SSE Renewables

Strathy South Wind Farm

Environmental Statement Addendum - July 2013

Volume 1: Non-Technical Summary

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1 Introduction

1.1 This Non-Technical Summary (NTS) is Volume A1 of the Environmental Statement (ES) Addendum. The ES Addendum is provided in support of an existing application (07/00263/S36SU) for consent under Section 36 of the Electricity Act 1989, made by SSE Generation Ltd (SSEG) ("the Applicant"), to construct and operate a wind farm at Strathy South forest block (hereafter referred to as the Modified 2013 Scheme), near Strathy in Sutherland. The original application remains undetermined pending receipt of additional environmental information as requested by stakeholders in relation to a number of specific matters arising through the application consultation process. To address these matters and to further reduce environmental impact, the Applicant has made some modifications to the original proposals. This ES Addendum is submitted by the Applicant, SSE Generation Ltd (SSEG), holder of a generation licence. The ES Addendum has been prepared, on behalf of the Applicant, SSEG, by SSE Renewables Developments (UK) Ltd (SSE Renewables), to address the matters raised by consultees and to report on the changes to the environmental assessment resulting from the modifications made to the scheme.

1.2 The Original 2007 Scheme for the proposed Strathy South Wind Farm comprised 77 wind turbines with associated access tracks, sub-station, borrow pits, control building, construction compounds, anemometry masts and switching station.

1.3 The Modified 2013 Scheme has seen a number of changes to the layout presented in the Original 2007 Scheme. The Original 2007 Scheme proposed using a 2.3 MW wind turbine machine. However, a 3.4 MW wind turbine machine has been modelled as the worst case turbine for the proposed for the Modified 2013 Scheme, so the layout has been developed to reduce the turbine density on site (whilst still delivering the required energy output) and the modifications have been made in order to achieve environmental benefit.

1.4 These are key changes are set out below:

- 30 turbines have been removed from the Original 2007 Scheme, leaving 47 turbines;
- One lay down area has been removed from the Original 2007 Scheme, leaving two lay down areas;
- Three borrow pits have been removed from the Original 2007 Scheme and two borrow pits have been combined to form only one, leaving four borrow pits;
- All of the remaining turbines have been slightly re-positioned to optimise their location and to take into consideration environmental constraints e.g. ornithology, areas of deep peat and archaeological assets;

- Turbine parameters have been modified for a tip height of up to 135 m, with a modelled tower height of up to 83 m and a modelled rotor diameter of up to 104 m; however the final turbine choice will ensure the tower and rotor combination is within a maximum tip height of 135 m; and
- The remaining network of on-site tracks has been rationalised to accommodate changes in the turbine layout.

1.5 Further details of the Modified 2013 Scheme are given in Section 3: Development Description of this NTS.

1.6 The aim of this Addendum NTS is to summarise the content and main findings of the ES Addendum in a clear and concise manner to assist the public in understanding what the environmental effects of the proposed Strathy South Wind Farm are likely to be. The full ES Addendum (Volume A2: Main Report; Volume A3: Figures; and Volume A4: Technical Appendices) provides a more detailed description of the proposed Strathy South Wind Farm and the findings of the Environmental Impact Assessment (EIA) process.

1.7 The following sections of this NTS summarise the:

- development context;
- description of the proposed Strathy South Wind Farm;
- construction of the proposed Strathy South Wind Farm;
- need for the proposed Strathy South Wind Farm;
- EIA process;
- consultation process undertaken;
- history of the proposed Strathy South Wind Farm, including design evolution and alternatives that were considered in the design process; and
- main environmental effects, positive and negative, which are considered likely to arise in connection with the proposed Strathy South Wind Farm.

1.8 The full ES Addendum (4 Volumes), together with the application for Section 36 Consent and associated documents will be available for viewing at the addresses below:

The Highland Council Headquarters	The Highland Council
Glenurquhart Road	Drummuie
Inverness	Golspie
IV3 5NX	KW10 6TA

Bettyhill Service Point	Thurso Library
NTC	Davidson's Lane
Bettyhill	Thurso
KW14 7SS	KW14 7AF

1.9 An electronic version of the application documents, including the ES Addendum, will be available to download from The Highland Council 'ePlanning' portal found at: http://www.highland.gov.uk/yourenvironment/planning/eplanning.

1.10 This document is available at a cost of £450 in hard copy format (including postage and packaging) or on DVD (price £10). Paper copies of the NTS are available free of charge, on request. Requests for copies of the ES Addendum or Addendum NTS should be to:

For the attention Jamie Watt

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2 Development Context

Site Location and Surroundings

2.1 The site is located within the Strathy South Forest block, approximately 12 km south of Strathy village, and 30-35 km west of Thurso. Strathy South Forest extends 12 – 17 km inland from the north coast and the proposed wind farm occupies most of the forest between Loch nam Breac Mór and the River Strathy, an area of approximately 1,600 hectares (ha). The site location is presented on Figure 1.

2.2 The site varies in altitude between approximately 130 m and 200 m. The topography rises and falls throughout most of the forest with the lower ground towards the central boggy inner boundary of the U-shaped forest area, which follows the River Strathy valley. Hills in the surrounding area include Cnoc Meala (211 m) 2 km to the north, Cnoc Badaireach (213 m) 3 km to the east, Meall Bad na Cuaiche (337 m), Meall Ceann Loch Strathy (344 m), and Cnoc nan Tri-clach (346 m) to the south, and Dunviden Hill (180 m) to the west. The surrounding area is open and undulating in nature, and characterised by lochs, pools and blanket bog. The area to the south rises to more steeply sloping and hilly moorlands.

2.3 The coastal villages of Strathy, Armadale, Kirtomy, Bettyhill and Melvich are the main settlements to the north of the site. There are few other settlements within the immediate vicinity of the site, with other dispersed settlements principally situated along the coast and along the A897 and B871 routes.

Environmental Sensitivity

2.4 The site itself is not covered by any known international, national, regional or local landscape-related designations. Various regionally and locally designated areas, including the Kyle of Tongue National Scenic Area (NSA) are, however, found elsewhere in the landscape and visual assessment study area, comprising a 30 km radius of the site.

2.5 A number of ecological and ornithological designations border the site boundary, including the Caithness and Sutherland Peatlands Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site. This designated area comprises a number of Sites of Special Scientific Interest (SSSI) including the Strathy Bogs SSSI, Lochan Buidhe Mires SSSI and West Halladale SSSI.

2.6 A network of watercourses, which include any flowing body of water, are present on the site, with water flowing generally in a northerly direction and draining into the River Strathy catchment. A catchment consists of an area of land where excess water drains into a single river, in this case the River Strathy. In addition, there are some areas of open water on the site, including Loch nan Clach in the northwest of the site.

2.7 There are no Scheduled Ancient Monuments within the site; however there is one (Ben Griam Beg) located approximately 7 km south of the site boundary. There are several heritage assets within the site boundary, most of which are classified as being of local importance and one of regional importance which generally relate to agricultural and hunting use e.g. two sheepfolds, two buildings probably related to hunting and farmstead/hunting lodge at Lochstrathy.

2.8 The site is located in a relatively remote region and therefore existing noise is predominantly natural with some intermittent traffic. The nearest sensitive residential properties are located in the valley to the west of the site, 3 km from the nearest turbine, but these would not be affected by the Modified 2013 Scheme.

3 Design Evolution and Alternatives

3.1 In accordance with the EIA Regulations, the ES Addendum includes a discussion of the alternative development options and various constraints and opportunities which have influenced the ultimate design of the Modified 2013 Scheme.

3.2 As discussed in Section 1, the Original 2007 Scheme comprised 77 turbines with a maximum blade tip of 110 m. Following feedback from consultees, a number of revisions have been made and are incorporated into the Modified 2013 Scheme. In particular, the site is surrounded by the Caithness and Sutherland Peatlands SAC, SPA and Ramsar site. As such, reducing and avoiding impacts on peatlands and bird species has been an important design principle for the Modified 2013 Scheme and this has been achieved through the following measures:

3.3 To reduce impacts upon the Caithness and Sutherland Peatlands SAC, SPA and Ramsar site, the proposed access to the site has been altered such that it re-uses an existing access within this designation, thereby minimising the impacts of new access road construction.

