



# Clune Wind Farm

## Technical Appendix 3.3

### Outline Pollution Prevention Plan

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## Contents

1	Introduction .....	1
2	Description of the Site .....	1
3	References, Guidance and Legislative Requirements.....	3
4	Potential Sources of Pollution .....	4
5	Pollution Prevention Proposals .....	5
6	Controlling Run-off .....	8
7	Watercourse Crossings .....	9
8	Foul Drainage / Treated Discharges.....	9
9	Post Construction Monitoring .....	10

# 1 Introduction

- 1.1.1 This outline Pollution Prevention Plan (PPP) is submitted by the applicant. The principal objective of this document is to provide details of the proposed surface water drainage management arrangements for the Proposed Development.
- 1.1.2 As the outline PPP is being prepared as part of the planning application, the applicant is yet to appoint a contractor to undertake the civil engineering works. It is proposed that the contractor appointed to construct the Proposed Development will refine this outline PPP prior to construction to ensure it is fit for purpose.
- 1.1.3 The Figures referenced within the outline PPP have been produced for the Clune Wind Farm Environmental Impact Assessment Report (EIAR) and to avoid unnecessary duplication they have not been reproduced in this document but instead signposted to the relevant location within the EIAR.

# 2 Description of the Site

- 2.1.1 The Proposed Development is located adjacent to the U2856, and approximately 5.5km southeast<sup>1</sup> of Tomatin in the Scottish Highlands.
- 2.1.2 The extents of the Site are indicated by the red line boundary as indicated on Figure 1.2 of the EIAR.
- 2.1.3 The approximate centre of the Site is Ordnance Survey grid reference E279887, N823265, and covers an area of approximately 3,292.35ha with wind turbines occupying several hills including Carn Ruighe Shamhraich, Carn Coire na Caorach, Carn Mheadhoin, and Carn Bad na Daimh. The site is currently used predominately for hunting sport and sheep grazing.
- 2.1.4 The Site can be approximately divided by four main watercourses that flow north into the River Findhorn: Allt Phris, Clune Burn, Allt Lathach, and Wester Strathnoon Burn. The A9 and U2856 pass to the northwest of the site, and the Kinveachy Forest SSSI/SPA/SAC lies to the east and southeast of the site. The operational Farr Wind Farm sits approximately 6km to the northwest of the site.

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<sup>1</sup> This distance is given to the approximate centre point of the Site.

- 2.1.5 The Proposed Development is shown on Figure 1.3 of the EIAR.
- 2.1.6 The total construction area for the Proposed Development is approximately 117.4ha. This allows for a construction footprint around the infrastructure and an estimated buffer for spoil placement (temporary and permanent). Where sites are greater than 4ha and discharge water run-off to the water environment The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR) requires a license to be applied for.
- 2.1.7 It is intended that this outline PPP is developed further through provision of detailed plans and calculations for surface water drainage management on the site.

## 2.2 Existing Hydrology

- 2.2.1 Information from SEPA's Water Classification Hub indicates that there are several rivers on and close to the Proposed Development.
- 2.2.2 The River Dulnain - Allt an Aonaich (ID: 23110), is located within the north-east corner of the Proposed Development and is classified as 'good' in this area.
- 2.2.3 River Dulnain - upper catchment is a river (ID: 23107), located approximately 1km south of the Site boundary, flowing north to south. The main stem is approximately 24.5km in length.
- 2.2.4 The River Findhorn (ID:23012) is a major river located approximately 500m north of the Site boundary, flowing south to north. The main tributary of the river is approximately 8.8km in length and out with the Proposed Development area.

## 2.3 Existing Geology

### Superficial Geology

- 2.3.1 Based on the available BGS online data the superficial geology in the north-western extent of the Site comprises of glacial till and glaciofluvial deposits. There are minor deposits of peat and blanket head deposits present.
- 2.3.2 The central area of the Site is formed of glacial till and peat deposits whilst the southern extent is underlain by predominantly peat and glacial till.

2.3.3 There are areas with no superficial deposits mapped and these relate to the hill tops. Within gulleys and rivers alluvium deposits are mapped.

