TA1.1: Outline Construction Environmental Management Plan (CEMP)

Ben Sca Redesign Wind Farm

Ben Sca Wind Farm Limited

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Basis of Report

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Acronyms and Abbreviations

Abbreviation	Full Description
CAR Regulations	The Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended
CDM	Construction (Design and Management)
CEMP	Construction Environmental Management Plan
COSHH	The Control of Substances Hazardous to Health Regulations 2002
EnvCoW	Environmental Clerk of Works
EIA	Environmental Impact Assessment
EPPP	Emergency Pollution Prevention Plan
GPP	Guidance for Pollution Prevention
PPE	Personal Protective Equipment
QA	Quality Assurance
SDSFB	Skye District Salmon Fishery Board
SEPA	Scottish Environment Protection Agency
SSSI	Site of Special Scientific Interest
SWMS	Site Waste Management Strategy
SWRFT	Skye and Wester Ross Fisheries Trust
THC	The Highland Council
TMP	Traffic Management Plan

1.0 Introduction

1.1 Background

This document presents an outline Construction Environmental Management Plan (CEMP) for Ben Sca Redesign Wind Farm which sets out the principles and procedures for environmental management during construction of the wind farm (hereafter referred to as the Proposed Development).

Should planning permission be granted, this outline CEMP would be revised and updated to a CEMP, the content of which would be agreed with The Highland Council (THC) through consultation and enforced via a planning condition. The Principal Contractor would be responsible for developing and using the CEMP to ensure appropriate environmental management is implemented throughout the construction phase of the Proposed Development.

The outline CEMP has been prepared to take account of Good Practice during Windfarm Construction (NatureScot, 2019)[1], Guidelines for Onshore and Offshore Windfarms (2010)[2] and Research and guidance on restoration and decommissioning of onshore windfarms (NatureScot 2013)[3] and provides the construction activities methodology pertinent to the Environmental Impact Assessment (EIA).

The document should be read in conjunction with **Chapter 1: Introduction and Project Description** of the EIA Report and the required mitigation measures set out in **Chapter 10: Schedule of Mitigation**.

The CEMP is a fluid document that would evolve during the different phases of the project. As such it would be subject to constant review to address:

- any conditions required in the planning consent;
- to ensure it reflects best practice at the time of construction;
- to ensure it incorporates the findings of pre-construction site investigations;
- changes resulting from the construction methods used by the contractor(s); and
- unforeseen conditions encountered during construction.

1.2 Aims and Objectives

The CEMP would be maintained and updated on site and would be augmented by associated design specifications and Construction (Design and Management) (CDM) 2015 Regulations [5] documentation such as the Principal Contractor's Construction Phase Plan.

Where appropriate, the CEMP, or plans within the CEMP, would form part of the site induction which would be mandatory for all employees, contractors and visitors attending the site. All employees and contractors would need to familiarise themselves with the relevant contents of the CEMP and supporting appendices as directed.

Management practices and mitigation measures have been developed for those aspects of the construction works that could potentially affect the environment.

The objectives of the CEMP are to:

- outline the proposed mechanisms for ensuring the delivery of environmental measures to avoid or reduce environmental effects identified;
- ensure procedures are in place so that there is a prompt response to effects requiring remediation, including reporting and any additional mitigation measures required to prevent a recurrence;

- provide an outline of the content that would be supplied in the construction method statements and strategies that would be prepared in order to secure mitigation measures in relation to different design aspects of the Proposed Development;
- ensure compliance with legislation and identify where it would be necessary to obtain authorisation from relevant statutory bodies;
- ensure that appropriate Proposed Development monitoring and reporting would be in place;
- provide a framework for reporting, compliance auditing and inspection to ensure environmental aims would be met; and
- set out the Client's[1] expectations to guide contractors on their requirements with regards to environmental commitments and environmental management.

1.3 Site Setting

The site, centred on OSGB[2] National Grid Reference (NGR) 132800, 848600, is located in the northwest of the Isle of Skye, on the Coishletter Estate (EIA Report **Figure 1.1**). The site, which measures approximately 429ha, is located on moorland approximately 2.5km to the southwest of the settlement of Edinbane and approximately 7km to the east of the settlement of Dunvegan.

The site lies on smoothed stepped moorland, with coniferous woodland plantation along its northern edge. Parts of the site are used for agriculture, forestry, grazing and game shooting. The general elevation across the site ranges from the lowest point at 170m AOD to 283m AOD in the south.

There are two existing wind farms which lie in the vicinity of the Proposed Development. The existing Ben Aketil Wind Farm directly to the southwest of the site comprises 12 turbines with a 100.5m tip height. The existing Edinbane Wind Farm to the east of the site comprises 18 turbines with a maximum 100m tip height. Glen Ullinish Wind Farm, located to the southeast of the site, has received consent for 11 turbines with a maximum 149.9m tip height.

The closest postcode to the site is IV56 8FH.

There are no landscape, ecological or cultural heritage designations within the site boundary.

1.4 Project Description

It is anticipated that the Proposed Development would consist of the following main components:

- nine variable pitch (three bladed) wind turbines, each with a maximum blade tip height of up to 149.9m and rotor diameter of up to 138m;
- nine turbine foundations and a crane hardstanding area which includes areas for blade, tower and nacelle storage at each wind turbine;
- up to 4.5km of new onsite access track and associated drainage with a typical 5m running width (wider on bends) and two turning heads;

[1] For the purposes of this document 'Client' is referred to in line with CDM Regulations 2015. At this application stage the 'Client' is the 'Applicant'.

[2] Ordnance Survey Great Britain

- underground cabling along access tracks to connect the turbine locations, and the onsite electrical substation;
- one onsite substation which would accommodate 33KV equipment to collect electricity from the site. The substation compound would include a control and metering building;
- up to three borrow pits;
- two construction compounds (one permanent, one temporary); and
- clearance of up to 64.73ha of conifer forest for Habitat Management purposes as described in **Technical Appendix 5.3: Outline HMP**.

2.0 Implementation

2.1 Schedule of Mitigation

Chapter 10: Schedule of Mitigation within the EIA Report summarises the various mitigation measures that have been proposed to offset the potential impacts of the Proposed Development.

Alongside each mitigation measure identified, the proposed mechanism by which it would be adopted, implemented or enforced has been provided as well as the period by which the mitigation measure would be undertaken. Those measures to be complied with during construction are detailed in this outline CEMP.

2.2 Implementation and Control

Compliance with the CEMP is the key control measure required during construction to mitigate environmental impact. It documents the principles and processes to be followed to implement all relevant agreed environmental mitigation.

The Principal Contractor would be required to prepare and compile a series of method statements for their work or any of the other contractors and subcontractors work. These method statements would detail how the contractors intend to implement the mitigation set out in the CEMP and would be integrated with their detailed Construction Method Statements.

If any significant changes are required to due to changing environmental sensitivities, results of pre-construction surveys, unforeseen events or for any other reason, these would be discussed and agreed with statutory bodies in advance of any amended works being carried out.

3.0 Roles and Responsibilities

During construction there would be key responsibilities for the Client, the Principal Designer, the Principal Contractor and their teams and they are all responsible for complying with the Proposed Development environmental policies, relevant environmental legislation and regulations. Establishing roles and responsibilities in relation to construction would be important in order to ensure the successful construction of the Proposed Development, including the implementation of the CEMP. It is a requirement that all persons on site will be made aware of their duty of care to the environment and will be provided with sufficient training, supervision or instruction through Site Inductions, toolbox talks (TBTs) and specific Method Statements as necessary.

Overseeing management of the Proposed Development will be the Client and any appointed Employer's Agent. The Client will undertake or delegate some site supervision roles and

procure specialist consultants to supervise, monitor or check the Principal's Method Statements if appropriate.

The personnel, who would implement, monitor and respond to the CEMP, would be the Principal Contractor.

3.1 Health and Safety

The construction works would be undertaken in accordance with primary health and safety legislation, namely:

- Health and Safety at Work Act 1974 [4]; and
- Construction (Design and Management) (CDM) Regulations 2015 [5].

The construction works for the Proposed Development would fall under the CDM Regulations 2015 [5]. As such, the Principal Contractor would provide a Construction Phase Plan (CPP) in accordance with the CDM regulations. This plan would include (but not be limited to) a construction programme, emergency procedures, site layouts and fire plans, method statements and details of the proposed induction programme. This induction programme would include both the Principal Contractor's site specific rules as well as the Client's requirements, and would include instructions to all staff regarding the emergency procedures within the Construction Phase Plan (including pollution prevention, waste, dust and noise management etc.) and relevant procedures.

An induction would be required for all workers (permanent / temporary / contractor / subcontractor), site visitors, Client representatives or other 3rd parties. Inductions would be documented.

Plant operators and construction staff would be inducted by the Principal Contractor with regard to spill prevention/mitigation measures and procedures and in the use of relevant mitigation material (e.g. spill kits).

The Principal Contractor shall ensure that all staff on site have appropriate training for the works undertaken and certification for any plant, vehicle or use of specialist equipment such as electrical and hot works.

The Client would have the power to stop works at any stage should it be deemed necessary, i.e. if there were risks posed to environmental receptors from construction that could not be mitigated immediately.

3.2 Principal Contractor

The Client would appoint a Principal Contractor. The Principal Contractor would be required to comply with and regularly review the CEMP throughout the construction period. This would include being aware of any changes or updates to the CEMP following the identification of any new environmental sensitivity or any Proposed Development changes. These changes would be controlled and implemented by the Client's Construction Management Team, as required.

The Principal Contractor and their team (including any sub-contractors) would be responsible for:

- liaising with the Client's Site Manager;
- completing the construction of the Proposed Development in a manner which complies with all relevant laws, rules and regulations, in accordance with CDM 2015 [5];
- acquiring licenses and permits as necessary for their works;

- ensuring that all method statements in line with the principals set out in the CEMP have been provided;
- planning, managing, monitoring and coordinating all pertinent activities relating to construction;
- ensuring that any required changes are approved and updated within the CEMP with the relevant duty holder;
- liaising with and providing justification to the regulators and consultees such as SEPA and THC if any significant changes are required from the Schedule of Mitigation;
- developing and implementing an emergency procedure associated with construction related incidents as part of the Construction Phase Plan;
- adhere to the environmental incident response strategy which will be outlined in the Detailed CEMP and ensuring that all personnel (including sub-consultants and sub-contractors) understand and are aware of procedures to be undertaken should an environmental incident occur;
- maintaining environmental risk registers, ensuring that all personnel are made aware of the potential damage to sensitive environmental receptors and procedures required to be implemented to avoid, minimise and mitigate against such damage;
- verifying the competence and resources of all personnel working on the Proposed Development and any sub-consultants and sub-contractors that were engaged on the Proposed Development; and
- implementing the Schedule of Mitigation.

