



CHIRMORIE WIND FARM

Application For Variation under Section 36C of the Electricity Act 1989

Chirmorie Wind Farm Ltd

June 2019



**CHIRMORIE
WIND FARM
LIMITED**

Debbie Flaherty
Scottish Government Energy Consents Unit
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

7 June 2019

Dear Debbie,

CHIRMORIE WIND FARM

THE ELECTRICITY GENERATING STATIONS (APPLICATIONS FOR VARIATION OF CONSENT) (SCOTLAND) REGULATIONS 2013: APPLICATION FOR VARIATION UNDER SECTION 36 C OF THE ELECTRICITY ACT 1989 AND DIRECTION FOR DEEMED PLANNING PERMISSION UNDER SECTION 57(2ZA) OF THE TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997 OF THE SECTION 36 CONSENT TO CONSTRUCT AND OPERATE CHIRMORIE WIND FARM IN THE SOUTH AYRSHIRE COUNCIL PLANNING AUTHORITY AREA

By decision letter dated 16th March 2018 the Scottish Ministers granted consent under Section 36 of the Electricity Act 1989 (the 's36 consent') together with a direction under section 57 (2) of the Town and Country Planning (Scotland) Act 1997 (the permission) granting deemed planning permission for Chirmorie Wind Farm, approximately 7km south west of Barrhill, South Ayrshire.

Chirmorie Wind Farm Limited ('the applicant') seeks a variation under section 36C (s36C) of the Electricity Act 1989 and the Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013 to the duration of the consent as described in page 15, paragraph 3 of the decision letter dated 16th March 2018, together with a direction under s57 (2ZA) of the Town and Country Planning (Scotland) Act 1997 varying the deemed permission. This application under s36C and s57 (2ZA) is hereinafter referred to as the 'variation application'. The proposed variations include:

- a) increase the duration of consent from 25 years to 30 years;
- b) alter the location and the size of the on-site substation and temporary construction compound;
- c) include a route for access to the wind farm development boundary from the public road (A714); and
- d) include a borrow pit in the same area as the proposed new link track to potentially assist with its construction.

Appendix 1 of this letter presents a full commentary on the proposed Draft Variations to the Scottish Ministers' Determination and the Description of the Development. Appendix 2 contains a copy of the s36 consent, which includes the description of the consented development (see Annex 1 of Appendix 2).

The Applicant also seeks to vary some of the conditions contained in Annex 2 of the s36 consent and deemed permission to reflect the changes to some of the development.

Conditions no. 5 and no. 33 attached to the deemed planning permission have been identified as requiring variation. These are set out below. All other Conditions, insofar as they relate to the infrastructure changes presented in the revised and new drawings included in this application, will remain the same.

- Condition 5 - Implementation in accordance with approved plans and requirements of the permission – a new drawing (Figure V3.1) will replace original Environmental Statement (ES) Figure 3.1, excluding Turbine no. 22 and will also show the location of the new access route and proposed new borrow pit. It is anticipated that the Screening Report (submitted to Scottish Ministers in March 2019 – see below) will also form part of the approved documentation.
- Condition 33 – Site Decommissioning, Restoration and Aftercare – the condition will be updated to refer to decommissioning occurring no later than the date falling thirty years from the date of Final Commissioning to take into account the extended life time of the wind farm.

The development as it would be if the proposed variations were permitted is referred to as the 'Proposed Varied Development'. The variations sought are described herein as the 'proposed variations'. These are shown in full in Appendix 3 which contains a draft of the variations proposed to be made to the s36 consent, and a draft of the proposed s57 (2ZA) direction for the purpose of the 2013 Regulations.

The revised Figure V3.1 (Proposed Varied Development) is included in Appendix 4 to vary this consent.

In terms of infrastructure changes, other than the relocation and scale of the substation, and the inclusion of a new access track from the main road (A714) to the wind farm access on the unclassified road (the C72), there are no changes proposed to the location or scale of the 21 turbines or the internal access tracks already consented.