### Bedrock Geology

2.3.4 Based on the available BGS online data the majority of the Site is underlain by gneissose semipelites and psammities of the Dalradian Supergroup, Beinn Bhreac Psammite Formation, Glen Banchor Subgroup and Slochd Psammite Formation.

2.3.5 The centre of the Site, near An Socach comprises of the Loch Laggan Psammite Formation. The area south of Carn Ruighe Shamraich contains a minor unit of the Ardair Semipelite Formation.

## 3 References, Guidance and Legislative Requirements

### 3.1 References

3.1.1 This document should be read in conjunction with the following documents:

- Clune Wind Farm EIA Volume 1 - Chapter 9 - Geology, Hydrology and Hydrogeology.
- Clune Wind Farm EIA Volume 3 - Technical Appendix 9.2 Peat Management Plan
- Clune Wind Farm EIA Volume 3 - Technical Appendix 3.1 Outline Construction Environmental Management Plan.

### 3.2 Relevant Guidance and Legislative Requirements

- All surface water drainage management relating to the proposed development will be constructed using best practice and in conformance with the requirements of the relevant regulatory authorities. The key legislation and guidance that will be adhered to, are as follows:
- The EU Water Framework Directive (2000/60/EC);
- Scottish Planning Policy;
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- SEPA Supporting Guidance (WAT-SG-75) Sector Specific Guidance: Construction Sites, Sept 2021;

- SEPA Guidance for Pollution Prevention (GPPs and PPGs);
- Engineering in the Water Environment, Good Practice Guide, Temporary Construction Methods, First Edition, March 2009 (WAT-SG-29);
- Good Practice during Wind Farm Construction, A joint publication by Scottish Renewables, Nature Scot, Scottish Environment Protection Agency, Forestry Commission Scotland, Jul 2024;
- Onshore Wind Energy Supplementary Guidance, Nov 2016;
- Addendum Supplementary Guidance: 'Part 2b', Dec 2017;
- Highland Wide Local Development Plan (HwLDP), Apr 2012;
- The Sustainable Urban Drainage Scottish Working Party (SuDSWP) Water Assessment and Drainage Assessment Guide;
- CIRIA Guidance. C532, C609, C648, C649, C698, X108, C768; and
- The SuDS Manual 2015. CIRIA C753.

## 4 Potential Sources of Pollution

4.1.1 The following potential sources of pollution have been identified for the proposed development:

- Suspended solids / fines laden run-off from site won / imported stone for track / hardstand construction;
- Suspended solids / fines laden run-off from exposed excavations;
- Suspended solids / fines laden run-off from excavations in watercourses;
- Fuel / chemical spills;
- Concrete from spills / washouts; and
- Foul drainage discharges from temporary and permanent welfare facilities.

4.1.2 The subsequent sections outline how the risk of pollution from the identified pollution sources will be mitigated.

## 5 Pollution Prevention Proposals

### 5.1 Surface Water Drainage Management

- 5.1.1 A Sustainable Drainage System (SuDS) will be implemented in accordance with the principles laid out in the Chapter 9 - Geology, Hydrology and Hydrogeology. The overarching aim of the SuDS design is to minimise, where possible, any change to the hydrology and groundwater conditions within the Site. The SuDS will utilise a series of surface water drainage management techniques that will mitigate any adverse impact on the hydrology of the Site.
- 5.1.2 Figures 3.7a - 3.7d - Typical Drainage Details provides details of the SuDS that will be implemented at the proposed development.

#### Water Quality and Treatment

- 5.1.3 A surface water treatment system will be implemented for the treatment of surface water run-off from the proposed development during the construction phase prior to flows entering receiving watercourses.
- 5.1.4 All temporary and permanent SuDS from the Proposed Development will have a minimum three stages of treatment. A single stage of treatment is considered as any of the following:
- Conveyance through a swale;
  - Filtration of water through filter media (e.g. check dam);
  - Detention in settlement ponds / behind dam in overland breakout; and
  - Filtration / settlement across vegetated ground.
- 5.1.5 Clean water (groundwater, natural overland flows, watercourses, etc.) and dirty water (from tracks, hardstands and cut slopes) will be as far as practicably possible kept separate. Reducing the volume of water entering the surface water treatment system will significantly improve the performance of the treatment. Where appropriate, a cut off swale will be installed to ensure that surface water run-off can be directed around areas of work and consequently reduce volumes of silt laden construction run-off.

