	-
Waste Management Contractor	TBC	TBC	TBC
Specialist Clean Up	TBC	TBC	TBC
Other	TBC	TBC	TBC

Potential Pollutants

This section of the PPP provides details of the chemicals, products and/or wastes which will be used/created during the construction of the Proposed Development which could potentially cause a pollution incidence. Table 5 will be continually updated throughout the construction period when potential pollutants are identified.

Table 5 - Site Chemical, Product and Waste Inventory

Chemical/ Product/ Waste	State	Maximum volume on site	Location	Containment	Risk
Diesel	Liquid	TBC	Within vehicles Site compound (TBC)	TBC	Flammable
Engine oil	Liquid	TBC	Within vehicles Site compound (TBC)	TBC	Flammable
Hydraulic oil	Liquid	TBC	Within vehicles Site compound (TBC)	TBC	Flammable
Cement	Powder	TBC	TBC	TBC	Irritant
	Liquid	TBC	TBC	TBC	Irritant
Black water	Liquid	TBC	TBC	TBC	Toxic
Paint	Liquid	TBC	TBC	TBC	Toxic
Cleaning fluid	Liquid	TBC	TBC	TBC	Irritant
Other	TBC	TBC	TBC	TBC	TBC

Pollution Prevention

Following the pre-construction surveys, the Principal Contractor, in consultation with the Applicant's ECoW, will identify the sensitive locations within the Proposed Development site on a site plan. Sensitive locations will

include watercourses, areas of ground-water dependent terrestrial ecosystems and areas identified as protected species habitat.

Following the detailed design and prior to construction, a site drainage plan will be included within the PPP which will detail:

- all watercourses, springs, boreholes or wells located within or adjacent to the Development site and the direction of flow;
- site access for emergency vehicles;
- locations of soakaways receiving outflow;
- locations of fire hydrants and spill kits;
- locations for storage of materials; and
- locations of inspection points, oil separators, and locations suitable for portable storage tanks and/or drain blocking.

Pollution Response

Procedure

Following any pollution incident, the following will be undertaken:

- construction work will halt immediately at the location of the incidence.
- where safe to do so, the source of the incident will be moved away from the receptor/turned off.
- staff will deploy spill-kits as appropriate.
- the Section Agent at the location of the incident will contact the Principal Contractor Site Manager and inform them of the incident who will in-turn inform the Health and Safety Advisor.
- the Health and Safety Advisor and Site Manager will proceed to the location of the incident to assess the health, safety and environmental risk.
- the Principal Contractor's Health and Safety Advisor and Site Manager will request additional resources/equipment as required to mitigate the impact of the incident.
- the Site Manager will record the incidence and report to the Applicant's ECoW.

Equipment

The Principal Contractor will hold on site the following equipment to address a pollution incident:

- absorbents;
- drain mats/covers;
- pipe blockers;
- booms;
- plant nappies;
- drainage trays; and
- pumps.

Reporting

The Principal Contractor will investigate all pollution incidents and provide reports to the Applicant detailing the following:

- a description of the pollution incident;
- the causes of the pollution incident;
- the impacts of the pollution incident;
- measures implemented to mitigate the pollution incident; and
- lessons learned and measures implemented to prevent a repeat occurrence.

Training

Prior to commencing on site all staff will undergo PPP training. This training will cover, but is not limited to:

- legal responsibilities of all staff;
- prevention of a pollution incident;
- response to a pollution incident; and
- location and correct use of response equipment and of Personal Protection Equipment (PPE).

Details of the staff trained in the pollution incident response will be included within Table 6 here.

Table 6 - Staff Trained in Pollution Incident Response

Staff	Training	Date	Date of Training Update
TBC	TBC	TBC	TBC

Testing

Prior to construction commencing, the Principal Contractor will undertake testing of the PPP and will update and amend the PPP as required.

Outline Ground and Surface Water Monitoring Plan

Introduction

Construction of the Proposed Development will require activities to be undertaken near surface watercourses and waterbodies, or peat deposits. Internal tracks are proposed to cross several watercourses or field drains. This will be done by the installation of bridges, culverts or pipes. Surface water will be routed to drainage channels and runoff discharged back into greenfield areas.

This outline Ground & Surface Water Management Plan (oGSWMP) outlines the key issues pertaining to the construction of the Development and the mitigation measures proposed to reduce potential effects.

Key Issues

Watercourse Crossing

The proposed site infrastructure requires approximately 48 new watercourse crossings comprising four watercourses and 44 minor land drains.