3.4 Similarly, the grid connection proposals have been amended. Under the Original 2007 Scheme the main transmission grid connection from Strathy South would have travelled eastwards across the Caithness and Sutherland Peatlands SAC. The Modified 2013 Scheme includes instead for a connection to the substation at Strathy North Wind Farm via underground 33 kV cables.

3.5 Primarily to reduce impacts on birds, the number of turbines has been reduced from 77 to 47 and incorporates a bird corridor to further reduce collision risk and some of the turbine locations have been ‘pulled back’ from the forest edge, increasing the separation from the Caithness and Sutherland Peatlands SAC, SPA and Ramsar site.

3.6 Habitat management measures have been proposed to discourage birds from areas of turbines (thereby reducing collision risk during operation) and to restore peatland habitats, if required following monitoring.

3.7 The remaining 47 turbines have been re-positioned to avoid the most sensitive bog habitats and to avoid areas of the deepest peat, wherever possible, subject to minimum spacing requirements between individual turbines. Turbines have also been positioned 70 m from watercourses.

3.8 Due to the reduced number of turbines, the amount of associated infrastructure (combined length of new access tracks, number of borrow pits and laydown areas) has all been reduced relative to the Original 2007 Scheme.

3.9 Other factors which have guided the design for the Modified 2013 Scheme include: consideration of landscape and visual impacts from sensitive receptors; avoidance of impacts on sensitive watercourses; and avoidance/minimisation of impacts

archaeology and cultural heritage receptors. For example turbine 34 was removed from the Modified 2013 Scheme due to its proximity to the Lochstrathy settlement, a site of regional archaeological importance.

4 Description of the Proposed Development

4.1 The proposed Strathy South Wind Farm would generate renewable electricity to help meet regional and national demand. The electricity would be transferred to the National Grid electricity transmission system for onward distribution and use by consumers.

4.2 The main elements of the proposed Strathy South Wind Farm are as follows:

- 47 wind turbines;
- External turbine transformers and switchgear;
- Four permanent anemometer masts (fixed);
- Foundations and hard standing;
- Access tracks and passing bays;
- A network of underground cables;
- A concrete batching plant;
- A temporary construction compound on-site and a satellite, temporary construction compound to the north of the River Strathy;
- Two Lay down areas;
- Four Borrow pits and;
- A Switching Station/ Control Welfare Building.

4.3 Wind turbine locations and other main elements are arranged on the site as shown on Figure 2. Access to the site would be gained via the A836 and Strathy Bypass, then the access would travel southwards through Strathy North Wind Farm existing road infrastructure, from here a new section of road is required to reach a new bridge crossing of the River Strathy in Strathy Wood Forest. Two bridge crossing options have been assessed and are included for the River Strathy, showing the preferred route. Access then continues to Strathy South via the existing track in Strathy Wood.

4.4 Prior to construction, the locations of the proposed turbines and other components of the proposed Strathy South Wind Farm would be subject to a process called micrositing, which allows small changes in location of turbines and components to avoid locally sensitive environmental features. This reflects possible variations in ground conditions across the site, which would only be confirmed once detailed site ground investigation work is carried out immediately prior to construction. This would provide scope for further mitigation of potential impacts to accommodate short term changes to environmental conditions. Any re-positioning would not involve encroachment into environmentally sensitive areas, and would be carried out under the supervision of an ecological clerk of works (ECoW).

Wind Turbines

4.5 The proposed Strathy South Wind Farm would consist of 47 three bladed, horizontal axis wind turbines. The following design has been assumed for tower/turbine design: individual turbines rated at approximately 3.4 MW each, with a rotor diameter of up to 104 m, a hub height of up to 83 m and a maximum ground to tip height of up to 135 m, and whilst final turbine choice would still be determined, the rotor and hub combinations would not exceed a tip height of up to 135 m.

4.6 The wind turbines would be sited on steel reinforced concrete foundations. Crane hardstanding areas constructed from semi-permeable crushed stone would be required adjacent to each turbine location to assist during construction of the turbines.

4.7 The wind turbines proposed generate electricity from wind speeds between approximately 3 m/s – 25 m/s, with maximum output typically above 13 to 14 m/s. All rotors would turn in the same direction.

4.8 The wind turbines would be a semi-matt pale grey which would serve to attenuate the visibility of turbines from medium to long distance viewpoints, since they would typically be seen against the skyline.

4.9 Figure 3 illustrates a typical wind turbine elevation.

Anemometer Masts

4.10 Four permanent meteorological (met) masts are proposed on site. Mast locations are primarily chosen to provide representative wind speed information for the site and must be located out with the turbine footprint. The purpose of these masts would be to provide continual monitoring of the Modified 2013 Scheme performance, by recording actual site wind conditions over the life of the project. The location of the four masts has been adjusted slightly from the Original 2007 Scheme to account for layout changes. The location of the permanent anemometry masts are presented on Figure 2.

4.11 The masts would be free standing (non-guyed), with a steel lattice model design, set into a small concrete base typically 10 m x 10 m and 2-3 m deep, and would be up to 90 m in height. A typical meteorological (met) mast elevation is presented on Figure 4.

Control Building and Switching Station

4.12 All wind turbines associated with the Modified 2013 Scheme would be connected electrically to a single switching station located in the east of the site. This switching station would be connected to the Strathy North Wind Farm substation via four underground 33 kV cable circuits.

4.13 33kV switchgear would be housed indoors at the switching station building and an outdoor compound would be required to house ancillary equipment. This would be located on the eastern side of the site. An indicative layout of the switching station and welfare building is presented in Figure 5. Grid transformers would not be required at this location; as these are being installed at the Strathy North substation.

Site Tracks

4.14 Following the deletion of the thirty turbines from the 2007 Scheme, the site tracks were reviewed and their locations amended to minimise the amount of permanent land take. This led to a reduction in permanent land take for tracks from 388,800 m^2 to 278,349 m^2 (including the preferred access track). On softer areas, typically more than 1 m depth of peat, the tracks would be floated. Figure 6 illustrates typical cut and floating track constructions.

4.15 The turbine access tracks would be designed to carry the same overall maximum loads, and each track would be capable of supporting the weight of the mobile crane and the turbine components. Nominal track running width will be approximately 6 m, plus a 0.5 m shoulder on either side (i.e. 7 m wide in total) subject to local ground conditions, and will be designed to carry an axle load of approximately 16 tonnes. Track widths may be slightly wider in some sections to allow all vehicles to navigate around bends and where there are passing places.

4.16 Site track routes have been designed to minimise watercourse crossings. The proposed site access tracks would include a total of 18 watercourse crossings (which is reduced from 26 crossings for the Original 2007 Scheme). The type and design of stream crossing would be dependent on the stream morphology, peak flows, local topography and ecological requirements, and would be chosen so as to avoid or minimise potential environmental impacts.

Substation and Grid Connection

4.17 The 2007 ES proposed a new substation in the Strathy South area, including three transformers. However, the connection to the existing Scottish Hydro Electric Transmission Limited (SHETL) overhead line is now proposed from the Strathy North substation to a proposed SHETL substation instead of crossing the designated land to the south.

4.18 This proposal is reflected in the latest updated contract with National Grid Electricity Transmission (NGET). The proposed overhead lines are the subject of a separate 'Section 37' consent application. The grid connection between Strathy South and Strathy North would be via underground 33kV cabling.

4.19 Immediately north of Strathy South, the access track lies within designated land (SPA/SAC). Following consultation with SNH, it is proposed that the required grid

connection between Strathy South switching station and Strathy North substation would run immediately adjacent to the west of the existing route between Strathy Wood and Strathy South Forest.

Temporary Construction Compounds and Concrete Batching Plant

4.20 Initial enabling works would consist of the construction of the preferred access route linking the consented Strathy North Wind Farm to the Modified 2013 Scheme and the associated new bridge across the River Strathy.

4.21 In undertaking these works, a satellite, temporary construction compound would be required. It is proposed that this would be established at/adjacent to the proposed Strathy North construction compound or operations building with a secondary temporary welfare unit being located closer to the bridge crossing which would be in place until the bridge was constructed across the River Strathy.

4.22 The main construction compound would be required on the site to enable construction of the proposed Strathy South Wind Farm. This would include temporary 'Portakabin' style structures to be used for site offices; toilet and welfare facilities; storage for tools, small plant and parts; parking; a receiving area for incoming vehicles; and a bunded area for storage of fuels and oils. This temporary construction compound would be located in the eastern area of the site.