Reason for seeking the variation

Under section 36C(4) the Scottish Ministers must have regard to the Applicant's reasons for seeking a variation to the s36 consent. The reasons for seeking the proposed variations to the relevant s36 consent are stated below:

a) Duration of the Consent

Since the granting of the consent the turbine and electricity market has changed significantly. Subsidies for onshore wind ended in 2015. The wind farm would be solely reliant on revenue

from electricity generation and sold to the wholesale energy market and optimisation of the site from a generation perspective is essential for the project's economic viability. The extension of the duration of the wind farm will therefore allow the owners / operators to model the economics over a longer period and thereby improve the financial viability of the project. The wind farm would generate renewable energy for a longer period of time which will contribute to the Scottish Government's target on CO² reduction levels.

b) Relocating and increasing the size of the Substation (and temporary construction compound)

The size of the substation will need to be increased to allow for more space to incorporate the wind farm electrical connection. At the time of the original S36 application the applicant scaled the substation based on the connection requirements known at the time, however since then it has come to light that more space is required to allow Chirmorie Wind Farm and Scottish Power Energy Networks to construct their own separate infrastructure within the same area. A plan of this is shown on Fig V3.1.

The substation will be connected to a 132kV overhead line and then export electricity to Mark Hill substation. This 132kV overhead line and associated infrastructure is currently subject to a separate planning application under section 37 of the Electricity Act.

The temporary construction compound will also require an increase in size to accommodate the extra vehicles and working area for construction of this larger substation.

The existing substation location is within toppling distance of Turbine 12. The applicant therefore proposes to relocate the substation to avoid this. To achieve this, the substation would be moved approximately 60m, from the existing consented location directly to the north of the wind farm track to a location south and adjacent to the track. The temporary construction compound would also be relocated to a location adjacent to the substation.

c) Include a route for access to the wind farm development boundary to the main road.

It is a condition of consent (Condition 18 part (b)) that the applicant will provide a suitable access route to the wind farm proposal to bypass Barrhill Village. The parts of Condition 18 which are relevant to this S36C variation application are copied below:

Condition 18:

(1) No development shall commence until a Traffic Management Plan ("the TMP") has been submitted to and approved in writing by the Planning Authorities. The TMP shall include:

- b) The route and traffic management measures in place to bypass Barrhill village (c) measures to ensure that the specified routes are adhered to, including monitoring procedures; ...*

(2) The TMP shall be implemented as approved.

The access route provided in this variation application bypasses Barrhill village, as required by the condition, utilising a wind farm and forestry haul road which serves Arecleoch and Kilgallioch wind farms. A section of new link track (approx. 1 km) will be required to connect the haul road with the access point to the proposed wind farm. The use of this access will reduce

disturbance to the people living in Barrhill and will reduce the amount of road upgrades required if the route from Barrhill to site was to be used by abnormal loads and heavy construction traffic. It is possible that some upgrading of the haul road will be required to improve the running surface and drainage, however all works will be carried out within the red line boundary. An assessment of the environmental effects has been carried out along this route and no significant impacts are predicted should any upgrading work be carried out. This assessment is contained in Appendix 5.

To facilitate the construction of the link track, a supply of stone will be required. The area where the link track is being proposed is located in an area where the stone is potentially useful and the Applicant proposes to utilise this local resource. Preliminary studies indicate that the stone is of suitable quality for the construction of the track (see Appendix 5). Therefore, use of this borrow pit will reduce the amount of HGV movements that would otherwise be required to deliver stone from another location further away. More detailed geotechnical studies will be undertaken prior to construction commencing to confirm the quality of this stone.

The Applicant is also seeking a direction under section 57(2ZA) of the 1997 Act to vary the deemed planning permission for the proposed varied development. These variations are proposed in order to take account of: i) the variations to the Description of the Development; and ii) updated environmental information contained in the Environmental Report (refer to Appendix 5). These variations were deemed not to be EIA development (see EIA Screening below).