The Principal Contractor will be responsible for submitting Controlled Activity Regulation (CAR) applications to SEPA for the construction of the new crossings, as required. Following agreement, details of the applications will be appended to the final CEMP.

Runoff

Silt-laden surface runoff has the potential to enter watercourses and field drains, particularly during periods of heavy rainfall. This runoff is predicted to occur from excavation works, exposed ground and stockpiles on site. This could temporarily impact the water quality of watercourses downstream from the Development construction works.

Soil compaction may occur due to permanent road construction and movement of construction vehicles and plant. This could result in reduced water permeability of the soil into the ground, resulting in increased contaminated surface water runoff. There is also the possibility of increased localised flooding due to the reduced water storage capacity of soil. Burn bank structural integrity could potentially be damaged from construction activities. This could be directly, or via indirect loosening of soil structure, causing erosion or collapse. This could result in water quality and localised morphology impacts.

Pollutants

Spills and leaks may mobilise oils, fuels and cement, which have the potential to be carried in surface water. These pollutants could be carried into watercourses, impacting on ecological habitats and freshwater quality. Untreated foul sewage from welfare facilities during construction has the potential to discharge directly into surrounding watercourses unless appropriately managed.

Mitigation Measures

General

The Principal Contractor will abide and by the Guidance for Pollution Prevention (GPPs) and Pollution Prevention Guidance (PPGs) where still relevant (NetRegs, 2018), including:

- GPP 2: Above ground oil storage tanks;
- PPG3: Use and design of oil separators in surface water drainage systems;
- GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer;

- GPP5: Works and maintenance in or near water;
- PPG6: Working at construction and demolition sites; and
- GPP13: Vehicle washing and cleaning.

The Principal Contractor will abide by all CAR requirements (including the requirement to implement construction specific SuDS where required) and follow the guidance provided in Good Practice during Wind Farms Construction Version 3 (Scottish Renewables, et al., 2015).

Monitoring

Pre-construction Monitoring

No more than 12 weeks before construction commences baseline surveys will be undertaken to record the current status of the main watercourses. This will include the following:

- Photographic record of the watercourse crossing point;
- Record of flow and sediment type at watercourse crossing point; and
- Water quality samples from the water quality monitoring locations analysed for the following:
 - pH;
 - alkalinity;
 - electrical conductivity;
 - dissolved oxygen;
 - total suspended solids;
 - nitrate;
 - phosphate;
 - sulphate;
 - dissolved organic carbon (DOC);
 - total organic carbon (TOC);
 - turbidity;
 - aluminium;
 - iron;
 - manganese; and
 - total petroleum hydrocarbons (THP).

Table 7 - Water Quality Monitoring Locations (to be confirmed and agreed post consent)

Location	X coordinate	Y coordinate	Watercourse

Construction Monitoring

Water quality monitoring will be undertaken by the Principal Contractor. The Principal Contractor will appoint a member of staff who is appropriately trained in water quality monitoring.

Regular (e.g. daily/weekly) inspections of watercourses close to construction activities will be undertaken by the Principal Contractor to identify:

- pollution risks that are unacceptably high;
- spillages or leakages;
- non-compliance with this CEMP;
- monitoring of over-pumping arrangements if required; and
- incidences of pollution.

The Principal Contractor will be responsible for recording the results of the regular inspections, recommending appropriate actions, and monitoring the implementation and outcome of such actions.

The Principal Contractor will take monthly water samples suspended solids readings at the approximate locations provided in Table 7 (the exact locations will be confirmed by the Principal Contractor following appointment).

These samples will be analysed for the following:

- pH;
- alkalinity;
- electrical conductivity;
- dissolved oxygen;
- total suspended solids;
- nitrate;
- phosphate;
- sulphate;
- dissolved organic carbon (DOC);
- total organic carbon (TOC);
- turbidity;
- aluminium;
- iron;
- manganese; and
- total petroleum hydrocarbons (THP).

The Principal Contractor will be responsible for reporting to the Applicant if there are unacceptable alterations to the baseline. The Principal Contractor will be responsible for determining the cause of the alteration and implementing appropriate mitigation or changes to practice to reduce/remove this change, if caused by construction activities.

Details of operational water quality monitoring will be provided within the Operational Environmental Management Plan (OEMP).