3.3 Site Manager

The Client would appoint their own Site Manager to supervise the construction of the Proposed Development. The Client's Site Manager would have a wide range of duties including but not limited to:

- reviewing construction works to ensure conformance with the specification, monitoring quality and progress and most importantly ensure that health, safety and the environment is given a high priority at all times. The Client's Site Manager would effectively be the Client's eyes and ears on the site and would report directly to the Client;
- authority to stop the construction works in the case of a health and safety, environmental or quality issue. This would be applicable where to delay would cause additional or prolonged risk or damage;
- visual inspections of working areas to identify possible construction issues from a quality, environmental, programme and safety perspective. Any issues would be raised directly with the Principal Contractor;
- working closely with the EnvCoW to ensure that ecological and environmental requirements dictated by the CEMP, best practice and the planning conditions were adhered to by the works contractors;
- reviewing construction related documents from all contractors – including method statements and risk assessments and providing comments directly onsite to the Principal Contractor; and

- reporting all environmental or health and safety incidents and near misses to the Construction Manager in a form and timescale required by the Construction Management Team.

3.4 Environmental Clerk of Works (EnvCoW)

A suitably qualified EnvCoW would be employed to oversee activity at key points for the duration of the construction and reinstatement periods (at a frequency to be agreed with THC and NatureScot), to ensure natural heritage interests are safeguarded.

The purpose of the EnvCoW would be to provide environmental advice and monitor compliance, not implement measures. The EnvCoW would have a number of different tasks and prior to the outset of each key construction phase. They would be required to keep an active register of all issues that arise during the works and report as required to THC, NatureScot and SEPA.

In fulfilling their duties, the EnvCoW would have sufficient powers to:

- oversee construction work and identify where mitigation measures are required;
- authorise temporary stoppage of works if required; and
- review working methods and advise whether alternative or more appropriate working methods require to be adopted.

The EnvCoW would undertake the following activities:

- give toolbox talks to all staff onsite, e.g. an ecological induction, so staff are aware of the ecological sensitivities on the site and the legal implications of not complying with agreed working practices;
- undertake pre-construction surveys for relevant protected species and advise on ecological issues where required; and
- carry out pre-construction inspections of areas which require reptile mitigation (i.e. supervision during vegetation clearance).
- The EnvCoW would also undertake additional roles such as assisting with hydrological measures or checking for nesting birds (see **Chapter 4: Ornithology** and **Chapter 6: Hydrology, Hydrogeology and Soils**).

All works would be undertaken in accordance with the SEPA guidance documents (Pollution Prevention Guidelines and Guidance for Pollution Prevention) and Prevention of Pollution from Civil Engineering Contracts [SEPA, Version 2, June 2006] [6]. In addition, the appointed contractor would be familiar with and take due regard to the other related guidance documents as listed in Section 12.

3.5 All Site Personnel

All site personnel, including all members of the Client and Principal Contractor's teams, all sub-contractors and sub-consultants would be required to:

- attend all inductions and site-specific training including toolbox talks carried out by the Principal Contractor and/or EnvCoW; and
- implement control measures throughout the site, as required.

3.6 Communication

The Client would inform The Highland Council (THC) prior to any construction starting on site, and communication would be maintained with updates of any incidents or significant changes notified within one week of occurrence. The Client would provide contact details to

the THC of key site personnel prior to the start of the works which shall be highlighted in this document.

Any resident who has a question regarding the construction of the Proposed Development would be directed to the Principal Contractor appointed Site Manager. All questions would be logged and responded to within a specified number of days.

Careful monitoring of any complaints received, including recording details of the location of the affected party, time of the disturbance and nature of the issue would assist with managing the works to reduce the likelihood of further incidents.

4.0 Pre-construction Surveys, Protected Species and Monitoring

4.1 Pre-Construction Surveys

4.1.1 Water Quality Monitoring

Prior to the works commencing, baseline water quality monitoring would be undertaken by an appropriately qualified and experienced independent consultant to establish the water quality prior to any interference from the works.

This would be undertaken in accordance with the proposed water quality monitoring plan developed by the Principal Contractor and EnvCoW in consultation with SEPA and THC and as detailed within Section 8.0.

This water quality monitoring is to be agreed and reviewed by the Client in advance of the works commencing to ensure that the conditions during the monitoring and the testing undertaken are representative and allow a suitable benchmark to be established.

4.1.2 Land Quality

As a minimum, the Principal Contractor would maintain a watching brief during groundworks and be diligent for the presence of previously unidentified contamination. Should potentially hazardous materials be encountered work should cease in that area and the matter be investigated appropriately.

4.1.3 Geotechnical Investigations (GI)

In addition to the requirement for geotechnical investigations to inform the design of permanent works, geotechnical ground information would be used to inform the design of temporary works and inform the risk of unstable ground being encountered, if necessary, the Principal Contractor would undertake additional GI to inform temporary works and construction activities.

Reference should be made to **Technical Appendix 6.1: Peat Management Plan** and **Technical Appendix 6.2: Peat Landslide and Hazard Risk Assessment** in consideration of Geotechnical design.

4.1.4 Archaeology/Heritage

A preliminary archaeological assessment has determined that there are no significant impacts identified to the buried archaeological resource during construction. Mitigation of direct impacts on cultural heritage assets has taken the form of avoidance through careful design and positioning of the proposed infrastructure away from all known heritage features.

No pre-construction surveys are required although appropriate mitigation measures for protecting or recording non-designated assets during construction have been set out in **Chapter 7: Cultural Heritage and Archaeology** of the EIA which includes fencing off the

two known assets (SLR46 and SLR47) that could otherwise be accidentally damaged during construction works.

The precise scope of works would be agreed with THC Historic Environment Team on behalf of the Client and the agreed mitigation programme would be documented in an agreed Written Scheme of Investigation.

4.1.5 Ecology

Chapter 5: Ecology of the EIA Report provides details of protected species surveys that have been undertaken to date.

Due to the time that will have elapsed since the last surveys and the possibility that otter activity could have changed in the intervening period, and/or pine marten or badger could have colonised the site, a pre-construction survey for otter, badger and pine marten would be undertaken. Therefore, a pre-construction survey for protected species would be undertaken. This would cover all watercourses and other suitable habitat within 250m of wind farm infrastructure.

The results of the pre-construction surveys would inform the need for further survey and potential mitigation measures in respect of good working practices, or consultation with NatureScot.

All site personnel shall be briefed upon the presence of sensitive habitats and potential/confirmed presence of protected species as well as agreed appropriate working methods. An emergency response procedure will be communicated in the event of site personnel suspecting or detecting the presence of a protected species during works. In the event that a protected species is encountered within or near the working area, works will cease and the EnvCoW be contacted immediately for advice on appropriate working methods and when works can safely proceed.

5.0 Construction Staging

Construction activity is proposed to take place between the hours of 07:00 to 19:00 Monday to Friday and 07:00 to 16:00 on Saturdays and no Sunday or Public holiday working without prior written approval of the local authority. It should be noted that out of necessity some activities, for example abnormal load deliveries, concrete deliveries during foundation pours and also the lifting of the turbine components, may occur outside the specified hours stated.

The Principal Contractor will be responsible for developing and implementing a Site Traffic Management Plan in accordance with HSG144 as set out in **Technical Appendix 9.2: Construction Traffic Management Plan (CTMP)**. The Client will work in partnership with THC and the supply chain to reduce the impact of the development on the local community.

Parking for staff and contractors will be situated within the boundary of the site for the duration of the works as far as is reasonably practicable. All vehicles will reverse park to improve safety of the site.

An appropriate speed limit (typically no greater than 15mph) would apply for vehicles onsite and would be selected, monitored and enforced by the Principal Contractor. Maximum vehicle load capacities would not be exceeded.

5.1 Construction

The following phases would be taken into consideration for the construction works:

- Phase 1 – site set-up:
    - construction of site entrance, including works to junctions and offsite highway works;

  - forestry felling and export (this would continue throughout the construction phase);
  - site compound set-up, including installation of welfare facilities;
- Phase 2 – Construction:
  - construction of access tracks, including maintenance to water crossing/ditch point;
  - construction of turbine foundations and crane hardstandings;
  - construction of substation, including all civil and electrical works;
  - installation of wind farm cabling;
  - turbine delivery and construction;
  - mechanical and electrical installation;
- Phase 3 – Commissioning:
  - wind farm commissioning;
  - turbine and wind farm reliability run;
- Phase 4 – Demobilisation:
  - snagging and taking over;
  - decommissioning of temporary compounds / structures and restoration of the site.

A detailed construction programme would be provided by the Principal Contractor as part of the final CEMP and the Construction Phase Plan. The construction works are expected to be completed over a period of approximately 18 months.

5.2 Post Construction Reinstatement

Good practice techniques for vegetation and habitat reinstatement would be adopted and implemented on areas subject to disturbance during construction as soon as practicable.

The following reinstatement works would be considered:

- re-use of turves;
- re-use of topsoil/peat where appropriate; and
- reseeding with appropriate species.

For clarity, the following are definitions for the different soil make-up of the natural ground between the surface and rockhead (from top down):

(6) Vegetation:

This is typically plant matter that can be removed/stripped above the ground level (i.e. does not include roots/topsoil). This can vary depending on the nature of the vegetation encountered on site.

(b) Turf/Turves:

This is typically a layer of matted earth formed by grass and plant roots. The matted earth layer would normally be 30-50mm thick.

I Topsoil:

The upper layer of soil usually containing significantly more organic matter than is found in lower layers. This can vary in depth but is typically 200mm thick. This can be excavated

with the turf and depends on whether the turf is required elsewhere, or the topsoil needs to exclude the turf.

(d) Superficial Soils:

This is a generic term used for all material between topsoil and rockhead. This can vary in depth and content throughout the depth profile at any location.

I Weathered Rock:

This is a layer that may exist above rockhead that is neither rock nor superficial material but a mixture of both. It can be mostly fractured rockhead as a result of physical and chemical weathering processes. When excavated it may have elements of fractured rock and superficial material as the boundary can be difficult to distinguish.

In some cases this can provide suitable engineering material for construction of foundations, embankments, tracks etc.

(f) Rockhead:

This is a naturally occurring solid aggregate of minerals which lies beneath the superficial soils.

6.0 General Construction Good Practice

6.1 Handling of Excavated Materials

The construction of tracks, turbine foundations and crane hardstanding areas as well as the establishment of the construction compounds, substation compound would require the stripping and excavation of soil and its reuse or temporary storage. Excavations would generate material comprising peat, soil and rock. Management of soils and peat during the construction phase is discussed in **Technical Appendix 6.1: Peat Management Plan**. Soils and peat would be used for reinstatement works associated with access tracks, cable trenches, turbine foundations, crane hardstandings and the temporary construction area. The upper vegetated turves would be used to dress infrastructure edges and to replace stripped and stored turves.

Excavated material, deemed of acceptable quality, would be used as soon as practicable and as close as possible to the area it was excavated from, however some temporary storage would be required. Soils in areas taken for temporary use will ideally be stockpiled close to excavation location.