#### Prevention

- 5.1.6 Potential causes of pollution will be managed at their source. The following working methods will be adopted to avoid mobilisation of pollutants:

- Areas stripped of vegetation will be kept to a minimum. Stripped vegetation will be reinstated on slopes as soon as possible after removal;
- Where necessary, biodegradable matting will be utilised on cut slopes to prevent washing of fines into the surface water treatment system; and,
- Good quality stone will be used in track and hardstand construction. Construction material will be specified in accordance with the Specification for Highway Works (SHW). SHW compliant material does not permit the use of large quantities of fine material and therefore all material imported to site will not be heavily laden with silt / fines. Regular inspections and testing of material will ensure the construction material is compliant with the SHW.

### Source Control

- 5.1.7 Potential causes of pollution will be controlled at source. Flows from excavations and hardstand areas will discharge into swales. Check dams will be installed in the swales at regular intervals to provide a level of attenuation, reduce water velocity, and promote settlement of suspended solids and silt.

### Buffer Zones

- 5.1.8 Wind turbine centres are located a minimum of 60m from watercourses.
- 5.1.9 A 10m buffer zone will be employed for all main watercourses in accordance with GPP5: Works or maintenance in or near water (2018). Where this is impossible at watercourse crossing locations, works will be in accordance with the relevant guidance outlined in Section 3.2.
- 5.1.10 Washing out of concrete mixer lorries will be strictly controlled and limited to a designated wash area a minimum of 50m away from any watercourse. Where a potential risk is identified of an accidental concrete spillage into a watercourse, cut off swales and diversion dams will be installed to channel potential spillages and run-off water to a suitable collection area. In accordance with GPP5: Works or maintenance in or near water (2018), contaminated water shall not be pumped or allowed to flow into the water environment without treatment. Collected effluent shall be pumped out and disposed of off-site in compliance with the Waste Management Licensing (Scotland) Regulations 2011. Residual solidified concrete within the containment area would be broken up and disposed of off-site in accordance



with The Waste (Scotland) Regulations 2012, prior to reinstatement of the area.

- 5.1.11 Any dewatering from excavations will be via surface silt traps, check dams, and temporary settlement ponds to reduce potential silt entering receiving watercourses.
- 5.1.12 No dewatering or outflows will be permitted within the 10m buffer zones.

### Control of Surface Water Drainage Management Measures

- 5.1.13 All surface water drainage management measures being implemented will be checked regularly and action taken to ensure functionality. Any sign of silt laden water entering a watercourse will be reported immediately to the Construction Site Manager, the source of the silt identified and further remedial measures undertaken.
- 5.1.14 Furthermore, a Water Quality Monitoring Plan will be implemented to provide a management tool to monitor the effectiveness of the surface water drainage management measures in place to protect the water environment.

### Emergency Pollution Procedures

- 5.1.15 The Emergency Pollution Procedure will form part of the management procedures adopted by all construction site personnel.
- 5.1.16 The procedure will remain in place throughout the operational phase of the Proposed Development.
- 5.1.17 The Construction Site Manager will act as a central point of contact for all identified pollution incidents. The Construction Site Manager will inform the Environmental Clerk of Works (ECoW) as quickly as possible upon discovery of any spill or leak. The ECoW will advise on any other response requirements and contact key emergency contacts as required. SEPA should be notified via the pollution hotline number (0800 80 70 60).