Watercourse Crossings

All watercourse crossings will be subject to detailed design in accordance with the Water Environment (Controlled Activities) (Scotland) Regulations 2011. The detailed design for the watercourse crossings, and the requirements for CAR authorisations or licences will be agreed with SEPA prior to construction in order to ensure that impacts on fluvial geomorphology are minimised and acceptable to SEPA.

Details regarding watercourse crossings are provided in Appendix 12.3.

Drainage and Runoff

Operational Drainage Design

A Drainage Strategy for the Development will be developed pre-construction.

The detailed design of the drainage systems will be agreed with THC and SEPA, to mitigate the potential effects of acidification.

Construction Drainage

All works associated with earth movement or similar processes will be carried out in accordance with the BSI Code of Practice for Earth Works BS6031:1981.

Due to the location of the Development site, there is a high likelihood of rainfall throughout the year. Site management will check the local weather forecast daily and ensure all staff are aware, in order to maintain pollution control and runoff in periods of rainfall.

If working platforms are required, they will be formed in such a way that surface water drains away from watercourses.

Temporary drainage systems will be used to alleviate localised flood risk and prevent the obstruction of surface runoff pathways. Where required, temporary attenuation ponds will be provided to reduce silted run-off from the access tracks entering watercourses. If flocculants are considered necessary to aid settlement of fine suspended solids such as clay particles, the chemicals used must first be approved by SEPA.

The requirement for dewatering will be minimised in all locations by the timely and efficient excavation of the foundation void and subsequent concrete pouring and backfilling.

Access tracks will be kept to the shortest length possible, and tracks will be designed to spread the load of plant and vehicles to minimise soil compaction and therefore potentially reduce surface water runoff.

Pollution Prevention

Spill kits will be kept in all vehicles, and soakage pads and oil booms maintained in all work areas. This will enable the rapid and effective response to accidental spillages. All construction staff will be trained in equipment use.

All vehicle maintenance, fuelling and washing will be undertaken on appropriate impermeable surfaces away from watercourses in order to minimise risk of leaks so soil and surface waters. All construction and plant vehicles will be regularly maintained.

The Principal Contractor will develop a specific method statement to address the transport, transfer, handling and pouring of liquid concrete at foundations.

All operations involving concrete transfer between vehicles, or into vehicles will take place out with 30 m of watercourses or waterbodies to ensure cement, unset concrete and grout to not enter the water environment.

Concrete wash out locations will be located in both construction compounds. The Principal Contractor will ensure that these are regularly cleaned, and the waste disposed. Concrete and wash out liquid will not be discharged into drains or watercourses on site or at compounds. Drainage will be collected and treated or removed to an appropriate treatment point or licensed disposal site.

Storage of Fuel/Chemicals

Stationary oil storage tanks will be located above the 0.5% Annual Exceedance Probability (AEP) (1 in 200 year return period) flood level. Plant and material will be stored in safe areas above the 0.5% AEP (1 in 200 year return period), where practicable and temporary construction works will aim to be resistant to flood impacts in order to prevent movement or damage during potential flooding events.

To mitigate potential pollution from chemical contaminated runoff, all fuels and chemicals will be stored in accordance with best practice procedures. This will include a designated fuelling site at a safe distance from watercourses, and in appropriate impermeable bunded containers or areas. These containers/areas will be designed to capture any leakages, from a tank or associated equipment.

Untreated Foul Drainage

The welfare facilities will connect to a septic tank or self-contained storage tanks. The tanks will be emptied and maintained on a regular basis by a suitably licensed contractor.

Dust and Air Pollution Management

It is anticipated that the following mitigation measures will be implemented throughout the construction period:

- Throughout construction best practice will be implemented to prevent pollution;
- The construction site layout will be designed to locate machinery and dust causing activities away from receptors where possible;
- The Principal Contractor will review the daily weather reports and communicate with the Section Engineers so that works can be planned to minimise effects on sensitive receptors; and
- The Principal Contractor will maintain a water bowser on site to suppress dust along the access tracks as required. If there is a risk of fugitive dust arising from the site works, water spray systems may be set-up to dampen down the material. The Principal Contractor will ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.