6.2 Materials Storage

Granular, non-organic material required to be stored temporarily would be compacted, to reduce the potential for erosion and transfer of sediment, and stockpiled in designated areas at least 50m from any watercourses. Temporary stockpiles would need to be appropriately sited away from marshy grassland, bog or heath where possible, with the locations agreed in advance with the EnvCoW.

Where soils could not be transferred immediately to an appropriate restoration area, short term storage would be required. In this case, the following good practice would apply:

- soil would be stored around excavations perimeters at a sufficient distance from the cut face to prevent overburden induced failure;
- local gullies, diffuse drainage lines (or very wet ground) and locally steep slopes would be avoided for storage;
- stored upper turves (incorporating vegetation) would be reinstated adjacent to similar habitats as advised by the EnvCoW;

- monitoring of stockpiles/excavation areas would occur during and following rainfall events; and
- if material is stockpiled on a slope, silt fences shall be utilised to reduce sediment transport in accordance with CIRA guidance C532 [7]. Additional measures may also be necessary to control flow of water and sediment transport on site in accordance with this guidance.

Material excavated during new and upgraded access track construction would be stored adjacent to the track and Granular, non-organic material compacted in order to limit instability and erosion potential. Peat would not be allowed to dry out, through rewetting and monitored irrigation.

Silt fences shall be employed in combination with the measures described in 'CIRA Control of water pollution from construction sites. Guidance for consultants and contractors (C532)' [7] where required to minimise sediment levels in run-off.

All soils stripped from the borrow pit(s) would be retained in clearly demarcated stockpiles of no greater than 3m height in locations immediately around the edges of borrow pit excavation. Further detail is provided in **Section 10.5**.

6.3 The Management, Production and Movement of Concrete

6.3.1 Concrete Batching

If the in-situ rock is found to be unsuitable for concrete batching, then ready-mixed concrete would be brought onto the construction site from an offsite source for use as required.

Where borrow pit material is deemed suitable for concrete, then concrete batching on site may be undertaken. The area for concrete batching would be identified as part of the main temporary construction compound, or other suitable area. This area will typically measure 50m x 50m.

The batching plant would be sited on firm and stable ground and will have access tracks allowing safe and suitable access for delivery vehicles and concrete wagons.

The raw materials for the concrete will be suitably stored as follows:

- Correctly graded crushed rock (aggregate) will be stockpiled adjacent to the batching plant mixing hopper.
- Cement will be stored in silos which form part of the batching plant and will be automatically fed into the batching plant.
- Sand will be stockpiled or placed in silos depending on the type of batching plant.
- Water will be abstracted where possible from a local source and stored in bowsers.
- Any concrete admixtures and associated oils/lubricants etc for the batching plant will be suitable stored in a lined/bunded area.

Cement for concrete production would be appropriately stored in sealed silos and its use controlled as part of the batching process. This would be protected from the elements.

Any bagged cement would be stored within a soil bunded area on pallets above the ground and covered with secured plastic sheeting to minimise the risk of wind-blown cement and uncontrolled washout occurring.

Concrete will be discharged directly into concrete wagons for onward movement around the site.

Careful management to minimise pollution shall be developed within the contractor's detailed method statements. This will include measures to prevent pollution from:

- Windblown cement. Most likely to happen during loading of silos.

- Spilled concrete. This is likely to happen at the loading point for the concrete wagons.
- Fuels and oils during maintenance.

6.3.2 Accidental Spillage

The Principal Contractor shall take all preventive measures when performing operations that could produce a spill in accordance with the Environmental Incident Response Strategy (outlined in **Section 7.1**).

An appropriately sized spill kit(s) would be provided and maintained onsite, consideration would be given to suitable locations across the active areas of the site and to having vehicles including plant carry a spill kit. This kit would contain materials, such as absorbent granules and pads, absorbent booms and collection bags. These are designed to halt the spread of spillages and would be deployed, as necessary, should a spillage occur elsewhere within the construction compound.

A speed limit (typically of 15mph) would apply for vehicles onsite and would be monitored and enforced by the Principal Contractor. Maximum vehicle load capacities would not be exceeded.

6.3.3 Vehicle Washing

There would be a wash-out facility within the construction compound consisting of a sump overlain with a geosynthetic membrane. The geosynthetic membrane would filter out the concrete fines leaving water to pass through to the sump. The sump water would either be pumped to a licenced carrier and taken offsite for approved disposal, or it would be discharged to surrounding vegetated surfaces where such discharge meets the requirements of NatureScot and SEPA. No washing of concrete-associated vehicles would be undertaken outside the wash out facility, and the area would be signposted, with all site contractors informed of the locations.

6.3.4 Concrete Pouring for Turbine Foundations

To prevent pollution incidents, it is important that all concrete pours are planned and specific procedures would be adopted in accordance with Construction Industry Research and Information Association (CIRIA) C532 Control of water pollution from construction sites: guidance for consultants and contractors [7]. These procedures would include:

- ensuring that all excavations are sufficiently clear of standing water and that there is no degradation of sub-formations;
- ensuring that covers are available for freshly placed concrete to avoid the surface of the concrete washing away during heavy precipitation; and
- perimeter drains with silt traps are used to prevent any cement/fines washout entering water courses.

The excavated area would be back-filled with compacted layers of graded material from the original excavation, if deemed to be the appropriate quality, and capped with peat or soil. The finished surface around the base of the turbine, would be capped with crushed aggregate providing a walkway to allow for safe personnel access.

6.4 Surplus and Waste Material

6.4.1 Introduction

Initiated as part of the Defra Red Tape Challenge, aiming to reduce bureaucracy for business, the Site Waste Management Plans Regulations 2008 (SWMP) [8] were repealed on 01 December 2013. However, it has been adopted as good practice to produce a Site

Waste Management Strategy (SWMS) for large scale construction sites and to append planning applications and as such are recommended to be adopted in this project.

The SWMS will be included as part of the Detailed CEMP. This will include appropriate level of detail on how construction waste materials would be managed, including the management and definition of excavated materials and final treatments to be applied to the different wastes.

The Principal Contractor and any other contractors and subcontractors would take all reasonable steps to ensure that all waste from the site is dealt with in accordance with the requirements under The Environmental Protection (Duty of Care) (Scotland) Regulations 2014 (Car Regs) and that materials would be handled efficiently, and waste managed appropriately.

Appropriate waste management, disposal and waste carrier documentation and licences would be obtained (e.g. complete waste transfer notes prior to waste leaving site, ensure all waste carriers have a valid waste carrier's registration certificate, ensure wastes are disposed of at a correctly licensed site, complete notification for hazardous waste to SEPA).

Waste streams would include wastes generated by plant, machinery and construction workers over the period of the works, for example waste oils, sewage, refuse (paper, carton, plastic etc.), wooden pallets, waste batteries, fluorescent tubes etc.

6.4.2 Soils and Spoils

It is planned that any materials excavated on site in the course of the construction works would be stored on site ideally close to the excavation location and re-used where it is appropriate to do so. As such, offsite disposal of this material is not anticipated but when required would be disposed of appropriately.

6.4.3 Hazardous and Other Wastes

Table 6-1 lists some of the waste types that may be generated during the construction works. Although some waste types may be generated in locations other than the construction compounds such waste materials would be stored within the construction compounds only. Waste materials generated outside the construction compounds would be taken to the compounds on a daily basis to be managed thereafter.

Table 6-1: Common Construction Wastes

EWC Code	Description
13 01 10*	Used mineral hydraulic oil (non-chlorinated)
13 02 08*	Other waste engine, gear or lube oil
13 02 05*	Waste engine, gear or lube oil (non-chlorinated)
13 02 08*	Other waste engine, gear or lube oil
16 01 07*	Oil filters
20 01 23*	Discarded equipment containing CFCs e.g. waste fridges & freezers
16 06 01*	Lead batteries
16 07 08*	Oily waste from transport and storage tanks
16 10 01*	Hazardous liquid wastes to be treated off-site
20 01 21*	Fluorescent tubes and other mercury-containing waste
20 01 33*	Hazardous batteries and accumulators that are collected separately

EWC Code	Description
15 02 02*	Absorbents, filter materials, wiping cloths, clothing contaminated by dangerous substances
15 01 01	Cardboard or paper packaging
15 01 02	Plastic packaging e.g. toner & ink cartridges, polythene sheeting
15 01 03	Wooden packaging e.g. timber pallets
15 01 04	Metallic packaging e.g. drink cans, paint tins
16 01 15	Antifreeze fluids that do not contain dangerous substances e.g. Coolants
16 02 14	Non-hazardous waste electricals e.g. washing machines, power tools
16 05 05	Gases in pressure containers i.e. gas cylinders
17 01 01	Concrete
17 02 01	Wood from construction or demolition e.g. timber trusses, supports, frames, doors
17 04 11	Cables that do not contain dangerous substances e.g. electric cabling
20 01 01	Paper & card similar to that from households e.g. office paper, junk mail
20 01 30	Non-hazardous detergent e.g. flushing agent/universal cleaner
20 01 39	Separately collected plastics e.g. plastic containers, bottles
20 03 01	Mixed waste similar to that from households e.g. mixed office, kitchen & general waste
20 03 04	Septic tank sludge

*Denotes Hazardous Waste, as categorised by the European Waste Catalogue.

Foul water from the onsite facilities at the construction works compound would be removed from site by an appropriately licensed contractor (see also Section 7.4.4).

6.4.4 Regulatory Compliance

Waste would need to be transferred to a licensed waste management site or site with a waste exemption. The Principal Contractor would need to check that the site is licensed and that the licence permits the site to take the type and quantity of waste involved.

A ‘Waste Transfer Note’ must be completed by all parties involved and must be retained for a period of two years. Sub-contractors excavating and hauling waste offsite must complete their own Waste Transfer Notes and copy them to the Principal Contractor. It is not necessary to have a Waste Transfer Note for each load of waste and a Waste Transfer Note can be issued weekly or monthly as a season ticket.

It is the responsibility of the Principal Contractor to ensure that other parties involved in the transport, storage and disposal of waste were legally entitled to carry out their duties.

6.5 Dust Mitigation

Good practice measures as listed in **Table 6-2** would be adopted during construction to control the generation and dispersion of dust such that significant impacts on neighbouring habitats should not occur. The hierarchy for mitigation would be prevention – suppression – containment.

Table 6-2: Typical Dust Mitigation Measures

Site Application	Mitigation Measures
Common Practice	
Communications	Develop and implement a stakeholder communications strategy that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Monitoring	Carry out regular site inspections to monitor dust levels, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Operations	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.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Preparing and Maintaining the Site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
	Avoid site runoff of water or mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used onsite cover as described below.
Site Management	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.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
	Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport deliveries which might be using the same strategic road network routes.

Site Application	Mitigation Measures
Waste Management	Avoid bonfires and burning of waste materials.
Desirable	
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	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.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable
	Only remove the cover in small areas during work and not all at once.
	With respect to operating vehicle/machinery and sustainable travel:
	Impose and signpost a maximum-speed-limit on surfaced and on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided with the agreement of the local authority, where appropriate).
Trackout	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.