4.23 A temporary concrete batching plant comprising aggregate and cement hoppers, water bowsers/tanks, a mixer and a control cubicle is proposed on site. Aggregates and sand would be stockpiled and contained adjacent to the plant.

4.24 Water abstraction would be required to supply the batching plant. The location of the three surface water abstractions are presented on Figure 2 and it is estimated that up to 50 m^3 of water from each extraction point would be required each day when the concrete batching plant is operational.

Borrow Pits

4.25 To minimise the volume of imported material brought onto the site and any associated environmental impact, borrow pits located within the site will be used to source the necessary stone for track construction and infrastructure. A borrow pit is an area where material has been excavated for use at another location. Up to four borrow pits would be dug for the Modified 2013 Scheme and their locations are presented on Figure 2.

Construction

4.26 The proposed Strathy South Wind Farm would be constructed by an experienced construction contractor with a proven track record working on similar projects and in

accordance with UK and international standards in respect of quality, health, safety and environmental management.

4.27 In addition to statutory obligations, the appointed construction contractor would be obliged to adopt the environmental working practices implemented by the Applicant, including, where relevant, the commitments outlined in the ES. In this respect the appointed contractor would be measured through regular audits of health, safety and environmental practices.

4.28 Construction of the proposed Strathy South Wind Farm would follow a Construction Environmental Management Plan (CEMP), the aim of which would be to provide working methods that would aid in avoiding, minimising and controlling potential significant adverse effects on the environment. Adherence to the CEMP, as well as referenced legislation and guidance documents, would be a contractual requirement for the appointed principal contractor, and all sub-contractors. An outline CEMP (Technical Appendix A4.1) has been included within the ES Addendum submitted by the Applicant.

4.29 The estimated duration of the construction of the proposed Strathy South Wind Farm is approximately 24 months.

4.30 The envisaged sequence of events for the construction programme would be to:

- undertake initial enabling works which would consist of the construction of initial new road on the preferred access route and the associated new bridge across the River Strathy, with a top dressing of the existing road, until such times as the track is widened;
- installation of a satellite, temporary construction compound at/adjacent to the proposed Strathy North construction compound or operations building;
- provision of a secondary, temporary welfare close to the new River Strathy bridge crossing which would be in place until the bridge was constructed across the River Strathy;
- undertake any works/improvements to the public roads;
- extract of stone from borrow pits;
- construct the site access tracks, crane hardstandings and excavate the foundations;
- construct the wind turbine foundations;
- construct the switching station and install the grid connection;
- excavate the trenches and lay the power and instrumentation cables;
- place the external transformers;
- erect the turbines;
- commission the turbines; and

- carry out land reinstatement as soon as possible throughout the works, remove temporary compound and clear the site.

4.31 Construction traffic would consist of staff transport movements, heavy goods vehicles (HGV's) and abnormal load deliveries.

4.32 Construction traffic would access the site from the A836 using Strathy Bypass, Strathy North Wind Farm access track and then via a mixture of new and existing track.

4.33 The normal working hours would be: weekdays 0700-1900; Saturdays and Sundays 0700-1200.

4.34 Working hours on site may take place outside these hours, in order to make use of fair weather windows or critical periods within the work programme.

4.35 Traffic deliveries would be restricted to working hours and exclude Sundays, except where specifically agreed.

Decommissioning

4.36 At the end of the operational period of the Strathy South Wind Farm there are two potential options. The first involves the decommissioning of the wind farm and the removal of the turbines and associated infrastructure and reinstatement of the site. Where practical components would be recycled and buried structures would be left *in situ,* minimising ground disturbance. An application could also be made for the repowering of the site.

5 Environmental Impact Assessment

5.1 The purpose of Environmental Impact Assessment (EIA) is to provide adequate environmental information to enable stakeholders to understand the potential environmental effects of a project.

5.2 The EIA process identifies and assesses the potential environmental impacts associated with the construction, operation and decommissioning of the proposed Strathy South Wind Farm. The assessment and potential environmental impacts are recorded in the ES Addendum. In order to ensure the full reporting of potential environmental effects where appropriate 'worst case' assumptions have been used as explained in individual technical chapters. This ensures that the development possibilities and environmental scenarios likely to cause the greatest environmental impact are taken into account for every aspect of the project. This process defines clearly the potential constraints of the proposed Strathy South Wind Farm and describes the maximum possible impact.

5.3 Legislation on EIA was implemented in the UK following the adoption of the 1985 EC Directive (No. 85/337/EEC) 'on the assessment of the effects of certain public and private projects on the environment'. New legislation was then introduced following the adoption of the amended 1997 EC Directive (No. 97/11/EEC). In Scotland, with regards to the proposed Strathy South Wind Farm, the 1997 Directive is transposed into law through the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (hereafter referred to as the 'EIA Regulations'). These set out the statutory process and minimum requirements for environmental assessment for those projects that are required to undergo such an assessment.

Consultation

5.4 Further consultation, post the Original 2007 application, by the Applicant began in 2011, with key statutory and non-statutory consultees (a list of the key consultees can be seen in Chapter 5: Environmental Impact Assessment) in order to progress the issues raised by THC and Scottish Ministers regarding the original 2007application.

5.5 Following discussions with the key consultees, amendments were made to the original 2007 application addressing concerns raised and reducing environmental impacts. Consultee correspondence to the Original 2007 application where objections were raised are included in Chapter A5: Environmental Impact Assessment.

5.6 In September 2012, a re-consultation letter was prepared by the applicant setting out how the concerns raised by consultees, would be addressed by the ES Addendum. The re-consultation letter also explained the changes between the

Original 2007 Scheme and a 68 turbine scheme, which was the design layout iteration under consideration at that time. A summary of the consultation comments in response to the re-consultation letter is presented in Chapter A5: Environmental Impact Assessment.

5.7 Following the submission of the re-consultation letter to ECDU in September 2012 of the 68 turbine scheme, the site layout underwent further design iterations, as described in Chapter A3: Design evolution and Alternatives. The final layout is that of the Modified 2013 Scheme (47 turbines), and further consultation on this was undertaken with a number of stakeholders. A summary of this consultation is presented in Chapter A5: Environmental Impact Assessment.

6 The need for the Proposed Strathy South Wind Farm

The need for more Renewable Energy

6.1 The proposed wind farm responds to the UK and Scottish Government's climate change and renewable energy objectives, using proven and efficient technology to provide a supply of renewable electricity to help meet regional and national demand.

6.2 In summary, the latest European and UK Government policies establish a strategic need for renewable energy provision in the UK to assist in tackling climate change. Furthermore, the UK needs to address the potential future electricity generation gap in the UK, where electricity demand could outstrip supply due to the closure of older capacity on the system, as well as ensuring that the country maintains its security and diversity of energy supply. The proposed wind farm would contribute to the UK's energy generation portfolio and would assist in securing the UK's energy supply system.

6.3 The proposed Strathy South Wind Farm would make a direct contribution to achieving renewable energy generation targets thereby implementing Government policy at the UK and Scottish levels which encourages more electricity generation from renewable sources.

Planning Policy

6.4 An application for consent is made to the Scottish Ministers under section 36 of the Electricity Act 1989 for proposals for electricity generation exceeding 50 MW.

6.5 In considering the application under Section 36 the Scottish Ministers must fulfil the requirements of the Electricity Act 1989 (Schedule 9, paragraph 3). This requires the Scottish Ministers to consider the: *"desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest".*

6.6 In addition the Scottish Ministers are required to assess whether the applicant has fulfilled the requirement to: *"do what he [sic] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects."*

6.7 While the application for consent will be determined by the Scottish Ministers, The Highland Council (the local planning authority) is a statutory consultee, an organisation or body who must be consulted on relevant planning applications.

6.8 Statutory plans, policies and guidance provide advice on renewable energy and wind farm development, and their associated effects at a national, regional and local level. The policies also emphasise the overall need for sustainable development.

National Planning Framework

6.9 NPF 2 guides Scotland's development to 2030 and sets out strategic development priorities to support the Scottish Government's central purpose – sustainable economic growth. The NPF refers to sustainable development (page 6) and notes that *"The Scottish Government's commitment to sustainable development is reflected in its policies on matters such as climate change, transport, renewable energy…"*.

6.10 NPF 2 outlines the Scottish government's commitment to developing renewable energy and establishing Scotland as a leading location for the development of renewable technology. Overall therefore, the NPF 2 sets out the Government's commitment to the further development of renewable energy in Scotland and confirms the importance of this resource as a key element of achieving the spatial strategy for the country up to 2030.