Transportation and Storage of Materials

The following mitigation measures will be implemented to limit emissions and dust creation from the transportation and storage of materials and from the movement of vehicles associated with the Development:

- The Principal Contractor will use a water-assisted dust sweeper(s) on the access tracks and local roads, to remove, as necessary, any material tracked out of the site;
- All vehicles entering and leaving sites will be monitored to ensure they are covered to prevent escape of materials during transport;
- A wheel washing system will be implemented. This would contain rumble grids to dislodge accumulated dust and mud prior to leaving the site. The Contractor will ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits;
- The Principal Contractor will ensure fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery;
- For smaller supplies of fine powder, materials bags will be sealed after use and stored appropriately to prevent dust;
- Stockpiles will be covered, seeded or fenced to prevent wind whipping;
- Materials will be removed that have potential to produce dust from site as soon as possible, unless being re-used on site;
- The Principal Contractor will 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 it will ensure that appropriate control measures are in place; and
- The number of handling operations for materials will be kept to the minimum practicable.

Construction Plant

The following mitigation measures will be implemented to limit plant emissions and dust creation:

- All staff will operate plant and vehicles in accordance with the manufacturer's instructions. If possible, filters will be provided on plant anticipated to generate excess emissions. In addition, dust extractors, filters or collectors may be used;

- 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;
- All plant and vehicles will be turned off when not in use and will not be left idling. The movement of vehicles around the site will be minimised where possible;
- Where possible, construction plant will be located away from the site boundary and from sensitive receptors;
- Use enclosed chutes and conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Where reasonable and practical, the Principal Contractor will avoid the use of diesel or petrol-powered plant and will power plant through the use of mains or battery powered generators.

Earthworks

- Stripping of topsoil will occur as close as reasonably practicable to the period of excavation or other earthworks activities to avoid risks associated with run-off or dust generation;
- Drop heights from excavators to vehicles involved in the transport of excavated material will be kept to the minimum practicable to control dust generation associated with the fall of materials.;
- All deposited materials will be compacted, with the exception of topsoil, as soon as possible after deposition; and
- Soiling, seeding, planting or sealing of completed earthworks will be undertaken as soon as reasonably practicable following completion of the earthworks.

Air Quality Complaints

All dust and air quality complaints will be recorded, causes identified, appropriate measures taken to reduce the emissions in a timely manner and the results recorded by the Contractor's Site Environmental Representative. The complaints log will be made available to THC Environmental Health Officer, if required.

Site Waste Management

It is not anticipated there will be significant quantities of waste from the short construction period of the Proposed Development.

A Site Waste Management Plan will be kept on site, detailing how waste is managed.

Fully enclosed skips and other smaller containers will be used for all wastes on site. Separate skips, as detailed below, will be held on site to allow segregation of waste materials for recycling or recovery.

- general mixed non-hazardous;
- wood;
- metal;
- hazardous (special) – depending on the types of special waste generated, separate containers may be used;
- plastics; and
- inert construction waste.

All the legal documents to ensure the Duty of Care for waste will be kept on site during the construction of the extension.

All waste leaving the site will be accompanied with a Waste Transfer Note (WTN) (for non-hazardous) or Special Waste Consignment Note (SWCN). These will be checked by the site manager to ensure that the following information is detailed:

- producer of the waste;
- site name & location;
- date;
- description of the waste (i.e. contents and volume);
- EWC code;
- signature of the waste carrier; and
- name of disposal site.

Once complete, the WTN / SWCN will be signed by the Principal Contractor and a copy retained.

SEPA will be notified a minimum of 72 hours prior to the transfer of Hazardous/Special waste. The Principal Contractor will confirm whether the waste carrier will undertake the appropriate notification.

Regular waste audits will be undertaken by the Principal Contractor to check for the following:

- containers are adequately signed;
- containers are being filled fully prior to uplift;
- there is no cross contamination of materials (e.g. hazardous and non-hazardous or wood and metal etc.);
- food and hazardous wastes are contained in covered containers;
- containers are fit for purpose – i.e. adequately sized and structurally sound; and
- waste documentation is being retained, e.g. WTN's.

Drainage Strategy

Prior to construction, a detailed Drainage Strategy (DS) would be developed and agreed with SEPA and THC. The DS would detail the site drainage design, including the type of surface to be used for the access track, the soft engineering and habitat enhancement measures proposed to slow surface water flows and any necessary ponds, swales, cross drains and bunds, to ensure that runoff from hard surfaces and borrow pit excavations would be controlled. The DS would also detail the dimensions and final design of the new and upgraded water crossings, which would be designed to maintain continuous flows.

Outline Ecology Management Plan

An Outline Habitat Management Plan is provided in Appendix 7.6 and the below is specifically in reference to construction.