6.6 Noise Management

The sources of construction noise are temporary and vary both in location and their duration as the different elements of the site are constructed, and arise primarily through the operation of large items of plant and equipment such as bulldozers, diesel generators, vibration plates, concrete mixer trucks, rollers etc. Noise also arises due to the temporary increase in construction traffic near the site. The level of noise varies depending on the different elements of the site being constructed.

BS 5228-1:2009 ‘Noise control on construction and open sites; Part 1 – Noise’ is identified as being suitable for the purpose of giving guidance on appropriate methods for minimising noise from construction activities.

For all activities, measures shall be taken to reduce noise levels with due regard to practicality and cost as per the concept of ‘best practicable means’ as defined in. Section 72 of the Control of Pollution Act 1974 [11].

6.7 Site Lighting

Temporary site lighting may be occasionally required for specific activities to ensure safe working conditions. This is more likely to be a requirement during construction activities in the winter months. It is intended the type of lighting would be non-intrusive and specifically designed to negate or minimise any effect to likely receptors and any other environmental considerations.

Given the proposed size and scope of the development, it is most likely that the construction timetable would require elements of the works to be undertaken during periods of the year when natural daylight is limited.

The use of artificial lighting may therefore be required in order to facilitate the works, such as vehicle and plant headlights; construction and compound lighting; office complex lighting; and localised floodlights/mobile lighting units. There would be fewer requirements for artificial lighting in the summer months when natural lighting would be present during normal working hours. There are no known issues with regards to the limit of lighting levels in this area, but lighting would be provided to meet the required lighting levels for the respective works which are being undertaken, especially where there is plant and machinery involved. Any issues identified with regards to limiting the lighting levels, either the lux values, or the time/duration of the lighting would be taken into consideration as part of the developed construction method statement.

6.8 Vehicle Storage

Appropriate areas would be provided adjacent to or within the site compound to allow staff and visitor vehicles to be parked. In addition, appropriate provision would be made for the layover of HGV traffic, to ensure that the adjacent road remains clear and available for use at all times. The track design incorporates spurs and crane pads which from time to time could be required to temporarily store vehicles i.e. as waiting areas.

7.0 Environmental Incident Prevention Measures

7.1 Environmental Incident Response Strategy

An Environmental Incident Response Strategy that incorporates the proper management of environmental emergencies will be developed as part of the detailed CEMP. The Principal Contractor would be responsible for developing and implementing this as a method statement as part of their CPP. This method statement would provide reference to procedures to be followed in the event of a specific incident. In general, if an environmental incident was to occur, the following would take place immediately:

- mitigation would immediately be implemented to stop or reduce impacts from the incident always ensuring the health and safety of people ;
- if these were ineffective, work in the area would cease immediately;
- if necessary, monitoring would be undertaken to identify the source of the incident;
- work would only recommence once it is considered that it would not continue to adversely impact sensitive environmental receptors; and
- provision of a full report by the Principal Contractor and separately by the EnvCoW to the Client following an incident occurring.

The Environmental Incident Response Strategy would reflect site-specific conditions/issues. The Principal Contractor would submit the detailed Strategy to the Client for approval prior to any construction works commencing onsite. The Strategy would provide:

- a summary of local environmental sensitivities, e.g. environmentally designated areas, protected species or habitats and high amenity areas;
- an outline of the construction works and appropriate references to other environmental plans and construction method statements;
- an inventory of stored materials and emergency response spill kits;
- details on training requirements, evidence of training of site staff / plant operators in emergency response procedures including inclusion of Environmental Incident and Response training in site inductions and tool box talks; and key staff contacts for environmental management and emergency response;

- detailed procedures to be taken in the event of an incident or emergency (including procedures for positioning and movement of plant) and identification of relevant personnel who would be responsible for implementing such procedures; and
- contact telephone numbers for the emergency services and SEPA Pollution Hotline (0800 80 70 60).

A plan of the site would also be provided, detailing:

- all areas of potential pollution sources including the locations of car parks, delivery and fuel / chemical storage areas, oil separator equipment, excavations, and any other high risk areas that could give rise to pollution;
- the location of potential sensitive environmental receptors, including sensitive habitats or species, surface watercourses, drains or culverts where pollution may travel to; and
- the location of spill kits and other pollution control or emergency response equipment.

The procedures for responding to a major pollution incident would be a regular topic at onsite tool box talks and management meetings in order to ensure that the incident response plan is fully understood by all personnel, and that all involved know their role in it. Any lessons learnt from any response to real incidents would be fed back into the plan to ensure that best practice is followed.

7.2 Re-Fuelling of Vehicles, Plant and Machinery

Generally, re-fuelling of mobile plant and machinery would be carried out at a designated location within the site.

Vehicle re-fuelling would take place either at a dedicated impermeable refuelling pad or by mobile double bunded bowsers at their place of work. The refuelling pad would have an impermeable base and bund with a capacity of 110% such that they do not drain directly into the surface water drains. Where practicable, drainage will be passed through oil interceptors prior to discharge. Refuelling would be carried out using an approved mobile fuel bowser with a suitable pump and hose. Absorbent material (spill kits) would be available onsite and would be deployed to contain drips and small spillages.

All other fuels, oils and potential contaminants, as well as waste oils, would be stored in secure, fit for purpose containers within bunded containment as appropriate and in accordance with SEPA guidance. The bunded containment would have a capacity of 110% of the volume to be stored and would have impervious, secured walls and base. Maintenance of mobile plant would take place within the construction compounds only and would comply with SEPA PPG 7 [18] (The safe operation of refuelling facilities, July 2011).

There would be no fuel storage outside the contractor's designated site. Plant would be maintained in good operational order and any fuel/oil leaks recorded for attention. Absorbent pads/granules in the case of an accidental leak/spillage would be available at the construction compound.

7.3 Spillage

Spillage of fuel, oil and chemicals would be minimised by implementation of an Emergency Pollution Prevention Strategy (EPPS) which would be prepared by the Principal Contractor as part of the Construction Phase Plan. In the event of any spillage or pollution of any watercourse the emergency spill procedures as described in the EPPS would be implemented immediately. Procedures developed in the EPPS will be adhered to for storage of fuels and other potentially contaminative materials to minimise the potential for accidental spillage.

7.4 Other Storage

Stone material stockpiles would generally be limited to within work areas. This material would be transported and deposited directly to the point of use from the storage point.

Stripped topsoil/superficial soil would be stockpiled in a suitable location away from the area of movement of heavy vehicles, machinery and equipment, to minimise compaction of soil. Stockpiling of excavated material would be managed such that the potential contamination of down slope water supplies and/or natural drainage systems is mitigated / minimised.

Low mound stockpiles would be formed from excavated material, adjacent to construction areas, away from open drains.

Waste storage and raw material would be at the construction works compound and will be suitably stockpiled in a safe manner that prevents any migration of silts/contamination.

7.5 Prevention of Mud and Debris on Public Roads

Plant and wheel washing facilities and road sweepers would be provided as required to prevent mud and deposits from being transferred from site onto the public roads.

Plant and wheel washing, where provided, would be located within the designated hard standings at least 10m from the nearest watercourse or surface water drain. Runoff from the facilities would be captured within a purpose designed system for recycling and re-use where possible within the site. Settled solids would be regularly removed and disposed of by an appropriately licensed contractor. This facility would be located and designed in consultation with SEPA.

7.6 Hydrocarbon Contamination

7.6.1 Vehicle Maintenance

As noted in Section 5.0, plant and machinery would be regularly maintained to ensure that the potential for fuel or oil leaks/spillages is minimised. All maintenance would be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water pollution. All machinery would be equipped with drip pans to contain minor fuel spillage or equipment leakages.

7.6.2 Chemical Storage

All fuels, oils and other chemicals would be stored in secure, fit for purpose containers within bunded containment as appropriate and in accordance with SEPA guidance. The bunded containment would have a capacity of 110% of the volume to be stored and would have impervious, secured walls and base.

The bunded area would be underlain by an impermeable ground membrane layer to reduce the potential pathways for contaminants to enter watercourses and groundwater.

The Principal Contractor shall ensure that a Control of Substances Hazardous to Health (COSHH [23]) register is maintained for all storage and use of chemicals during the construction.

8.0 Drainage and Surface Water Management

8.1 Introduction

Control of water is of great importance during construction to prevent exposed soils eroding and silting up surrounding drainage channels and watercourses. It is essential that the

works have little or no impact on the existing hydrology in order to minimise potential impact on ecology and environmental quality of the surrounding area.

The following principles are intended to demonstrate measures that could be used across the site to adequately protect hydrological, and related, resources. Detailed proposals for such measures would be documented prior to construction, and would provide the same or greater protection for the water environment as those described in this document. The measures are proportionate to the risk and, where greater risk is highlighted at specific locations prior to construction, specific measures would be agreed for those locations.

8.2 Construction Site Licence

In accordance with Controlled Activity Regulations (CAR) prior to any construction at site a Construction Site Licence application would be made to SEPA. The Licence, which is regulated by SEPA, is used to ensure that runoff from a construction site does not cause pollution of the water environment. The Construction Site Licence requires the development of a pollution prevention measures, which once agreed with SEPA is adhered to on site.

8.3 Site Induction and Training

The Principal Contractor would ensure that all employees and contractors would undergo a site induction to ensure that they were familiar with the site rules prior to any work commencing on site. In addition, the Principal Contractor would ensure that all operatives and contractors responsible for handling fuel, oil, concrete or cement or other potential pollutants undergo a thorough induction programme with respect to the relevant proposed pollution control measures. The relevant programme would include, as a minimum, the following:

- waste management;
- emergency response procedures;
- materials management;
- habitat and species protection,
- surface water management;
- potential sources of pollution and their effects on the environment;
- requirements of the contract and legislation with respect to pollution;
- traffic management and routing, including areas where access is not permitted; and
- training in the use of pollution control equipment.

8.4 Site Drainage

During the construction phase of the Proposed Development, measures would be adopted, in order to prevent silt, chemicals and/or other contaminants from being washed into existing watercourses. Discharge into existing watercourses would require CAR authorisation under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended). Areas exposed due to the removal of existing structures and/or vegetation are more susceptible to erosion during heavy rainfall so areas would be reinstated as soon as possible to minimise this effect.

This would include specific guidance in relation to drainage (and control of pollution to the water environment) around the following aspects of site infrastructure:

- access routes;
- foundations;

- hardstanding areas and new structures

The appropriate methodologies to cover water control and the means of drainage from all hard surfaces and structures within the site are described in the following sections.

8.5 Management of Sediment and Surface Waters

Good practice construction techniques would be adopted for the management of sediment and surface water run-off generated during the construction phase of the Proposed Development. Sustainable Drainage Systems (SuDS) would be used where applicable.

Drainage from the site would include elements of SuDS design. SuDS replicate natural drainage patterns and have a number of benefits:

- SuDS would attenuate run-off, thus reducing peak flow and any flooding issues that might arise downstream; and
- SuDS would treat run-off, which can reduce sediment and pollutant volumes in run-off before discharging back into the water environment; and
- SuDS measures, such as lagoons or retention ponds, where appropriate and correctly implemented would produce suitable environments for wildlife.