7 Environmental Effects

7.1 The design of the proposed wind farm has been considered carefully to avoid key areas of environmental sensitivity and impact. The potential impacts of the proposed wind farm during construction, operation and decommissioning have been assessed in relation to the following impacts:

- Landscape;
- Visual;
- Ecology;
- Ornithology;
- Noise;
- Cultural Heritage;
- Soil and Water;
- Roads and Traffic; and;
- Other Considerations.

7.2 The following pages contain a summary of the key potential environmental impacts. The measures included as part of the proposed wind farm in order to avoid and reduce impacts are also discussed along with the associated mitigation. Further in depth information is contained in the Environmental Statement Addendum (Volume A2: Main Report).

Landscape and Visual

7.3 The Landscape and Visual Impact Assessment (LVIA) examined the potential for impacts arising from the project both on landscape character and visual amenity up to 30 km from the site.

7.4 As is often the case for commercial onshore wind farm proposals in the UK, the LVIA indicates that the proposed Strathy South Wind Farm would result in some significant effects on the landscape and visual resource.

7.5 As a result of redefinition of landscape designations within the Highland Council area, one new designated landscape is located within the detailed study area which was not included in the 2007 ES. However, the relevant area was previously assessed as part of the landscape character assessment (as part of the Landmark Peaks and Foothills LCZ) with due recognition given to the quality and value which have since resulted in its more recent designation. The earlier assessment considered the likely impact here to be Moderate Adverse and this remains unchanged when the Modified 2013 Scheme is considered in the context of the new designation.

7.6 Indirect impacts would result at areas not previously included in the Farr Bay, Strathy and Portskerra SLA (formerly PAGLV). However, as the resultant impacts upon the designation would increase from Negligible to Slight Adverse, this is not considered to be significant. The assessment of impacts at all other designated landscapes within the detailed study area remains unchanged.

7.7 The Modified 2013 Scheme would result in significant impacts at two Local Character Zones (LCZ): Moderate Adverse impacts at both Upland Plateau with Raised Bogs and at Landmark Peaks and Foothills. This is unchanged from the 2007 ES assessment.

7.8 It is judged that, as a result of the change in design proposed for the Modified 2013 Scheme, impacts would increase at two of the straths associated with the study area: Strathnaver LCZ and Strath Halladale LCZ. For limited extents of these valleys, turbine components would be more noticeable above the enclosing slopes than would be the case for the Original 2007 Scheme. However, as these impacts would increase only from Negligible to Slight Adverse, this is not considered to be significant. At the three other LCZs included in the assessment, potential impacts would be unchanged as a result of the Modified 2013 Scheme.

7.9 Rather than updating previous assessment, it was considered appropriate to carry out separate wild land and cumulative landscape impact assessments. The Wild Land Assessment has confirmed that wild land characteristics, as defined in SNH guidance, exist within parts of the study area. These broadly relate to three Search Areas for Wild Land (SAWLs) shown on 2002 mapping. The site itself is not located within a SAWL. The assessment also found that, once the consented Strathy North wind farm has been constructed, no significant effects in relation to wild land are predicted for the Modified 2013 Scheme.

7.10 Assessment of potential cumulative landscape impacts has concluded that the majority of designated landscapes and landscape character types identified would not be subject to significant impacts as a result of the Modified 2013 Scheme. A combination of the number of schemes in the baseline scenario affecting summits and slopes and the potential introduction of the Modified 2013 Scheme mean that significant cumulative impacts would result locally within the Bens Griam and Loch nan Cloch Special Landscape Area (SLA) and within the Lone Mountains LCT.

7.11 The assessment of potential visual impacts arising from the Modified 2013 Scheme, when compared to the Original 2007 Scheme, has found that impacts would increase at three viewpoints (VP3 – View from A836 near Borgie, VP5 – View from B871 at Achargary and VP16 – View from Syre Lodge). In the first two cases, these impacts would rise to Slight-Moderate Adverse and, in the latter, from No View to Negligible. None of these increases are considered to be significant. Impacts at all other viewpoints considered would be unchanged.

7.12 The cumulative visual impact assessment for the Modified 2013 Scheme found that potential significant impacts would occur at two cumulative viewpoints (CVP) (CVP1 – View from Ben Griam Beg and CVP2 – View from A836 near Borgie). Impacts at all other cumulative viewpoints and route receptors would not be significant.

Ecology

7.13 Additional National Vegetation Classification (NVC) habitat surveys were undertaken across the site including the new proposed access track route. This survey data provided the basis for updated calculations of habitat loss, direct and indirect habitat impacts.

7.14 Updated protected species surveys were carried out across the site in 2012. In addition, protected species surveys were undertaken to account for changes to the proposed access track route. The findings from these surveys were very similar to those presented in the 2007 ES and provide further indication of the distribution and use across the site by the key species, namely otter, water vole and pine marten.

7.15 Additional fisheries and invertebrate surveys were undertaken within the River Strathy and tributaries catchments in 2007, with a subset of sampling locations visited in 2009 and 2012. These surveys have highlighted the presence of key species throughout all catchments along with indications of key sections of the catchments with particular importance to each species.

7.16 An updated peat landslide hazard assessment was used in order to provide an updated assessment of potential impacts on protected species and fish.

7.17 The assessment concluded that the potential construction impacts in relation to temporary habitat loss and disruption to protected fauna could be mitigated so that the residual impact was negligible. This would be achieved through a number of mitigation measures such as: the demarcation of working zones to limit the potential area of damage and disturbance; micro-siting of infrastructure and turbines under advisement from the ECoW; periodic vehicle checks for leaks; timing of works to avoid periods of heavy rainfall; and reinstatement of areas of disturbance as soon as feasibly possible using existing previously removed vegetation. The ECoW would oversee all works and the contractor would be required to provide construction method statements. The mitigation measures would be incorporated into the Construction and Environmental Management Plan (CEMP).

7.18 Operational/ongoing impacts resulting from the Modified 2013 Scheme would include habitat loss, direct and indirect impacts on peatland habitats; and increased pressure on designated habitats due to deer displacement from Strathy South Forest. To mitigate the potential impacts it is proposed that habitat restoration activities would be undertaken in order to compensate for habitat impacts. Vegetation monitoring would be implemented to ensure no further unforeseen

degradation to designated habitats. A Deer Management Plan would be prepared which would include monitoring of deer numbers and impacts on SAC habitats. The mitigation measures would be implemented through the CEMP, Habitat Management Plan and the Deer Management Plan. With the mitigation measures in place, residual effects would be negligible/minor. The only exception being for the direct and indirect impacts on non-designated peatland habitats, where the residual impact would be moderate beneficial through the implementation of the Habitat Management Plan.

Ornithology

7.19 The data collected on the baseline bird interests at Strathy South are comprehensive, spanning the period 2003 to 2012 (with some further 2013 results for key species). Fieldwork has been extensive, collected by experienced field ornithologists.

7.20 The 2003 – 2012/2013 survey data has been collated, combined with desk study results and analysed, and the combined insights used to inform the layout of the Modified 2013 Scheme. As well as detailed knowledge of the site's bird interests, off-site fieldwork completed for the earlier Strathy North Wind Farm application, generated significant insights into patterns of flight behaviour that can be anticipated once forest removal has taken place in both plantations.

7.21 A thorough assessment using these data has been completed to predict the potential effects of the Modified 2013 Scheme wind farm on the qualifying species of the Caithness and Sutherland Peatlands Special Protected Area (SPA). This assessment has also taken particular note of the issues highlighted by Scottish National Heritage (SNH) in their previous response to the original 2007 application.

7.22 Through provision of its cumulative spreadsheet, SNH has provided details of other plans and projects for consideration in the cumulative and 'in combination' assessments but given the relative distance of other developments, attention has focussed on the consented Strathy North Wind Farm. There has additionally been close co-operation between the Applicant and the developer of the proposed Strathy Wood Wind Farm, EON , which has enabled sharing of bird (and habitat) data across sites as well. Depending on the final layout of the Strathy Wood application, there may or may not be cumulative implications, but at this stage, with only a Scoping layout submitted, it has not been possible to quantitatively include this in the cumulative and in combination assessments.