General Best Practice

The Applicant will appoint a suitably qualified ECoW prior to the commencement of any construction activities take place. The ECoW will be present and oversee all construction activities as well providing toolbox talks to all site personnel with regards to priority species and habitats, as well as undertaking monitoring works and briefings to relevant staff and contractors as appropriate.

Not more than eight months prior to construction, the ECoW will undertake a series of pre-construction ecological surveys to update the baseline information contained within the EIA Report. The aim of these surveys will be to provide up to date information in order to finalise required mitigation proposals, in addition to completing a final check prior to construction for protected species. The CEMP will be updated with the latest survey results and management requirements.

Plant and personnel will be constrained to a prescribed working corridor through the use of temporary barriers, thereby minimising damage to habitats and potential direct mortality and disturbance to species.

Works compound, storage sites and access tracks will avoid, as far as practicable, areas identified as being of ecological value by the ECoW.

Any required culverts will be designed to be adequately sized and orientated in the correct direction for wildlife in accordance with good practice.

Any trenches dug during construction and decommissioning operations will be covered at the end of each day. Alternatively, mammal ramps will be positioned in such a way that trapped mammals may be allowed to escape.

All exposed pipes and trenches will be checked each morning prior to starting construction activities. If trapped animals are found, the ECoW or specialist animal handler will be contacted to remove any distressed animals.

Regular ecological toolbox talks will be given to all site personnel on the potential presence of protected species and any measures that need to be undertaken should such species be discovered during construction activities.

As part of the environmental tool box talks given to site construction staff, the importance of adhering to speed restrictions and watching out for wildlife will be highlighted.

Breeding Birds

Further to or incorporated into the update surveys above, protection of breeding bird nests from damage and/or destruction during the breeding season will need to be ensured. Wherever possible, all vegetation clearance will occur outside the breeding season (i.e. between September - February, inclusive), to ensure that no active nests are damaged or destroyed by the proposed works. This would include any areas of shrub clearance and vegetation removal for access tracks, compounds or turbine bases due to the populations of ground nesting birds on and around the site.

Removing vegetation from working areas outside the breeding season, wherever possible between October and February inclusive but preferably between November and January, would also reduce the attractiveness of those areas to breeding birds the following season, which means that birds are less likely to breed in those areas.

Avoidance of unnecessary disturbance to habitats by minimising the extent of ground clearance and other construction practices as far as practicable.

Habitats

The ECoW will develop a Species Protection Plan (SPP) which will form part of the CEMP. This will be implemented by the Principal Contractor to ensure those areas of habitat that have been temporarily lost during construction are successfully re-instated after construction has finished.

In order to facilitate restoration, disturbed ground will be restored as soon as practically possible using materials removed during the construction of access tracks, excavation of cable trenches and wind turbine foundations. To achieve this, any excavated soil will be stored in such a manner that is suitable to facilitate retention of the seed bank. This will aid site restoration and help conserve the pre-construction floristic interest at the site. Access tracks will be allowed to re-seed naturally during operation.

Traffic Management Plan.

Outline Traffic Management Plan proposals are provided in Appendix 11.1.

This will be updated prior to construction commencing and details will be referenced within the CEMP.

Archaeology Management Plan

Written guidelines will be issued for use by all construction contractors and will be contained within the CEMP. The guidelines would contain arrangements for calling upon retained professional support in the event that buried archaeological remains of potential archaeological interest (such as building remains, human remains, artefacts, etc.) should be discovered in areas not subject to archaeological monitoring.

If archaeologically significant discoveries are made during construction work, and it is not possible to preserve the discovered remains in situ, provision would be made for appropriate mitigation to scope and standards to be agreed with THC Historic Environment Team. The provision would include the consequent production of written reports, on the findings, with post-excavation analysis and publication of the results of the works, where appropriate.

Conclusions

The purpose of this CEMP is to ensure that all construction activities carried out at the Proposed Development are in a manner which minimises impact on the environment. This document has been produced to remind individuals working on the site of their responsibilities and to ensure that measures to prevent, reduce or mitigate potentially adverse environmental impacts identified in the Environmental Statement and this CEMP are carried out.

The CEMP has been developed to advise of good construction practices and ensure they are adopted and maintained throughout the construction of the Proposed Development. As part of this a framework for mitigating unexpected impacts during construction has been developed and is detailed within this CEMP.

The CEMP has been prepared to provide assurance to third parties that their requirements and expectations with respect to environmental performance are met, whilst providing a mechanism for ensuring compliance with current environmental legislation and statutory consents.

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