Heavy or prolonged rainfall during construction and operation may lead to sediment transport or vegetation causing blockage to infrastructure drainage channels or any temporary watercourse crossing structures. Regular monitoring and prompt maintenance of these assets will ensure that the drainage system continues to function as designed.

8.6 Foul Drainage

During the construction phase, effluent and waste from onsite construction personnel would be captured and stored for offsite disposal by a licensed contractor, as there is no connection to the public foul sewer.

For the permanent control building within the sub-station, any toilets installed will be connected to a septic tank that will be installed during the construction. This septic tank will be emptied and maintained by a licensed contractor.

9.0 Water Quality Monitoring and Contingency

9.1 Water Quality Monitoring

Water quality monitoring during the construction phase would be undertaken for the surface water catchments that serve the site, to ensure that none of the tributaries of the main channels are carrying pollutants or suspended solids. Monitoring would be carried out at a specified frequency (depending upon the construction phase) on these catchments. A location for water quality monitoring needs to be confirmed as a result of tree felling within the Habitat Management Area.

Monitoring would continue throughout the construction phase and immediately post construction. Monitoring would be used to allow a rapid response to any pollution incident as well as assess the impact of good practice or remedial measures. Monitoring frequency would increase during the construction phase if remedial measures to improve water quality were implemented. Water quality monitoring plans would be developed during detailed design (SEPA, THC, Skye and Wester Ross Fisheries Trust (SWRFT) and Skye District Salmon Fishery Board (SDSFB) would be consulted on the plan) and would be contained within the final CEMP.

With regard to the protection of the water environment the following risks would be addressed:

- siltation of watercourses;
- discolouration of raw water;
- potential pollution from construction traffic due to diesel spillage or similar;.
- alteration of raw water quality resulting from imported track construction material;
- excavation and earthworks
- use of large quantities of concrete;
- site compound and associated drainage/foul drainage and diesel spill issues; and
- the Principal Contractor would compile a monitoring and maintenance plan for the drainage system and surface water runs which would as a minimum include:
    - visual monitoring/inspections

A Water Quality Monitoring Plan (WQMP) will be developed to form part of the Detailed CEMP, which would be submitted to the appropriate planning authorities and bodies such as SEPA prior to construction and development. The WQMP will be implemented to monitor surface water quality, fish populations and macroinvertebrate community prior to, during and post-construction. A robust baseline of water quality in surface watercourses / drainage channels downstream of construction works will be established prior to construction commencing and used a benchmark of water quality for the construction phase monitoring.

The purpose of the WQMP is to:

- ensure that the commitments put forward in the EIA Report are fulfilled with regards to identified ground and surface water receptors;
- provide a specification for monitoring prior to, during and after construction;
- provide a record of water quality across the site that can be compared to rainfall and site activities;
- provide reassurance of the effectiveness of pollution prevention measures installed to protect surface watercourses throughout the construction period; and
- provide data to identify any potential pollution incidents, and to inform a structured approach to manage and control such incidences.

The WQMP will outline details for the monitoring of surface watercourses down gradient of works areas including watercourse crossings, access tracks, turbine foundations and borrow pits and at control sites (up gradient of works areas), and will include:

- indicative monitoring locations;
- frequency of monitoring prior to, during and after construction;
- parameters for field hydrochemistry testing and laboratory analysis including as a minimum pH, electrical conductivity, suspended solids, dissolved metals, nutrients and hydrocarbons;
- sampling and analysis protocols;
- relevant environmental quality standards (EQS);
- responsibilities for monitoring – it is expected that the EnvCoW will be responsible for daily monitoring of watercourses particularly around active works areas and

watercourse crossings. Further monitoring on a less frequent basis (i.e. monthly) may be done by an external party;

- procedures to be followed in the event of an environmental incident; and
- recording and communicating of results.

There are no Private Water Supplies (PWS) at risk as a result of the Proposed Development, therefore, no additional mitigation measures have been proposed.

9.2 EnvCoW WQMP Duties

In addition to the monitoring and analysis, it is proposed that watercourse inspections would be undertaken by the EnvCoW determined by where construction is taking place.

Typical inspections would include, but not be limited to:

- regular visual inspection of the sediment control structures and oil interceptors;
- investigation of problem areas (e.g. those causing silty run-off) to try to establish the cause and locate the source;
- management of the Principal Contractor to comply with method statement activities;
- development of a clear line of communication with site staff to address issues promptly;
- prioritisation of issues so that site staff know how to react to incidents; and
- regular hydrological reporting – daily records and monthly reports

9.3 Incident Response

Drainage networks provide a conduit for rapid transport of silty water and potential contamination from surface spills of fuels / oils, concrete or chemicals. A pollution incident would include any discharge to the drainage network that could potentially cause environmental damage. Examples of pollution incidents include:

- fuel drips or spills during refuelling;
- leaking plant or equipment;
- leaks from fuel or chemical containers;
- contaminated water or sediment / silt entering a watercourse or drainage network;
- windblown dust and waste;
- excess silt deposition in drainage ditches, channels, culverts following heavy rainfall events;
- operational failures of pumps and pipelines; and
- failures of treatment or sediment controls.

The Principal Contractor would be required to prepare an Environmental Incident Response Strategy which will be provided in the Detailed CEMP (Section 7.1) and then adopted by the Principal Contractor during the construction phase. This will provide emergency response contacts, reporting procedures, and procedures for dealing with all potential pollution incidents during the construction of the Proposed Development.

9.4 Specific Measures for Protecting Groundwater Receptors

The EIA has concluded that the areas mapped as potential high and moderate GWDTE are not sustained by groundwater but rather are sustained by incident rainfall and surface water

runoff. Accordingly, the buffers to potential GWDTE specified in SEPA guidance need not apply. Safeguards would be required, however, to sustain existing surface water flow paths so that incident rainfall can continue to sustain these habitats (see Schedule of Mitigation, **EIA Chapter 10** for further details).

10.0 Construction Phase

10.1 Introduction

This section describes in more detail the key components of construction and the impact they may have on the environment.

The overall site design has been developed in accordance with recommendations adopted from the EIA Report and to reflect the requirements and specifications for transporting wind turbine components to the proposed turbine locations.

10.2 Proposed Construction Compounds

The works would include the implementation of two construction compounds, Construction Compound 1 located at NGR NG323507 would be permanent, and Construction Compound 2 located at NGR NG321494 would be temporary.

Construction Compound 1 is located on the hardcore which exists from the previous Ben Aketil Wind Farm construction compound area. It would have a permanent footprint of approximately 100m x 50m (5,000m^2), and would be likely to contain the following:

- temporary modular building to be used as a site office;
- welfare facilities;
- parking for construction staff and visitors;
- reception area;
- fuelling point or mobile fuel bowser;
- secure storage areas for tools; and
- waste storage facilities.

Construction Compound 2 would be temporary and have a footprint of approximately 55m x 55m (3,000m^2) and would be likely to contain the following:

- temporary modular building(s) to be used as a site office;
- welfare facilities;
- parking for construction staff and visitors; and
- secure storage areas for tools and materials.

Welfare facilities would be provided for the duration of the construction period in accordance with the Construction (Design and Management) Regulations 2015. Facilities for waste management, refuelling, power, water supply and chemical/material storage would be provided.

Where and when compound lighting is required, it would be designed to minimise light pollution to the surrounding area. All lights would face inwards.

The compounds would also be used as a storage compound for various components, fuels and materials required for construction.

The compounds would be built by stripping any topsoil and regrading, then laying geotextile and an imported stone layer. It is noted that Compound 1 already has a layer of geotextile

and stone. Any stripped topsoil would be stored adjacent to the compound in a linear bund typically no greater than 2m in elevation. Superficial soil would be stripped and stored separately from the topsoil. This would be stored in a similar manner to the topsoil but would depend on the volume which is required to be excavated.

It is proposed that uncontaminated surface run-off from the compound is accommodated in a swale or soakaway which would be constructed as a perimeter ditch to avoid contamination of watercourses should there be a spillage and from fines washout. All other run-off from the site would follow natural drainage patterns and newly installed drainage routes.

10.3 Welfare Facilities and Services

Welfare facilities would be provided in accordance with the Construction (Design and Management) Regulations 2015 during the construction period and would include mobile toilets with provision for sealed waste storage and removal. Sewage waste would be either be tankered offsite by a licensed approved waste contractor or, a septic tank could be installed and maintained for the duration of the works in accordance with SEPA's GPP 4 (Section 7.4.4), including regular emptying by an approved contractor.

Potable water would be imported as bottled water. The water would be used for messing purposes during the construction phase.

The welfare facilities will most likely have in-built water bowsers to provide a water supply for sanitation etc.

Electricity would be provided by onsite generators. All electrical equipment and its installation and maintenance would be undertaken by a qualified and competent person.

In order to manage the effects of construction worker accommodation on the local tourism economy, it is proposed that an Accommodation Strategy is agreed with THC prior to construction commencing. The Accommodation Strategy would include measures for temporary peak season construction worker accommodation to be provided either onsite or at a suitable offsite location (such as an existing campsite). The Strategy would include details of measures to ensure that sufficient services infrastructure is available (water, electricity and sewage treatment). The Accommodation Strategy would ensure that sufficient accommodation capacity would be available at peak times to avoid displacement of tourism visitors.

10.4 Transport Routes

Both construction workers and materials needed for the construction works would be delivered to site using the public road network. A Construction Traffic Management Plan (CTMP) would be developed following appointment of the Principal Contractor and identification of the material supply points and included in the final CEMP. A Framework CTMP is provided in **Technical Appendix 9.2**.

The proposed abnormal load route required to transport turbine components to the site is shown on **Figure 1.8b** and is based on an assessment from the port of Kyle of Lochalsh via the A87, then along the A850 to site. The site would be accessed from the A850 on a track which was built for the Ben Aketil Wind Farm.

The suitability of the proposed abnormal load route has been assessed for up to the candidate turbine blade length, identifying where permanent or temporary road upgrades would be required (**Technical Appendix 9.1: Transport Statement, Annex 9.1B Abnormal Indivisible Load Route Survey**).

All other HGV and wind farm construction traffic would also use the entrance off the A850.

Full detail of the assessment of effects on the road network is provided in **Chapter 9: Other Considerations.**

Once consent has been received and prior to construction, the route would be further inspected by an abnormal loads haulier specialist, in coordination with the police and the relevant highway authorities as it may be necessary, with a view to finalising the TMP and to obtaining a suitable licence for the movement of abnormal loads.

The TMP would include (but not be limited to):

- a delivery schedule to ensure impacts on the road network are minimised;
- detailed design of temporary and permanent road improvements; and
- assessment of existing street furniture and bridge classifications and preparation of a schedule of temporary works along the access route.