7.23 In light of all the above, it is therefore considered that there is sufficient information available for the competent authority to carry out an Appropriate Assessment of the Modified 2013 Scheme, alone and in combination with other plans and projects.

7.24 The mitigation measures set out in the Original 2007 ES have been superseded. In their place is a comprehensive mitigation package to cover the pre-construction phase, the construction phase and the operational phase. The measures are designed to (i) ensure there are no residual significant negative effects, or the risk of any such negative effects, on valued ornithological receptors (ii) the proposed development causes no adverse effect on the integrity of the Caithness and Sutherland Peatlands SPA, (iii) causes no negative impacts on the underlying Sites of Special Scientific Interest or Ramsar Site, and (iv) full compliance with wildlife protection legislation, notably prevention of disturbance to all breeding birds.

7.25 Pre-construction, a complete re-survey of moorland breeding birds, breeding divers and breeding raptors would be completed, using the same survey methods and extent as in 2012. The purpose of this pre-construction survey is to ensure the Applicant and their contractors have updated baseline knowledge of any ornithological sensitivities to take into account during forest removal. Data from these surveys would be combined with the breeding information (presented in ES Addendum Technical Appendix A11.1), and also feed into the Bird Monitoring and Protection Plan, which will form part of the CEMP. This Bird Monitoring and Protection Plan will:-

- set out the survey methods, coverage, and reporting schedule for all bird monitoring during construction;
- include protocols and buffer distances to be put in place for all breeding birds; and
- provide all the necessary material for bird-related tool-box talks for construction staff, to ensure they are aware of obligations under the relevant legislation and best practice.

7.26 For the subsequent construction phase, the mitigation is two-fold, comprising the implementation of the Bird Monitoring and Protection Plan by suitably experienced ornithological specialists, plus the employment of a one or more full-time ECoW. The appointed individuals would work closely together and ensure the full implementation of the Bird Monitoring and Protection Plan. Notably during the forest removal phase, this would focus on ensuring breeding birds are protected from disturbance, in accordance with wildlife legislation, using pre-clearance checks before any forest removal and monitoring of breeding bird activity on open ground and water bodies within and adjacent to the site. As has been the case with Strathy North, when the presence of key bird species is identified, the Applicant would ensure SNH is consulted on and in agreement with the detailed measures put in place to avoid disturbance risk.

7.27 For the operational phase, generic and species-specific mitigation measures are proposed. The generic mitigation is to provide the mechanism, should SNH require

it, for controlling vegetation (notably conifer regeneration and rushes) within proximity to turbines if they consider the vegetation cover is attracting nesting hen harrier or waders sufficient to cause an elevated significant risk of collisions. Therefore, this measure is a precautionary feature of the mitigation package, given that the collision risk modelling for the Modified 2013 Scheme revealed negligible predicted collisions for all species other than red-throated diver (for which there is species-specific mitigation – see below). It also reflects the fact that SNH has indicated their preference for peatland restoration, rather than short-sward management for the turbine envelope. This generic 'vegetation control' mitigation would be implemented (through mechanical means, grazing or both), in proximity to turbines, where vegetation and/or breeding bird monitoring results show that an unacceptable risk of collision is emerging, in SNH's view. The mechanisms required to implement this vegetation control are set out in the Strathy South Outline Habitat Management Plan, which forms part of the ES Addendum (see Technical Appendix A11.2). The purpose of this vegetation control is to help achieve the peatland restoration objective of the HMP but also to minimise the risk of collisions of ground-nesting breeding birds that would otherwise potentially nest in young conifer regeneration, brash piles or rushes (notably hen harrier and short-eared owl).

7.28 The species-specific operational phase mitigation includes the following:

- red-throated diver: occasional breeding activity by this species has been found to occur on a lochan in the northwest part of the site. Monitoring of breeding lochs in and around Strathy South (and North) has shown there are alternative breeding lochs/lochans available in the surrounding SPA. Therefore, it is proposed to make the lochan unsuitable for breeding divers and to divert any breeding attempt off-site for the lifetime of wind farm. The lochan is sufficiently small (less than 50 m wide) that this is considered practically achievable, and should SNH consider it an appropriate measure, the diversion approach would be agreed with SNH, with such options potentially including making it unsuitable by floating strings of coloured buoys across it, for the duration of the breeding season (April to August);
- off-site mitigation would be implemented in the form of diver rafts, to benefit the wider SPA population (and potentially more widely, outside the SPA, if that is considered beneficial by SNH). Whilst these rafts have been statistically shown to benefit the breeding success and productivity of black-throated divers, it is also recognised that rafts provide increased nesting options for red-throated divers that are likely to help reduce losses to predation. The Applicant has an agreement in place with a local landowner to install diver rafts on their site. Therefore, a number of rafts, to be agreed with SNH, would be provided and maintained over the lifetime of the wind farm. This is considered sufficiently

comprehensive to ensure mitigation goes above and beyond off-setting the residual predicted collisions for both red and black-throated divers.

7.29 Through the implication of the mitigation measures set out above, it is considered that the impacts of the Modified 2013 Scheme on birds would be negligible/minor. The Scheme alone, taking mitigation into account, is not considered to have an adverse impact on the integrity of the SPA, and this remains the case in combination with other plans and projects already submitted at EIA stage or beyond. The cumulative and in combination effects arising from Strathy Wood cannot be assessed at this stage, however, until such time as its application is submitted..

Noise

7.30 The operational noise assessment has been carried out by comparing operational predicted noise levels for a candidate turbine under consideration for the Modified 2013 Scheme, with acceptable noise limits in accordance with ETSU-R-97, 'The Assessment and Rating of Wind Farm Noise', as specified in Scottish Government web-based planning advice for onshore wind turbines as referred to in PAN 1/2011, Planning and Noise.

7.31 The operational noise assessment shows that the predicted noise levels would be below the ETSU-R-97 simplified noise limit, of 35 dB LA90 for wind speeds up to 10 m/s, for all residential properties under all wind speed and direction conditions. There would be no predicted significant cumulative operational noise effects for the Strathy South and Strathy North Wind Farms operating in combination. In the event that Strathy South, Strathy North and Strathy Wood Wind Farms all operated in combination there would still be no predicted significant cumulative operational noise effects, based on the understanding that the Braerathy Lodge would be vacated in the event that the Strathy Wood Wind Farm was approved.

7.32 An assessment has been made of construction noise arising from the operation of plant and machinery in connection with the construction of the wind farm following the principles described in BS5228, 'Code of Practice for Construction and Open Sites'. It would be ensured that all construction activities would be below the adopted 65 dB LAeq noise limit and, in practice, noise from construction would be controlled through the Control of Pollution Act 1974 and the Pollution and Prevention Control Act 1999.

Cultural Heritage

7.33 Thirteen sites of cultural heritage significance have been identified by the assessment within the study area boundary using a range of desk-based sources, consultations and field reconnaissance survey. There remains a possibility of further buried and unrecorded remains of archaeological significance surviving

across the site. However, the probability of encountering any further remains is considered to be low together with a low probability of the Modified 2013 Scheme impacting on them if they did exist.

7.34 One site, No.9: multi-period settlement of regional archaeological importance, located within the site boundary, is defined as a feature of medium sensitivity, but predicted to receive a negligible impact from the Modified 2013 Scheme, after removal from the design of Turbine 34, relocation of a laydown area and removal of need for track widening through the archaeological site.

7.35 One external receptor, Ben Griam Beg Scheduled Ancient Monument, is predicted to receive residual indirect effects of predominantly low to medium magnitude, with the overall significance of the setting impact from the Modified 2013 Scheme is predicted to be minor.

7.36 The potential for cumulative effects resulting from the Modified 2013 Scheme and other wind farm developments have been considered from Ben Griam Beg SAM. The distance from Ben Griam Beg at which wind farms are visible in clear weather conditions could be up to 60 km to the east, where high ground does not intervene to block views across Caithness. To the south and southwest intervening high ground screens views of wind farms in the Lairg area, but wind farms above Strath Brora, approximately 26 km distant to Ben Griam Beg will be partially visible

7.37 Cumulative effects from the scheme have been assessed from Ben Griam Beg. This assessment includes consideration of the Modified 2013 Scheme together with other wind farms in the vicinity of the site.

Soils and Water

7.38 The hydrology, geology and hydrogeology assessment involved detailed desk studies and site visits to establish conditions of the site.

7.39 The potential effects on the surface waters, groundwater, peat, designated sites and private water supplies have been considered.