A draft of the proposed s57 (2ZA) direction is provided in Appendix 3, together with a list of those planning conditions contained in Part 2 of Annex 2 of the S36 consent letter that it is proposed should be revised and updated.

EIA Screening

The applicant submitted a request for a Screening Opinion to the Energy Consents Unit on 22nd March 2019 to establish whether the proposed variation to the consented development constituted EIA development. This was made under regulation 8 (1) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) (“the Regulations”).

Under Regulation 8 (2) the screening request report included a description of the location of the consented wind farm, a description of the proposed access and variation works and their physical characteristics, and a description of the extent to which aspects of the environment would be affected by the proposed changes. The request was accompanied by a site location plan, a plan showing the detail of the proposed additional infrastructure, and a plan showing sensitive environmental receptors in the vicinity of the varied construction proposals.

Ramboll was appointed to coordinate the screening request and produce supporting environmental information for the proposed changes to the consented development. The applicant has ensured that all environmental reporting prepared to support the application has been carried out by ‘competent experts’, in accordance with Regulation (5) of the 2017 EIA regulations.

A comprehensive environmental report (see Appendix 5) was provided to accompany the request which identified the potential for significant effects as a result of the variations to the development. The report determined that the most intrusive proposed change to the overall development was for

the provision for alternate access to the generating station, and therefore it focused on a review of potential significant effects of this proposal against a range of environmental factors. The report also included a description of proposed measures (additional to those measures committed to in the 2015 Environmental Statement (ES) as part of the original application for s36 consent) to mitigate any adverse effects on the environment arising from the proposed access.

Since the screening request has been submitted it has been identified that, for health and safety reasons, the substation location requires to be moved approximately 60m south of its current location. The updated location for the substation has been surveyed for ecological interests. The habitat and ground conditions of the area it is being relocated from and to are very similar to those in the previously proposed area, and no changes to the effects reported in the 2015 ES or the 2019 environmental assessment in support of the screening opinion are predicted.

The temporary construction compound will also be relocated alongside the proposed new substation location to assist with the construction of the substation and no significant environmental effects are predicted (see Appendix 5).

Statutory Consultation

The Scottish Ministers are required to consult the relevant planning authority within whose land the proposed application is situated. South Ayrshire Council advised on 17th April 2019, that in their view, the proposed development did not constitute EIA development.

Scottish Ministers EIA Considerations

Taking account of the information provided by the applicant in the Screening Opinion request, Scottish Ministers adopted the opinion that the proposal does not constitute EIA development and that any application submitted for this development does not require to be accompanied by an EIA report.

A copy of the Applicant's Screening Opinion request letter and the Screening Opinion response from the Scottish Ministers outlining the position are included as Appendix 6.

This application for a variation to the S36 consent includes a draft of the proposed variations to the s36 consent along with a draft of the proposed section 57(2ZA) direction. A copy of the variation application will be served on South Ayrshire Council in accordance with Regulation 4(2)(b) of the Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013, as amended ("the 2013 Regulations").

The application and the supplementary Environmental Assessment Report will be advertised in accordance with The Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013 as follows:

- Carrick Gazette Wednesday 12th and Wednesday 19th June 2019
- Edinburgh Gazette Wednesday 12th June 2019
- Galloway Gazette Friday 14th and Friday 21st June 2019
- Daily Record Wednesday 12th June 2019

A copy of the agreed advert is enclosed with this letter (Appendix 7)

The Environmental Report and associated documents will be available for viewing at the following locations:

South Ayrshire Council County Buildings, Wellington Square, Ayr KA7 1DR	Barrhill Memorial Hall Main Street, Barrhill, KA26 0PP	Girvan Library Montgomerie Street Girvan KA26 9HE	New Luce Village Shop 1 Station Road New Luce, DG8 0AL <i>(viewing between 9am and 12 noon Monday – Saturday)</i>
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On the basis of the information provided in this variation application and in the supporting documents (including the Environmental Assessment Report - Appendix 5) the Applicant requests that the Scottish Ministers grant the variation application and make the proposed variations to the relevant s36 consent and makes the section 57 (2ZA) direction sought, subject to such other directions or conditions as the Scottish Ministers consider to be appropriate.