10.5 Borrow Pits

10.5.1 General

In order to construct the access tracks and formation of new hardstanding areas such as crane pads, site construction compounds and laydown areas, crushed rock is required. It is proposed to source this material from up to four onsite borrow pits, to reduce the need to import materials.

The Quarry Regulations 1999 state that any excavations undertaken for the sole purpose of supplying materials for use on site are excluded from the Regulations. Therefore, the development of the borrow pits and their reinstatement would be agreed through the planning process.

In general, these borrow pits would be stripped back of topsoil which would be stored adjacent to the respective borrow pit site for future reinstatement.

10.5.2 Materials Storage

Prior to the excavation of the borrow pit(s) and following construction of appropriate SuDS measures, vegetation and soils would be removed and stored in overburden stockpiles. Overburden stockpiles would be located adjacent to the borrow pit(s) and compacted in order to limit instability and erosion potential. Silt fences would be employed to minimise sediment levels in runoff from the stockpiles.

Rock stockpiles would be stored in already-worked areas of the borrow pit(s) or, before these are available, stockpiles would be located on safe and stable designated areas approved by a qualified engineer, identified on a plan of the working area of the borrow pit(s) and agreed with the EnvCoW.

Overburden or rock stockpiles would be stored at least 50m from watercourses in order to reduce the potential for sediment to be transferred into the wider hydrological system.

10.5.3 Surface Water Management

Temporary interception bunds and drainage ditches would be constructed upslope of the borrow pit(s) to prevent surface water runoff from entering the excavation. Swales would also be implemented to convey and attenuate excess surface water flow away from borrow pit(s). These methods would be kept to a minimal depth and gradient, with check dams, silt traps and buffer strips also utilised where possible to minimise erosion and sedimentation at peak flows.

Infiltration trenches would also be placed downslope of the borrow pit(s) and overburden and rock stockpiles and would be designed to treat run-off before discharging back into the drainage network. Silt fences would be used to intercept sediment-laden surface run-off in addition to infiltration trenches.

10.5.4 Borrow Pit Dewatering

Limited dewatering of the borrow pit(s) may be necessary. Water would be treated by a settlement lagoon(s) and by discharge onto vegetated surfaces.

Outflow from settlement lagoon(s) in proximity to the borrow pit(s) would discharge to surface water drains.

It is unlikely that groundwater ingress would be significant. However, the floors of the borrow pit(s) would have a gravity drain design. All floor water would drain to an adequately sized sump to allow sediment to settle out before discharge to surrounding vegetated surfaces.

Excavation machinery would be regularly maintained to ensure that there is minimal potential for fuel or oil leaks/spillages to occur. All maintenance would be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water pollution.

10.6 Access Tracks

10.6.1 General

The extent of construction disturbance would be limited to around the perimeter of, and adjacent to, access track alignments, including associated earthworks, and would be monitored by the EnvCoW as required.

As part of the Proposed Development design, a buffer of at least 50m has been applied to all known watercourses. There are no lochs and ponds within the site. The possibility for watercourse crossings was examined on site through the development of the infrastructure design. However, the layout of the access tracks was carefully considered and as a result no new watercourse crossings are proposed. The existing crossing point on the Ben Aketil track may need to be modified and where the spur track to T9 (BSX-02) is located the existing drainage ditch would be crossed installing a pipe culvert to maintain water flow. There is one point at which it is anticipated that sub-bases of access tracks would be constructed from aggregate won from onsite borrow pits and would be constructed to the best practices for wind farm access tracks.

Access tracks would be constructed to a minimum running width of 5m (wider up to 6m on bends), plus shoulders of approximately 1m on either side, to accommodate the maximum transport requirements. Track shoulders may be up to a width of 2-3m to accommodate cabling along the access track alignment.

The access tracks for the Proposed Development have been carefully designed. The tracks have been designed to follow the existing contours to minimise the requirement for cut and fill and would be formed to minimise the gradient. The access tracks would be a minimum of 5m wide (straight sections) with appropriate widening on bends with additional provision at track junctions, turning heads and crane hardstandings.

For the construction of tracks topsoil would be stored beside the track for use in reinstatement of shoulders at the end of the construction period where appropriate. The material would be stored/stockpiled in accordance with good practice so that it would be reused for reinstatement.

Track restoration works would be undertaken in accordance with NatureScot good practice guide *Constructed tracks in the Scottish Uplands 2nd Edition* [NatureScot, updated September 2016].

10.6.2 Existing/Consented Tracks

There are approximately 1.8km of existing access tracks within the site, which would be utilised as part of the Proposed Development.

10.6.3 New Tracks

There would be up to approximately 4.5km of new track constructed.

Access tracks would be formed on suitable underlying material (superficial soil or rock with sufficient bearing capacity) in the following manner:

- stripping of surface vegetation (turves) and careful stockpiling of this material;
- excavating the remaining superficial soil materials and stockpiling this material;
- where different superficial materials are present these would be stored according to type. This material would be monitored and watered (as appropriate) to be retained for reinstatement purposes;
- the exposed suitable track formation would have rock fill material tipped from dumper trucks directly onto the proposed access track alignment; and
- this material would then be either spread by a dozer or placed by a hydraulic excavator and compacted in layers, typically using vibratory rollers.

Access tracks would be constructed from a sub-base of general fill and finished off with a cap-stone / wearing course of graded crushed rock to provide a nominal Type-2 (Series 800) finish. Wearing course stone would be of a suitable material that is not susceptible to breaking down / weathering to a high fines content material.

Maintenance of the running surface would be carried out on a regular basis, as required, to prevent undue deterioration. Loose track material generated during the use of access tracks would be prevented from reaching watercourses by maintaining an adequate cross fall on the tracks. Periodic maintenance of tracks by way of brushing or scraping would be carried out to minimise the generation of wheel ruts, which could lead to some track material being washed away. In dry weather, dust suppression methods may be required for track and hardstanding areas. The site access tracks, hardstandings and trackside drains would be inspected on a regular basis by the Civil Contractor.

10.6.4 Cut Tracks and Drainage

In areas where the soil is poorly draining the track formation would be created by a cut (and fill) or by a cut operation where the side slope is severe (EIA Report **Figure 1.11**). A lateral drain would be established on the uphill side of the track to drain water from the slopes and cross drains would be established at intervals of no less than 30m, or to suit the profile of the track/ditch to facilitate drainage. Topsoil, where present, would be stored beside the track for use in re-instatement of track shoulders where appropriate. Consideration would be given to the potential for entrapment of snow and water in their placement.

Reference should be made to **Technical Appendix 6.1: Peat Management Plan** and **Technical Appendix 6.2: Peat Landslide Hazard and Risk Assessment** in the design of cut tracks.

10.6.5 Management of Surface Water

New access tracks would be designed to have adequate cross fall or camber to avoid ponding of rainwater and surface run-off. Run-off from the access tracks and existing drainage ditches would be directed into swales that would be designed to intercept, filtrate and convey the runoff.

Check dams would be installed within the swales and existing drainage ditches where required in order to increase the attenuation of run-off and allow sediment to drop out.

Permanent swales and drainage ditches adjacent to access tracks would have outlets at required intervals to reduce the volume of water collected in a single channel and, therefore, reduce the potential for erosion. Outfall pipes would drain into a bunded section of the drainage ditch to allow suspended solids to settle.

The Principal Contractor would be responsible for the management of all surface water runoff, including the design and management of a drainage scheme compliant with SuDS principles.

10.6.6 Protection of Watercourse Crossings

Any upgraded watercourse crossings would be appropriately designed so that they do not alter the natural drainage and can accommodate flow. Authorisation from SEPA under Controlled Activities Regulations (CAR) would be obtained prior to construction of the watercourse crossings. They would have a conveyance capacity of at least a 200-year flood.

10.6.7 Loose Track Material

Loose material from the use of access tracks would be prevented from entering watercourses by utilising the following measures:

- silt fences would be erected between areas at risk of erosion and watercourses;
- silt fences and swales would be inspected daily and cleaned out as required to ensure their continued effectiveness;
- excess silt would be disposed of in designated areas at least 50m away from any watercourses or drainage ditches;
- water bars would be implemented on slopes greater than 1 in 20;
- culverts, swales and drains would be checked after periods of heavy precipitation;
- the inlets and outlets of settlement lagoons, retention basins and extended detention basins would be checked on a daily basis for blockages; and
- the access tracks would be inspected on a daily basis for areas where water collects and ponds.

10.6.8 Floating Tracks and Drainage

It is anticipated that approximately 167m of floating track would be required, where consistent peat depths of 1-1.5m or greater are identified, the tracks would follow topography in the area (below 5%), to ensure that the risk of failure due to landslip is mitigated.

Floating track construction essentially comprises the laying of a geosynthetic (geotextile mat or geogrid reinforcement) across the superficial soils prior to constructing the track. Where necessary, risk from run-off would be mitigated by directing drainage to settlement ponds. Erosion processes on the track side embankments and cuttings would be mitigated by ensuring that gradients are below stability thresholds, which would also enable effective regeneration of vegetation or reseeding with appropriate species. Sediment traps would be required in the early years following construction until natural regeneration/ reseeding is

established. Should significant erosion or sedimentation, (which is not expected) take place at any location it would be addressed by re-grading of slopes.

10.6.9 Onsite Vehicle Movements

Access tracks would be designed to be single track, a minimum of 5m wide taking account of horizontal and vertical track alignments. Additional widening would be provided on bends to facilitate the movement of the large delivery vehicles associated with turbine tower and blade delivery, and these would double as passing places where appropriate.

During the periods of delivery of the large components, the Contractor would use appropriate site communications and access control techniques to enable safe one-way operation of the tracks.

The presence of crane pads within the construction compound would facilitate traffic movement onsite. Internal track junctions would also be used to facilitate multiple options for construction traffic movement. This would allow vehicle to move more direct between construction locations and double as passing places.

10.6.10 Unstable Ground

Unstable ground is herein considered to be any ground conditions encountered along the proposed alignment, or within the immediate vicinity and influence, of the access tracks that has insufficient strength in its existing state to support the proposed load conditions.

If any unstable ground is encountered during access track construction, the following procedure would be adopted:

- access track construction in the immediate area of the unstable ground would cease with immediate effect;
- the Principal Contractor would immediately assess the situation and develop a solution; and
- if relocation within the approved 50m micrositing allowance of the proposed access track alignment is possible and acceptable to the EnvCoW, without potential for further ground instability to occur, then construction may recommence along the newly agreed alignment, and any stabilisation / mitigation measures that may be required of the unstable ground would occur in parallel.

10.6.11 Signage

Sufficient signage would be employed onsite, for both site personnel and the public, to clearly define the boundary of the works where they coincide with areas accessible to the public.

10.7 Turbine Foundations

10.7.1 General

A total of 9 turbines would be erected on reinforced concrete gravity foundations, approximately 23m in diameter.

Proposed turbine foundation locations would be inspected by the EnvCoW to ensure that all potential environmental constraints have been identified, demarcated and/or mitigated for prior to the on-set of construction in that area. The final location of the turbines would be within approved micrositing allowances of the consented positions in accordance with Planning Conditions. The regularity of inspections (daily, weekly, as appropriate) during construction would be determined in advance for each particular section, based on

anticipated ground conditions, known environmental sensitive receptors, prevailing weather conditions, and anticipated rate of progress.