7.40 Following the identification and assessment of the key receptors, a comprehensive suite of mitigation and best practice measures were incorporated into the design, including appropriate buffer areas. Specifically, mitigation of potential adverse effects could be achieved via the CEMP, in particular during the construction period.

7.41 The impact assessment took into account the hydrological regime, highlighting that the principal effects would occur during the construction. Following implementation of the mitigation measures the significance of construction effects on all identified receptors is assessed to be of minor or no significance. The assessment of predicted on-going and operational effects has also determined that the significance of effects on all receptors to be of minor or no significance.

7.42 Additional peat probing has been undertaken across the site to provide further understanding of the site's peat depth and coverage. A review of the peat coverage found peaty soil and peat deposits cover most of the site and variously overly glacially derived soils such as glacial till comprising, sand and gravels and in places bedrock. The peat was found to vary across the site in terms of thickness, surface slopes and apparent characteristics. The peat has been subject to limited erosion from fluvial activity and localised erosion, causing minor hagging and ponding on the peat.

7.43 It was identified that peat stability has a negligible to low risk of peat instability over most of the site although some limited areas of medium risk were identified. As noted in Section A14.6.2 of Chapter A14: Soils and Water, a hazard impact assessment of the medium risk areas concluded that, subject to the employment of appropriate mitigation measures, all of these areas could be considered as an insignificant risk.

7.44 Baseline hydrochemical monitoring has been carried out within the River Strathy catchment and a summary of the results is provided in Chapter A14: Soils and Water. The results of the baseline monitoring cover at least a year for all but two sample locations. The following conclusions were drawn from the monitoring:

- It was found during the baseline monitoring that there are very large fluctuations in pH between sampling occasions, which are almost certainly natural, reflecting the changes in the main source of water entering the watercourses;
- There are moderately high concentrations of Dissolved Organic Carbon (DOC) in all the watercourses, while there are very low concentrations of inorganic nitrogen and Soluble Reactive Phosphates (SRP) in all the samples. The calculated Acid Neutralising Capacity (ANC) levels are always positive, but close to zero during periods of high flow;
- Most of the significant quantities of aluminium and zinc in nearly all of the samples must be bound to the dissolved and/or particulate organic matter in the water;
- The baseline set of data is considered to be more than adequate to characterise the hydrochemistry of the River Strathy that drains the whole of the proposed Strathy South Wind Farm development; and the present suite of determinants is considered to be adequate to satisfy the water quality standards covered by the EC Freshwater Fisheries Directive and SEPA's monitoring requirements.

7.45 In summary, effects on the site hydrological, hydrogeological and geological conditions are assessed to be not significant.

Roads and Traffic

7.46 An updated assessment of the potential roads and traffic effects of the Modified 2013 Scheme, in comparison with the 2007 ES, was undertaken.

7.47 The revised assessment considered the change in turbine numbers and parameters and the change in approach with respect to forestry clearance and stone import.

7.48 The revised assessment also acknowledged the changes to the road network that resulted in the removal of the A836 between Melvich and Strathy as a sensitive receptor due to the upgrading of this section of the route from single track to single carriageway (two lanes) in the intervening period. Also, the selection of Route 1 as the preferred route for Heavy Goods Vehicles (HGVs) traffic has resulted in the removal of the settlements of Strathy, Bettyhill and Kinbrace from the assessment of congestion impacts as HGV movements would not pass through or near these settlements.

7.49 The assessment concluded that through the use of traffic management measures, which would be implemented through the Traffic Management Plan, and the route selection process, the construction traffic (both HGV and non-HGV) would result in no significant residual impacts arising from the Modified 2013 Scheme. No mitigation measures have been proposed for the operational traffic impacts as the amount of operational traffic associated with the Modified 2013 Scheme would be minimal.

Other Considerations

Air and Climate

7.50 The Original 2007 Scheme identified construction particulate dust and carbon dioxide emissions as potential source of effect on local air and climate. However during the consultation process no issues were identified with regard to air and climate quality. Construction dust and emissions from construction traffic would be managed by the processes outlined in the CEMP.

Telecommunications and Aviation

7.51 The 2007 ES undertook consultation with relevant telecommunications and aviation operators and agencies to cover the following areas:

- Television
- Radio
- Mobile phone networks
- Air traffic control
- Military radar
- Civilian airspace

- Military airspace

7.52 The reconsultation exercise provided these organisations with the revised layout. No issues were raised in relation to telecommunications. However, the Ministry of Defence (MOD) has raised an objection in relation to low flying aircraft as the site is located in a low flying training zone. The Applicant is working with MOD to agree a mitigation solution, examining the relationship of the development with respect to the low flying activity.

Recreation and Tourism

7.53 The only outstanding issue raised in response to the Original 2007 Scheme related to Loch Strathy Bothy and North Sutherland Track 334 (formerly known as Hill Track 332). However, through the deletion of elements of proposed wind farm infrastructure, the layout of the Modified 2013 Scheme reduces the impacts on the Lochstrathy Bothy, particularly through the removal of Turbine 34, which was originally located close to the Bothy.

7.54 Consultation with the Sutherland Access Office (Matthew Dent) confirmed that the North Sutherland Track 334 is not a designated Public Right of Way but it is a route where access rights apply. Therefore, the track would be closed during the construction phase and reopened for public use afterwards.

7.55 Since the 2007 ES was submitted, THC adopted the Highland Council Core Paths Plan (2011). The core path plan covering the Sutherland area has been reviewed and none of the core paths are located within the red line boundary of the Modified 2013 Scheme.

Socio-economic

7.56 The socio-economic impacts of the Modified 2013 Scheme are as follows:

- the development and construction phase (capital cost) of the infrastructure for the Modified 2013 Scheme is expected to be approximately £256 million. This is expected to bring a total of 140 temporary construction jobs to Scotland, mainly during the 24 month construction phase. Local firms would be provided with the opportunity to tender for construction and operational services. Related benefits include offering apprenticeships and training opportunities;
- temporary employment would be created during decommissioning. However, it is difficult to predict the effects on the economy in 25 years' time. In general, effects are expected to be similar to those during construction albeit to a lower magnitude;
- related economic benefits include investment in facilities such as roads and ports, and the cumulative effect of the creation of a pipeline of projects. This includes the Applicant's investment in the supply chain which would have a longer term effect through the support of the renewables sector as a whole; and

- there would be a lasting legacy from the Applicant's community investment funding which, for the Highland region as a whole, has a value of £20 million over the lifetime of the project. This would affect the economy and the community by supporting and creating employment, supporting schemes such as community energy schemes and local projects which could range from keeping the local shop open or improving community transport. This could have a long term effect beyond the life time of the Modified 2013 Scheme by helping to make the local area a more sustainable place in terms of community and the environment.