Yours sincerely

David Murray
Chirmorie Wind Farm Limited
Project Development Manager

Encl:

- Appendix 1: Draft Variations to the Relevant Section 36 Consent
- Appendix 2: Copy of the original Chirmorie Wind Farm section 36 consent letter and conditions
- Appendix 3: Draft proposed Variations to Consent and draft Section 57 (2ZA) Direction
- Appendix 4: Figures to be referenced in the relevant section 36 Consent as proposed to be varied
- Appendix 5: Environmental Assessment Report covering the proposed physical variations
- Appendix 6: Copy of Applicant's Request for EIA Screening Opinion and the response from Scottish Ministers
- Appendix 7: Copy of Public Notice / Advert

APPENDIX 1: DRAFT VARIATIONS TO THE RELEVANT SECTION 36 CONSENT

The Scottish Ministers' Determination

Subject to the conditions set out in Part 1 of Annex 2, Scottish Ministers **grant consent** under section 36 of the Electricity Act 1989 for construction and operation of the Chirmorie Wind Farm electricity generating station in the South Ayrshire Council area (as described in Annex 1) but **refuse consent for turbine number 22**

Subject to the conditions set out in Part 2 of Annex 2, Scottish Ministers direct under section 57 (2) of the Town and Country Planning (Scotland) act 1997 that **planning permission be deemed to be granted** in respect of the development described in Annex 1. **Deemed planning permission is not granted for turbine number 22.**

The consent hereby granted will last for a period of ~~30~~ **25** years from the earlier of: i) the date when electricity is first exported to the electricity grid network from all of the wind turbines hereby permitted; or ii) the date falling 18 months after electricity is generated from the first of the wind turbines hereby permitted.

The Scottish Ministers direct that section 58(1) of the Town and Country Planning (Scotland) Act 1997 is not to apply with regard to that planning permission because of the constraints of constructing or extending a generating station with a capacity of over 50MW within 3 years and that planning permission is to lapse on the expiry of a period of 5 years from the date of this direction if there has not been Commencement of the Development within that period.

In accordance with the EIA Regulations, the Company must publicise this determination on a website maintained for the purpose of making information publicly available and in the Edinburgh Gazette and a newspaper circulating in the locality in which the land to which the application relates is situated.

Copies of this letter and the consent have been sent to the Planning Authority. This letter has also been published on the Scottish Government Energy Consents website www.energyconsents.scot

The Scottish Ministers' decision is final, subject to the right of any aggrieved person to apply to the Court of Session for judicial review. Judicial review is the mechanism by which the Court of Session supervises the exercise of administrative functions, including how the Scottish Ministers exercise their statutory function to determine Applications for consent. The rules relating to the judicial review process can be found on the website of the Scottish Courts – <http://www.scotcourts.gov.uk/docs/default-source/rules-and-practice/rules-of-court/court-of-session/chap58.pdf?sfvrsn=20>

Your local Citizens' Advice Bureau or your solicitor will be able to advise you about the applicable procedures.

Yours sincerely

For and on behalf of the Scottish Ministers
A member of the staff of the Scottish Government

ANNEX 1

Part 1 - Description of the Development

The Development comprises a wind powered electricity generating station known as Chirmorie Wind Farm, located 5 kilometres south of Barrhill, in the South Ayrshire Council planning area as specified in the Application and accompanying Environmental Statement submitted on 15 November 2015, ~~and the f~~Further Information submitted on 16 February 2017 [and the variation to the development sought on 7 June 2019](#).