10.7.2 Construction of Turbine Foundations

Construction of the turbine foundations would be the responsibility of the Civil Contractor.

The limits of each of the foundation excavations would be surveyed and pegged out in advance of any proposed works, and the EnvCoW would be consulted to ensure all necessary pre-construction checks have been completed.

The volume of concrete required for each turbine foundation would be approximately 520m^3 and would be batched onsite using imported cement and aggregates either imported or sourced from the borrow pits. Each turbine would also require steel reinforcement which would be delivered to site on a flatbed vehicle and then connected together to provide the reinforcing cage.

The turbines require reinforced concrete foundations that measure approximately 23m in diameter. To facilitate the construction of this, an area up to 3m wider around the perimeter would be required e.g. approximately 29m total diameter to create a working area.

Depending on the stability of the material being excavated for the turbine bases, an additional area may be graded back from the foundation working area to ensure that the excavation remains stable during construction.

EIA Report **Figure 1.10** shows a typical turbine foundation design.

The typical construction activities associated with the turbine foundations are detailed as follows:

- stripping of surface vegetation (turves) and careful stockpiling of this material as per CEMP requirements;
- excavating the remaining superficial soil and rock materials and stockpiling of this material as per CEMP requirements;
- the stockpiled materials are to be retained for restoration purposes;
- soil would be excavated until a suitable formation can be achieved. Where rock is encountered this would most likely be removed by mechanical excavation to the required depth and material stockpiled as described above. The potential impacts associated with the use of hydraulic breakers or other such vibratory equipment in the vicinity of sensitive ecological receptors or watercourses would be assessed and appropriate mitigation measures implemented where required in consultation with the EnvCoW;
- the foundation design is based on the most efficient use of materials and local ground conditions;
- temporary fencing would be erected at locations where there are safety implications for any persons or livestock likely to be present on the site e.g. around open excavations. Signage would be displayed clearly to indicate deep excavations and any other relevant hazards associated with the foundation excavation works;
- cut-off ditches would be used at the perimeter of foundation excavations to divert the clean water away from the work areas thereby reducing the volume of water potentially requiring pumping/treatment in silt traps/settlement lagoons. It is not anticipated that large scale dewatering would be required during the excavations. Water from dewatering of excavations would be pumped via surface silt traps to ensure that sediment does not enter surrounding watercourses. Settlement lagoons would be employed in areas where the level of runoff is likely to exceed levels normally contained within a silt trap, however it is considered unlikely that these would be required. Wash-out areas at each base, (if

required) would be lined and contained to prevent wash-out water entering drainage/surface waters. The material from the wash-out would be disposed of appropriately offsite;

- following excavation, levels would be set to allow the blinding concrete to be placed and finished to the required line and level;
- the steel reinforcement would then be finished to the required design specification. The steel reinforcement would then be delivered to site and stockpiled adjacent to the respective turbine base;
- the formwork would be pre-fabricated of sufficient quality and robustness to allow repeated use. Formwork would be cleaned after each use and re-sprayed or painted with mould oil within the blinded foundation excavation prior to being fixed in place. The placement of containers with mould oil would be strictly monitored to ensure that storage is only in bunded areas (i.e. in the construction compound) on sealed hardstanding. Spraying of mould oil and storage of such sprayed materials would be undertaken in such a way as to avoid pollution;
- sulphate resistant concrete or other suitable concrete, as appropriate for the prevailing ground conditions, would be used in the turbine base. Prior to pouring the base concrete, the overall quality of the steel fixing would be checked to ensure there is sufficient rigidity to cope with the weight of personnel and small plant during the pour. The quantity, size and spacing of the reinforcement bars would be checked against the construction drawings to ensure compliance with the design detail. The position of the foundation insert, or other appropriately designed foundation mechanism supplied by the turbine manufacturer would be checked to ensure that the level is within the prescribed tolerances. A check would also be carried out to make sure the correct cover from edge of reinforcement to edge of concrete is maintained throughout the structure. A splay would be formed on all external corners;
- cable ducts would be checked so as not to leave sharp corners that would cause cable snagging and that all bend radius comply with the design illustrated on the construction drawing. All earthing cable or strip connections would also be examined to prove their adequacy to withstand the rigors of the concrete placing process;
- concrete would be batched onsite. As with all concrete deliveries, a record would be kept against each turbine to indicate the source of supply, type and consistency of the mix. A record would also be kept of the personnel involved, the time and date the pour commenced and finished;
- the concrete pour would commence after the blinding concrete has been cleaned of debris and other loose material. Vibrating pokers would have been checked to ensure they are fuelled by compressed air and in good working order. The pour would proceed under the control of the Contractor. Personal Protective Equipment (PPE) would be worn by the site operatives and as detailed in the Construction Phase Plan. Pouring would follow best working practice procedures and fresh concrete would be protected from hot and cold weather as required;
- shutters would be carefully loosened, removed and cleaned no earlier than 24 hours from the finish of the pour; and
- backfilling to the turbine base would proceed in layers of approximately 0.3m with compaction as necessary. Further layers of material would be laid until the original till level is attained. Soil would be replaced from the appropriate storage area until the original ground level is reached, or a shallow mound (up to 500mm above existing ground level) is formed. In the event that there is limited onsite material to compact above the turbine foundation, then imported material may be required. This would typically be a well graded granular product.

Following the completion of all construction activities, the area surrounding the base would be reinstated.

10.8 Crane Hardstandings

Crane hardstandings would be required to allow installation and removal of the turbine components. Location and orientation would be optimised to make best use of the existing topography, prevailing wind conditions (to enable safe lifting) and the chosen erection procedure. Additionally, the crane hardstanding orientation would take account of environmental constraints. As with access tracks, topsoil and superficial soil would be removed wherever possible and stored separately adjacent to the removal area for later reinstatement up to the edge of the hardstanding.

The area would be set out to the required dimensions and excavated to a suitable formation. Coarse rock fill would then be placed and compacted in layers using compaction equipment. Geotextile may be used depending on the suitability of the underlying strata. The final surface would be formed from selected granular material and trimmed to allow surface water run-off to drainage ditches. The crane pad would remain *in-situ* for the operational life of the Proposed Development.

EIA Report **Figure 1.12** shows an indicative crane hardstanding layout.

10.9 Substation Compound and Control Building

10.9.1 Substation Compound

The main substation compound would include an area for car parking and High Voltage (HV) equipment, such as transformers and circuit breakers and a control building. The substation would be shared with Balmeanach Wind Farm, should it be consented.

Lighting would be limited within the compound to emergency flood lights around the switchgear, security/motion sensor lights to building, and then any internal lighting within the building.

10.9.2 Control Building

The main control building would be a single storey structure composed of either pre-fabricated panels or a brickwork finish, built on a pre-cast concrete base measuring approximately 15m x 25m and typically 5m high. It is proposed that the building would have a rendered finish; the final external finishes would be agreed with THC. The control building would be used as a control room for the electrical switchgear.

A typical control building elevation is shown on EIA Report **Figure 1.15.**

Welfare facilities including a toilet would be provided in the control building for the duration of the operation of the Proposed Development. Sewage waste would be tankered offsite by a licensed approved waste contractor. Alternatively, a septic tank could be installed and maintained for the duration of the works in accordance with SEPA's GPP 4 (see Section 4), including regular emptying by an approved contractor.

A rainwater collection and purification system would be installed to service the welfare room, and electricity would be provided from a generator.

10.10 Cable Laying

Grid connection is dependent on upgrade of the transmission network, and the connection point will be the new Edinbane Grid Supply Point (GSP), to the southeast of the site, which is proposed to be delivered as part of the grid upgrade. Significant upgrades to the electricity grid from Fort Augustus to the Isle of Skye (known as the Skye Reinforcement Project,

Energy Consents Unit Application Ref: ECU00003395) have been delayed from the original programme and are now expected to be completed by 2028, allowing the Proposed Development to be connected to the grid in April 2028 at the earliest. The grid connection route is considered to be commercially and technically feasible. The grid connection would require consent under Section 37 of the Electricity Act 1989, which is the subject of a separate consenting process to this planning application.

The precise route of the grid connection cabling has not yet been determined and its effects are not identifiable/assessable because it has yet to be designed and an application has not yet been made.

Underground power cables would run from each turbine location to the onsite substation. The cables would typically be buried in the track verges. Cables would be laid in a trenching operation. Single cable trenches would likely be 600mm wide; whilst double cable trenches could extend to approximately 800mm wide. Trenches would be approximately 1200mm deep. Indicative cable trench arrangements are shown on EIA Report **Figure 1.13.**

Electrical cabling is typically buried or ducted adjacent to the access track network. Cable trenches would either be excavated into existing ground, made ground (such as access track verges) or areas consisting of shallow peat. Irrespective, the cable trenches would require excavation, laying of the cables and backfilling with original material from the point of origin.

The position of trenches would be marked out and the line stripped of turves and superficial soils and set aside for reinstatement. Ecologically sensitive areas would be avoided by construction plant or vehicles. The majority of cable run installation would be undertaken adjacent to and within the track construction zone, to minimise intrusion into the surrounding areas. Where topography or environmental constraints dictate (over limited sections), the cables would be installed in ducts within the existing track corridor. In areas of trenching, the vegetation layer and topsoil would be removed and segregated from the removed superficial soil for use in reinstatement. If necessary, where depth allows, further segregation of the vegetation layer and topsoil would be undertaken to prevent burying of the upper vegetation layers in deeper soil upon replacement.

Where the depth of the original topsoil layer is very thin there may be insufficient material for reinstatement.

Where cables cross open gullies and ditches they would be installed in ducts. Alternatively, they would be incorporated in the access track crossing points. During installation operations, these would be temporarily dammed, and a filter placed downstream to avoid pollution of the downstream watercourse by suspended solids.

Following testing, the trench would be backfilled and compacted in layers with suitable material and reinstated with previously excavated superficial soils (from which stones would have been removed). Sand would be imported to site and would be placed around the cables as protection. Suitable duct marker tape would be installed in the trench prior to backfilling.

Clay bunds would be placed at intervals to prevent longitudinal drainage.

10.11 Soil Storage

Superficial soils would be excavated and stored temporarily. It is anticipated that most of the soil resources within areas directly affected by construction activities would be able to be stored and reinstated as close as possible to where they were excavated in accordance with best practice; so that the site would be restored with minimal movement of material from its original location.

At turbine foundations topsoil would be stripped keeping the top 200mm of turf intact. This material would be stored adjacent to the base working area and would be limited in height to

2m to minimise the risk of overheating. Superficial soil would then be stripped and stored, keeping this material separate from the topsoil.