Figure 1: Site Location

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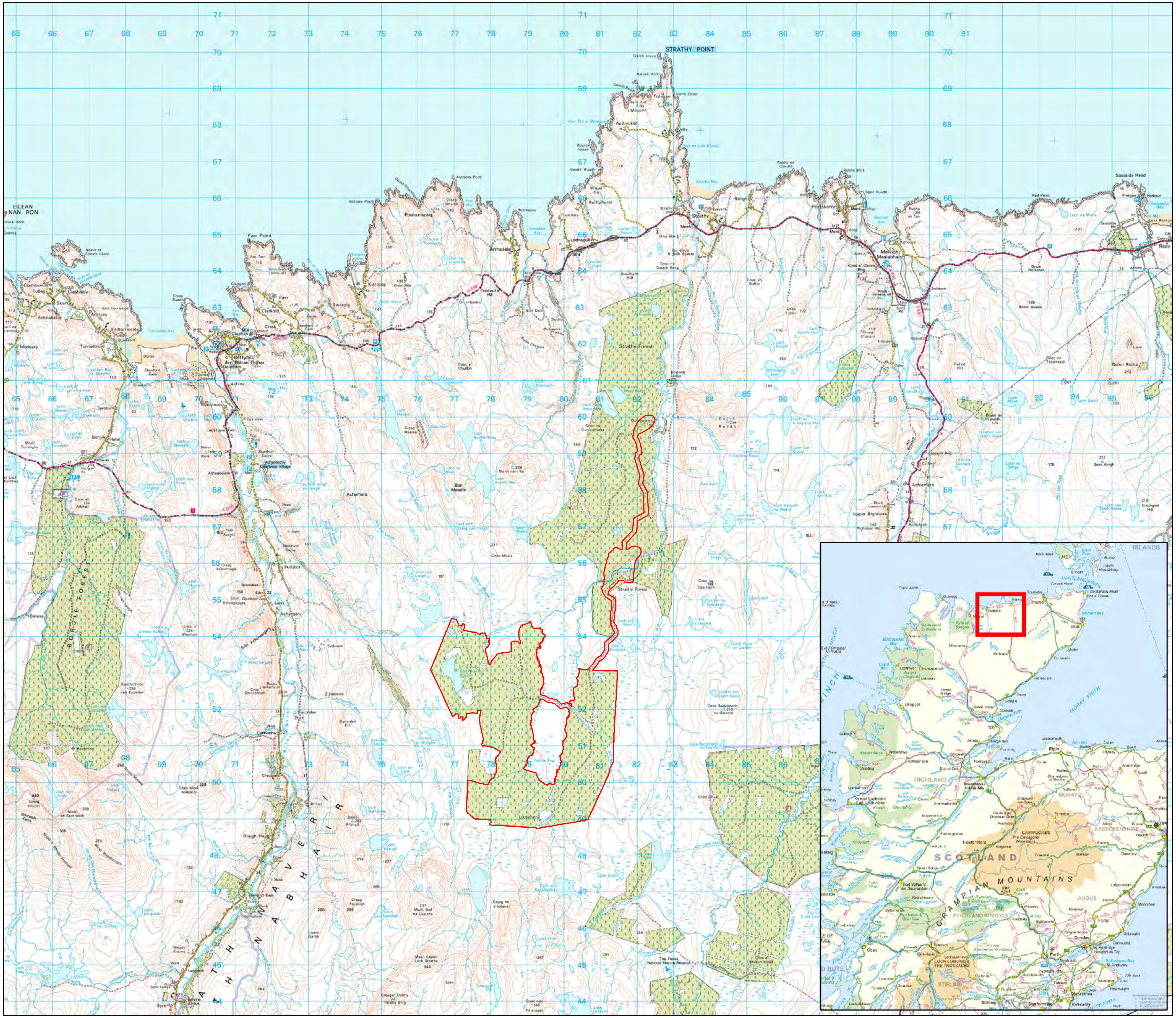

Key

Site Boundary

Scale 1:100,000 @ A3

0 1 2 4 km

N

Figure 1

SITE LOCATION

Strathy South Wind Farm
ES Addendum NTS

Figure 2: Site Layout

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SSE Renewables

Key

- Turbine
- Permanent Met Mast
- Water Abstraction Location
- Tracks
- Strathy North Access Route
- Preferred Access Route
- Alternative Access Route
- Common Access Route
- Preferred Indicative Cable Route through Strathy North
- Alternative Indicative Cable Route through Strathy North
- Common Indicative Cable Route through Strathy North
- Concrete Batching Plant
- Construction Compound
- Laydown Area
- Switching Station
- Borrow Pit
- Site Boundary

Scale 1:45,000 @ A3

0 0.5 1 2 km

N

Figure 2

WIND TURBINE LOCATIONS

Strathy South Wind Farm
ES Addendum NTS

Figure 3: Typical turbine elevation

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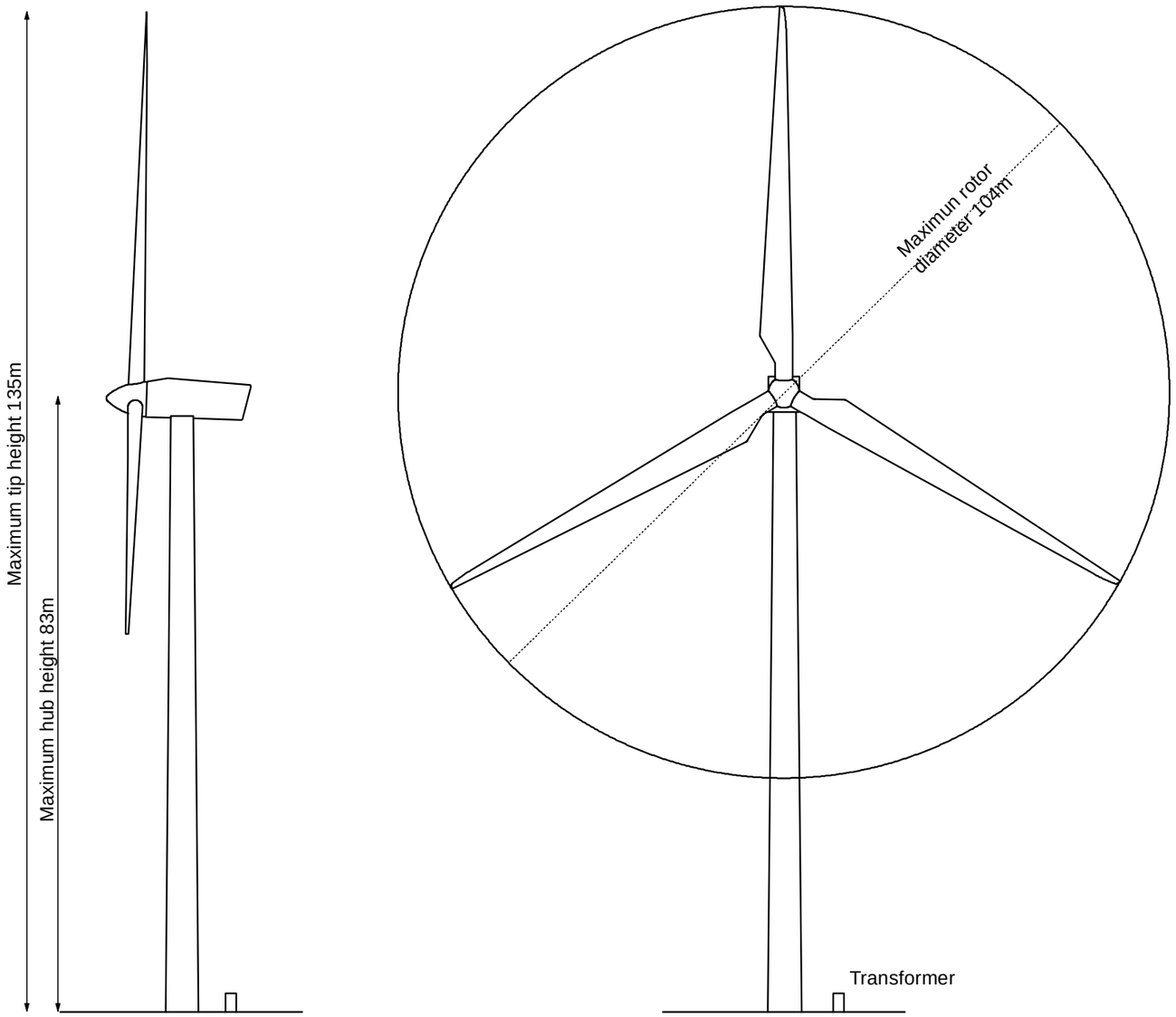

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Figure 3

TYPICAL TURBINE ELEVATION

Strathy South Wind Farm
ES Addendum NTS

Figure 4: Typical mast elevation

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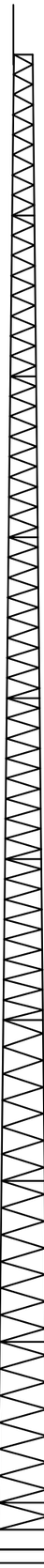
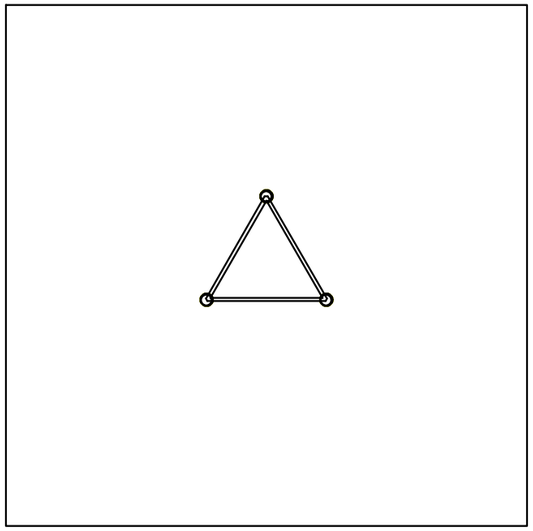
0 2.5 5 10 Metres