## 6 Controlling Run-off

### 6.1 Flow Control Measures

- 6.1.1 Run-off will be attenuated in swales and settlement ponds. Attenuated flows will be discharged over existing vegetation prior to discharging into receiving watercourses, as per the existing drainage regime for the Site.
- 6.1.2 Rate and volume of run-off will be attenuated using settlement ponds receiving flows from newly constructed hardstand areas. Attenuation features will also reduce flow velocities and allow settlement of fines prior to discharge. Flow rates will also be reduced through the integration of swales and check dams.
- 6.1.3 Tracks and hardstand areas are to be constructed from unbound aggregate and are therefore not fully impermeable, thus helping to reduce run-off rates.
- 6.1.4 Cross drains, where required, will be provided with associated sumps and check dams. The under-track drainage will provide a means for flows to pass from a swale on the uphill side of the track to the downhill side of the track and would help maintain existing flow patterns.
- 6.1.5 In cases where the tracks run significantly downhill, grips will be constructed in the surface of the tracks to divert any run-off flowing down the track into the swale.
- 6.1.6 Excavated tracks will incorporate swales with check dams to overland breakouts over vegetation.
- 6.1.7 Floating tracks will follow the principles of minimum disturbance of the vegetated layer. Aggregate/ geotextile will be laid directly onto existing vegetation. No swales will be constructed alongside floating track, water will run-off directly off track onto existing vegetation. Flow balancing pipes, in the form of perforated pipes will be provided at existing flush locations and at regular intervals along the sections of floating track.

### 6.2 Preserving Site Hydrology

- 6.2.1 Existing overland flow routes and channels will be maintained. Piped drainage will be provided under the tracks at all locations where existing natural flow paths pass through the proposed track alignment. Buried cable

trenches would also be designed in a way to avoid modifying shallow flow patterns.

## 7 Watercourse Crossings

- 7.1.1 The Proposed Development requires eight new and three upgraded watercourse crossings.
- 7.1.2 Consent will be obtained from SEPA under (CAR) for the new or upgraded watercourse crossings. Watercourse crossings have been identified on Figure 1.3 of the EIA. A typical watercourse crossing detail has been provided in Figure 3.8 of the EIA.
- 7.1.3 All works to watercourses will be carried out in accordance with CAR.

## 8 Foul Drainage / Treated Discharges

- 8.1.1 Disposal of sewage from temporary and permanent facilities on the site will be designed and shall be in accordance with the methods outlined in *GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer, and treatment systems will be sized in accordance with British Water Code of Practice - Flows & Loads*.

### 8.2 Permanent Sewage Treatment Systems

- 8.2.1 At the substation compound, permanent welfare facilities will comprise of toilets and sinks.
- 8.2.2 The preferred option for sewage treatment is via a septic tank with the treated wastewater to then discharge to a soakaway.
- 8.2.3 Infiltration tests will be carried out to confirm the infiltration properties of the existing ground in the vicinity of the substation compound.
- 8.2.4 Consents will be sought from SEPA prior to the installation of any sewage treatment system.

### 8.3 Temporary Treatment Systems

- 8.3.1 At the temporary construction compound, temporary welfare facilities will comprise of toilets and sinks. Temporary sewage treatment system will be

installed to discharge flows into a temporary cess pit. Off-site disposal from temporary cess pits will be by a licensed waste haulier / contractor.

- 8.3.2 The temporary sewage treatment system will be removed on completion of construction of the Proposed Development.

## 9 Post Construction Monitoring

- 9.1.1 A post construction inspection programme will be implemented, with a Site walk over visit to be undertaken on an ongoing 6-monthly basis (winter and summer preferably). Points to be considered during these inspections include, but are not limited to, the following:

- Check dams and settlement ponds will be checked twice yearly on an ongoing basis. Where stone check dams have become clogged with silt, the check dam will be cleared out.
- Further check dams will be installed within the swales along any steeper sections of the track.
- Should there be noticeable effects of erosion at discharge points, suitable erosion protection measures such as reno-mattress or placement of large stones (>150mm) to dissipate water energy levels will be installed at the area affected.
- Any materials excavated should be placed in such a manner that any instability of excavated materials will not cause further infilling of a swale or drainage feature.
- Inlets and outlets of cross drains are to be free from silt and debris. All litter will be removed from discharge points, outlets and inlets.
- Outlets of storage features to be operating correctly.
- A maintenance record log will be maintained for all maintenance work carried out. Where problems persist on each six-monthly inspection, advice will be sought from a SuDS designer on an alternative drainage solution shall be installed.