Following excavation of the turbine foundation area and construction of the foundation (concrete/reinforced steel) the area would be backfilled with spoil. The area would be reinstated using the retained topsoil/turf where appropriate materials are available. Where required a gravel area would be left around the tower base for access. Reinstatement at turbine foundations would begin as soon as possible after foundation and plinth installation is complete.

The risk of water pollution from excavation works in terms of sediment loss would be prevented / mitigated by the following measures:

- careful location of turbine bases and track line to minimise excavation where applicable;
- stripped topsoil/superficial soil would not be stored adjacent or in close proximity to watercourses, where a construction area requiring soil stripping is close to a watercourse the soil would be stored a suitable distance from the watercourse;
- soil would be stored in accordance with best practice in order to remain intact as the soil would be essential to the site reinstatement;
- where turf requires excavation for track construction an excavator would lift turf and place it to the side leaving space between the edge of the track and the embankment to be constructed. The excavator would then lift out the soil and would place it to the side of the proposed track. The soil stored by the side of the access track would be graded by an excavator and the turves would be replaced by the excavator over the graded soil beside the track. The timescale for this operation is short and the methodology has been successfully applied at other wind farms; and
- excavated soil would not be placed onto water reservoirs or placed where it would block established surface or drainage channels.

10.12 Watercourses

10.12.1 General

As part of the design mitigation all wind turbine locations, site compounds, and other permanent and temporary structures (with the exception of tracks) have been sited with a minimum separation of 50m from any watercourses and drainage runs where possible.

Tracks have been routed to minimise any crossing of watercourses, where possible. However, if track crossings are required, then the these would be designed and constructed appropriately.

There is one existing watercourse crossing on the section of the existing Ben Aketil access track that would be used as part of the Proposed Development. Whilst it is not proposed to upgrade this watercourse crossing, some sediment clearance work is proposed as mitigation in **Chapter 6**. Additionally, a new spur would be taken from the existing access track for the Ben Aketil Wind Farm to provide access to turbine 9 (BSX-02). This would require the crossing of an existing drainage ditch located on the western side of the Ben Aketil access track. A new pipe culvert is proposed to be installed to ensure drainage is maintained. No other watercourse crossings are proposed.

If required however, the Contractor is required to produce a detailed Watercourse Crossing Plan prior to commencement of the works. This plan would be submitted to the EnvCoW and SEPA for review and approval where appropriate.

The Contractor is responsible for liaising with and obtaining from SEPA all relevant consents, licenses and authorisations relating to construction of the watercourse crossing at the site.

All construction works on the site, and specifically construction works to be undertaken within and in the vicinity of the watercourse, would be completed in compliance with current legislation and best practice as detailed within this document.

The EnvCoW would be consulted on all watercourse crossing works. Surveys by the EnvCoW would be carried out immediately prior to construction of the crossing to identify areas of ecological interest and more specifically, mammal and fish activity in watercourses to ensure that adequate mitigation is built into the design.

11.0 Reinstatement

11.1.1 General

During construction of the infrastructure elements (detailed in Section 9), the vegetated layer will be stripped over the area of the excavation and stored locally with the growing side up. The remaining organic topsoil and subsoils will be excavated down to formation level, or a suitable stratum, and again will be stored local to the point of excavation but shall remain segregated to avoid mixing of materials.

For all reinstated areas, immediate aftercare provision would include an inspection of reinstated areas after completion of the reinstatement work at each location. In addition, the operator would make regular maintenance visits to the site and would visually monitor the success of re-vegetation.

Erosion processes on embankments and cuttings would be mitigated by appropriate design, including suitable gradients and stabilization measures, which would also enable effective regeneration of vegetation or establishment of areas which are reseeded. Sediment traps would be required in the early years following construction until natural regeneration is / reseeding areas are established. Should significant erosion or sedimentation, which is not expected, take place at any location it would be addressed by re-grading. Any disturbed ground situated along the edges of tracks would be reinstated to match adjoining ground as soon as practicable to avoid unsightly scarring of the landscape, particularly along the main access track.

Reinstatement would be undertaken either by re-use of onsite vegetation and soil using turf/ clodding methods, by natural regeneration, or by reseeding with appropriate species, which may include heather in moorland areas. Proposed methods would be finally agreed and confirmed with THC/NatureScot following appointment of the Principal Contractor. If seeding is required, this would be via cutting and strewing of heather brash or via the use of treated heather seeds only.

The progression of vegetation recovery and survival on restored areas would be monitored to ensure satisfactory development and to allow early identification of any remedial measures required, in accordance with the HMP.

11.1.2 Borrow Pits

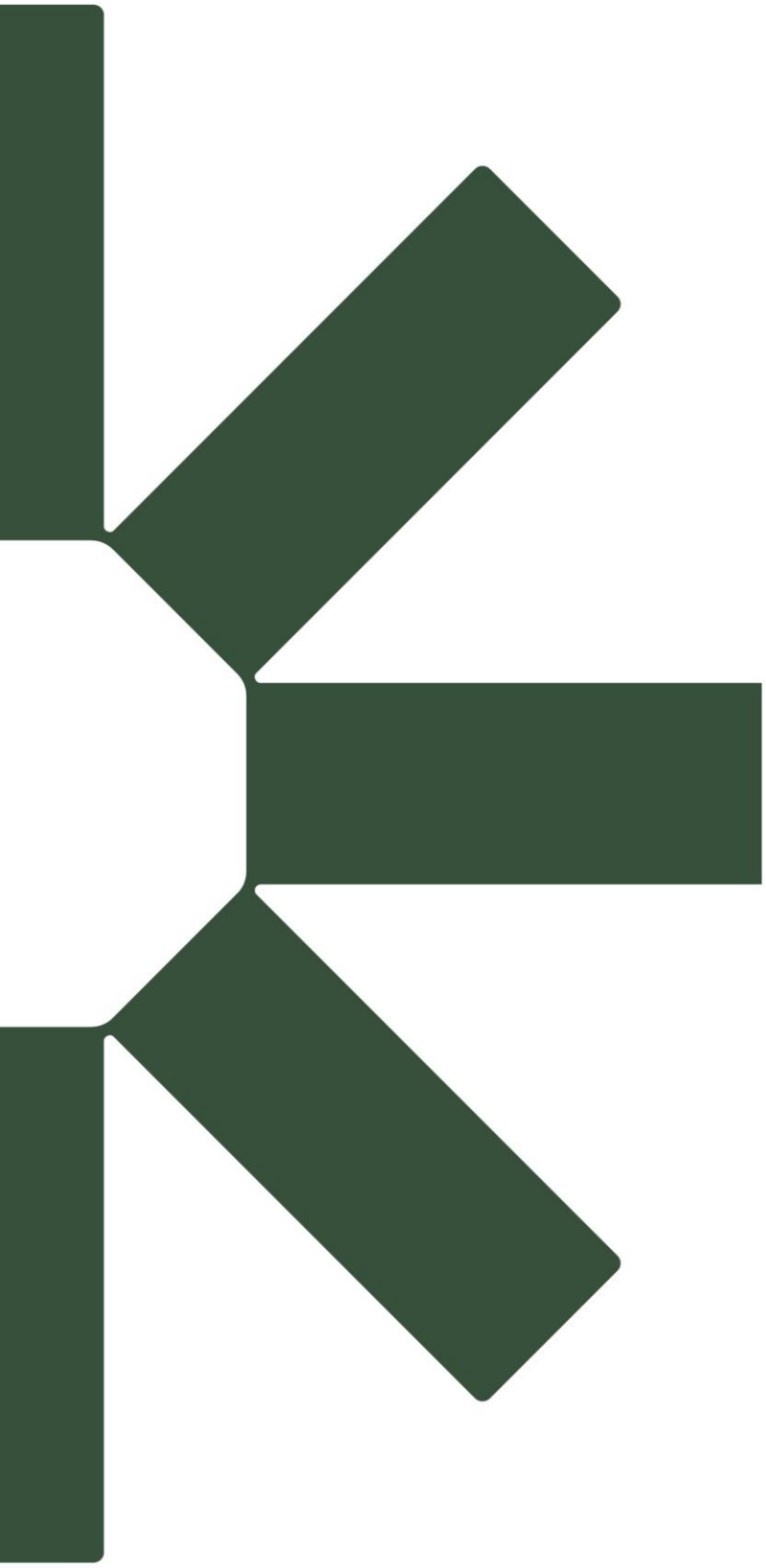
Borrow pits will be finished with safe slopes on near vertical faces and the base will have a fall to encourage surface run-off to drain from the area to prevent unwanted water ponding.

The borrow pit based will be free of crushed rock and debris and a layer of peat/soil will be installed up to rock faces to create a safe and natural looking finish. This layer will then be transitioned down at the borrow pit entrance to merge with the existing ground.

12.0 References

12.1 Reference Documents

Doc. Ref.	Reference Documents
1.	NatureScot 2019. Good Practice during Windfarm Construction.
2.	RenewableUK, 2010. Guidelines for Onshore and Offshore Windfarms
3.	NatureScot, 2013. Research and Guidance on Restoration and Decommissioning of Onshore Windfarms.
4.	HSE, 1974. Health and Safety at Work Act.
5.	HSE. 2015. Construction (Design and Management) Regulations 2015. [online] Available at: http://www.hse.gov.uk/pubns/priced/l153.pdf [Accessed 01 February 2024].
6.	2006. Prevention Of Pollution From Civil Engineering Contracts: Special Requirements. 2nd ed. SCOTTISH ENVIRONMENT PROTECTION AGENCY. Available at: https://www.sepa.org.uk/media/152220/wat_sg_31.pdf [Accessed 01 February 2024].
7.	Masters-Williams, H. et al, 2001. Control of water pollution from construction sites, C532. London: CIRIA.
8.	Defra, Site Waste Management Plans Regulations 2008 (revoked)
9.	The Environmental Protection (Duty of Care) (Scotland) Regulations 2014
10.	BSI, 2009. BS 5228-1:2009 'Noise control on construction and open sites; Part 1 – Noise
11.	Control of Pollution Act 1974.
Guidance for Pollution Prevention (GPPs) http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/	
12	PPG1 Understanding your environmental responsibilities – good environmental practices: PPG 1, July 2013
13	GPP2 Above Ground Oil Storage Tanks: GPP 2, January 2018
14	PPG3 Use and design of oil separators in surface water drainage systems: PPG 3, April 2006
15	GPP4 Treatment and disposal of wastewater where there is no connection to the public sewer: GPP 4, November 2017
16	GPP5 Works and maintenance in or near water: GPP 5, January 2017
17	PPG6 Working at Construction and Demolition Sites: PPG6, 2012
18	PPG7 Safe Storage – The safe operation of refuelling facilities: PPG 7, July 2011
19	GPP 8 Safe storage and disposal of used oils: GPP 8, July 2017
20	GPP21 Pollution incident response planning: GPP 21, July 2017
21	PPG26 Safe Storage – drums and intermediate bulk containers: PPG 26, March 2011
22	Technical Flood Risk Guidance for stakeholders (section 4.3) [SEPA, 24/4/11].
23	Control of Substances Hazardous to Health 2002 (COSHH)



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