Side View
Scale 1:350



0 2.5 5 10 Metres

Cross Section A-A
Scale 1:200



SSE Renewables

Notes

1. Dimensions are indicative only.

Figure 4

PERMANENT MET MAST

Strathy South Wind Farm
ES Addendum NTS

Figure 5: Switching Station and Control Station Layout

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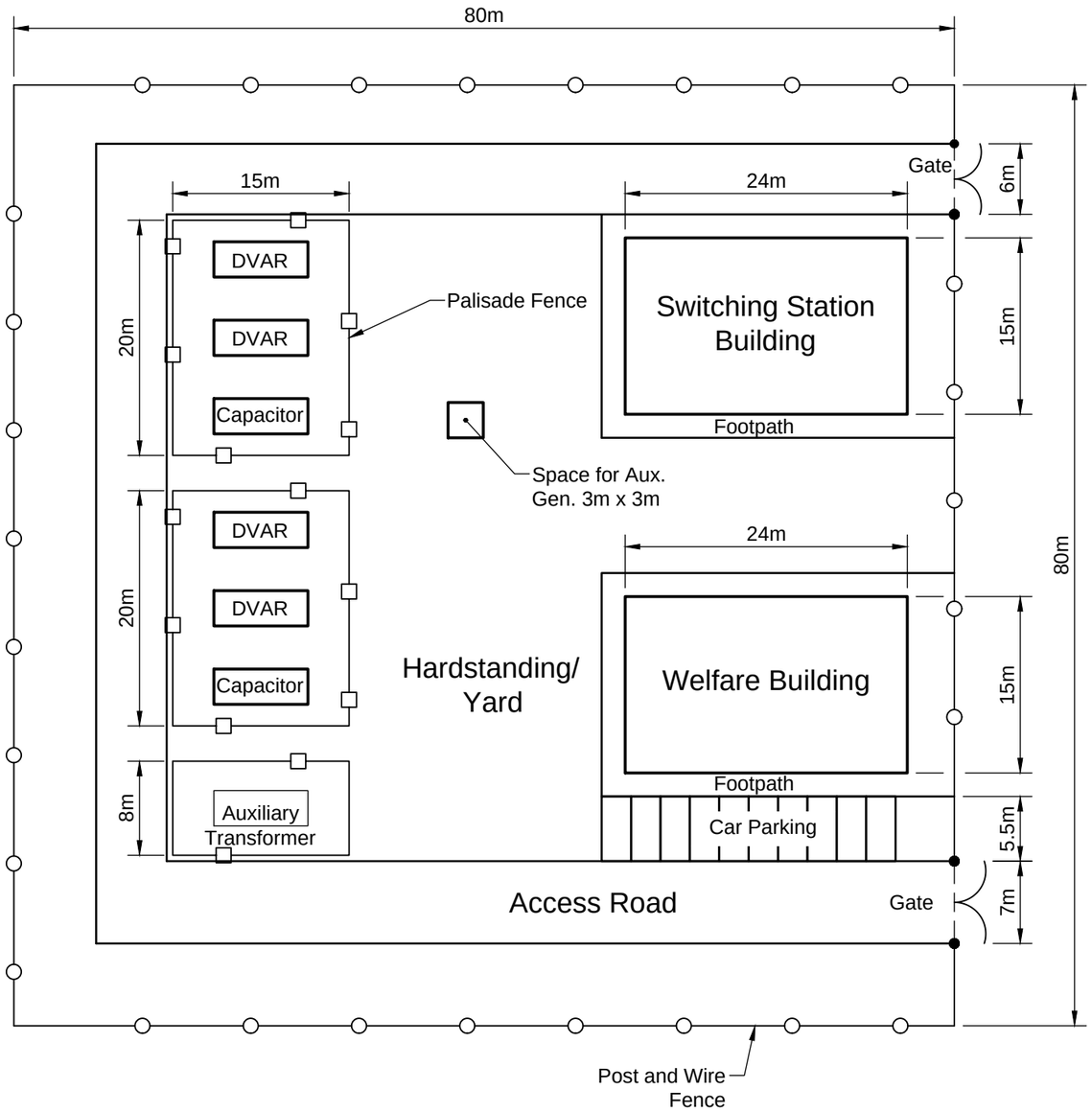

LAYOUT

Scale: 1:500 @ A3

SSE Renewables

Legend

- **Palisade Fence 2750mm high**
- **Post & Wire Fence 1000mm high**

Notes

1. **Layout and dimensions are indicative and are subject to change after detailed design.**

Figure 5
Indicative Switching Station and Welfare Layout

Strathy South Wind Farm
ES Addendum NTS

Figure 6: Typical Access Track (cross-sections)

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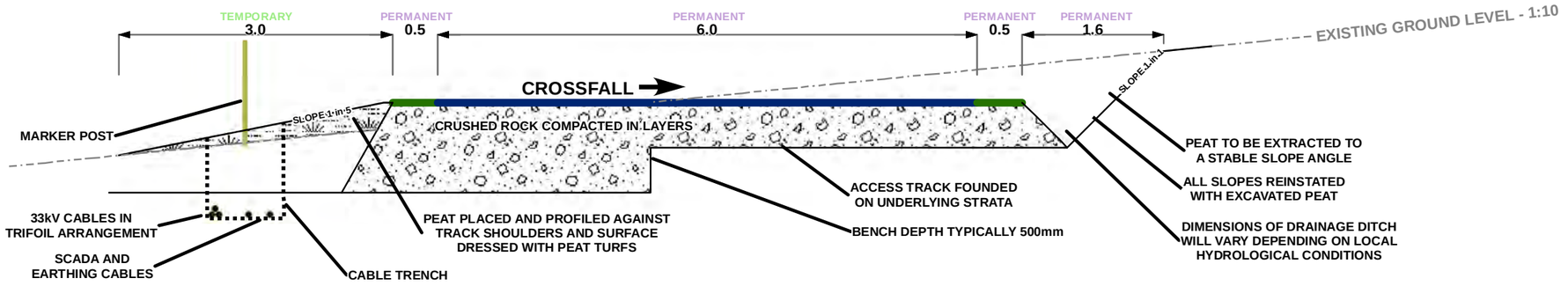
TYPICAL CUT ROAD



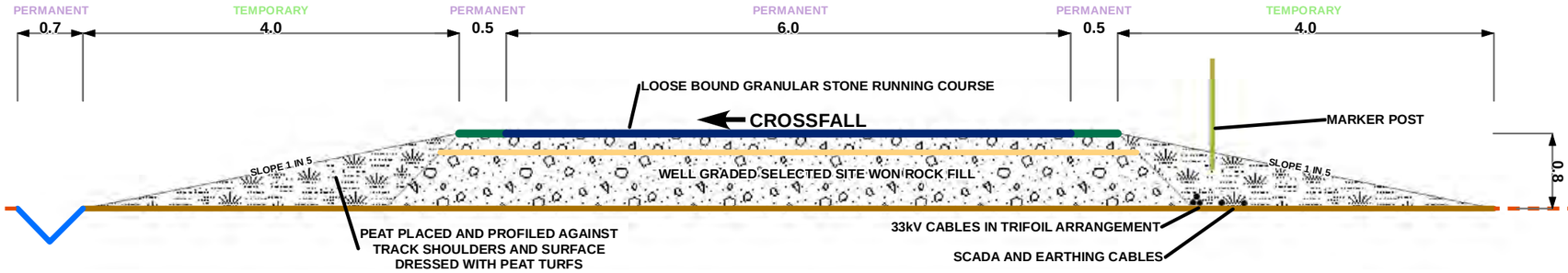
Scale 1:60

Running Surface - Wearing Course 150mm

Verge

0 1 2 3 Metres

TYPICAL FLOATING ROAD



Scale 1:60

Running Surface - Wearing Course 150mm

Verge

Drainage

Upper Layer of Geotextile

Lower Layer of Geotextile Anchored to Existing Ground Surface

Original Ground Line

0 1 2 3 Metres

Notes:

All dimensions in metres (accuracy 0.1m)

Depth of Construction of access tracks shown as typical depth. Actual depth to be finalised following detailed ground investigation

Cable arrangements shown for a single array

Figure 6

TYPICAL ACCESS TRACKS

Strathy South Wind Farm
ES Addendum NTS