The *principal* components of the wind farm and related ancillary developments of the wind farm will comprise:

- 21 wind turbines with a blade tip height of up to 146.5m
- Two permanent anemometer masts approximately 90m in height
- One temporary anemometer mast (already consented) for the purposes of meteorological monitoring prior to and during construction
- [A permanent site access to be formed from the A714 \(Wheeb Bridge\) to where the main wind farm access track merges with the C71 Barrhill to New Luce Public Road](#)
- ~~A permanent site access to be formed where the main wind farm access track merges with the C71 Barrhill to New Luce Public Road~~
- On site access tracks for access to turbines, substation, borrow pits and anemometer masts
- A bridge for wind farm traffic over the railway line which bisects the site to connect access tracks and turbines on either side of the railway
- An electrical substation and control building
- Underground cabling within the site from turbines to the substation
- Up to ~~five~~four temporary borrow pits from which stone for access track construction would be sourced
- Two temporary construction compounds including parking and laydown areas
- A temporary site office and store (these may be the same building) located within each construction compound
- A temporary helicopter landing pad to provide emergency site access during construction
- Associated communications and other infrastructure
- Permanent foundations supporting turbines
- Associated crane hard standings (used during construction, operation repair and decommissioning)
- Improvements to public roads and bridges to facilitate transport of turbine components to the site.

Part 2- Excluded Development

Consent is refused for –

- 1 turbine – numbered T22 (identified on Map at ANNEX 6);
- Any associated access tracks,
- Any associated crane hard standing areas.

APPENDIX 2: COPY OF THE ORIGINAL CHIRMORIE WIND FARM SECTION 36 CONSENT LETTER AND CONDITIONS

The Applicant encloses the following:

Letter (16th March 2018), from the Scottish Government Energy Consents Unit, on behalf of the Scottish Ministers, addressed to Harry Malyon of Chirmorie Wind Farm Ltd, granting consent under s.36 of the Electricity Act 1989 and providing a direction that planning permission be deemed granted under section 57 (2) of the Town and Country Planning (Scotland) Act 1997 for Chirmorie Wind Farm.

Energy and Climate Change Directorate
Energy Consents

T: 0131 244Reda
E:Redacted @gov.scot



Chirmorie Wind Farm Ltd
22-24 King Street
Maidenhead
Berkshire
UK
SL6 1EF

16 March 2018

Dear Mr Malyon,

CONSENT UNDER S36 OF THE ELECTRICITY ACT 1989 AND DEEMED PLANNING PERMISSION UNDER S57(2) OF THE TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997 FOR CHIRMORIE WIND FARM IN THE COUNCIL AREA OF SOUTH AYRSHIRE.

Application

I refer to the application for consent under section 36 of the Electricity Act 1989 (“the Electricity Act”) made by Chirmorie Wind Farm Limited, a company incorporated under the Companies Acts with company number 09171934, having a registered office at 22-24 King Street, Maidenhead, Berkshire, United Kingdom, SL6 1EF. (“the Company”) on 30 November 2015 for the construction and operation of Chirmorie Wind farm of twenty two wind turbines, with a generating capacity exceeding 50MW (indicative generating capacity of approximately 55-79MW.)

This letter contains the Scottish Ministers' decision to grant consent, subject to conditions, but refuse consent for turbine number 22.

Planning Permission

In terms of section 57(2) of the Town and Country Planning (Scotland) Act 1997 Scottish Ministers may, on granting consent under section 36 of the Electricity Act, 1989 direct that planning permission be deemed to be granted in respect of that generating station and any ancillary development. This letter contains the Scottish Ministers' decision on such a direction.

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www.scotland.gov.uk



Consultation

The Application was lodged on 30 November 2015. In accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (“the 2000 Regulations”) the Company submitted on 30 November 2015 an Environmental Statement (ES) describing the development and giving an analysis its environmental effects. The application proposed 22 turbines with a maximum tip height of 146.5 metres. In accordance with regulatory requirements, advertisement of the application and Environmental Statement was made in the local and national press and they were placed in the public domain, and the opportunity given for those wishing to make representations to do so.

The 2000 Regulations have subsequently (with effect from 16th May 2017) been replaced by the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (“the 2017 Regulations”). The 2017 Regulations now apply to this application subject to certain modifications. These modifications, among other things, provide that where the 2017 Regulations refer to an “EIA report” this includes an “environmental statement” prepared under the 2000 Regulations.

Under Schedule 8 of the Electricity Act 1989 the Scottish Ministers are required to consult the relevant Planning Authority (South Ayrshire Council). In addition, to comply with the 2000 Regulations, the Scottish Ministers have to consult the relevant Planning Authority (South Ayrshire Council), Scottish Natural Heritage (SNH), the Scottish Environment Protection Agency (SEPA), Historic Environment Scotland (HES) and such other persons that are in their opinion likely to be concerned by the proposed development by reason of their specific environmental responsibilities. Consultation of the application was carried out under the 2000 Regulations and subsequently the 2017 Regulations have now replaced the 2000 Regulations.

On 22 March 2016 Scottish Ministers requested further information from the Company. The Company submitted their Further Information on 16 February 2017 to address consultees comments. Advertisement was made in the local press and the relevant documents were placed in the public domain, and opportunity given to those wishing to make a representation.

A summary of all consultation responses and can be viewed at **Annex 4** of this decision letter.

Under paragraph 3(2) of Schedule 9 to the Act Scottish Ministers must have regard to the desirability of preserving the natural beauty of the countryside, of conserving flora, fauna and geological and physiological features of special interest and of protecting sites, buildings and objects of architectural, historic, or archaeological interest. Scottish Ministers must have regard to the extent to which the Company has complied with its duty under paragraph 3(1) (b) requiring the Company must do what it 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. Under paragraph 3(3) Scottish Ministers must avoid, so far as possible, causing injury to fisheries or to the stock of fish in any waters.

In accordance with section 36(5A) of the Act, before granting any section 36 consent Scottish Ministers are required to:

- a. obtain SEPA advice on matters relating to protection of the water environment; and
- b. have regard to the purposes of Part 1 of the Water Environment and Water Services (Scotland) Act 2003

SEPA has been consulted in respect of the proposed development and SEPA have confirmed that 4 water crossings proposed at the site have been identified as requiring authorisation under The Water Environment (Controlled Activities)(Scotland) Regulations 2011 and each requiring its own authorisation. Until the application has been submitted with the full information SEPA are unable to say that the authorisation can be granted, however, SEPA can see no significant concerns in the information submitted at this time.

Scottish Ministers have taken the 9 objections received and all material considerations into account, and consider that there are no significant issues which have not been adequately considered in the Environmental Statement and consultation responses.

EIA Regulations

In accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (“the 2000 Regulations”) the Company submitted on 30 November 2015 an Environmental Statement (ES) describing the development and giving an analysis its environmental effects. In accordance with regulatory requirements, advertisement of the application and Environmental Statement was made in the local and national press and they were placed in the public domain, and the opportunity given for those wishing to make representations to do so.

Regulation 3 of the 2017 Regulations requires that Scottish Ministers must not:

- a) Grant an Electricity Act consent for EIA development; or
- b) Direct that planning permission is deemed to be granted under section 57(2) of the Town and Country Planning (Scotland) Act 1997 in respect of EIA development,

unless an environmental impact assessment has been carried out in respect of that development and in carrying out such assessment the Scottish Ministers must take the environmental information into account.

Regulation 4 of the 2017 Regulations outlines the EIA process, including the preparation by the Company of an EIA Report or Environmental Statement (ES)

where submitted before 16th May 2017; consideration by Ministers of the likely significant effects of the proposed development; and the consultation, publication and notification procedures required.

Scottish Ministers have taken the environmental information into consideration and are satisfied that the requirements of the 2017 Regulations have been met.

The application was advertised, in accordance with regulatory requirements, week commencing the 7 December 2015, in the following newspapers;

- The Daily Record (for a one week period)
- The Edinburgh Gazette (for a two week period)
- The Carrick Gazette, Galloway Gazette, Ayrshire Post & Kilmarnock Standard (for a two week period)

On 22 March 2016 Scottish Ministers requested further information from the Company to address issues raised by consultees, in particular those raised by South Ayrshire Council. The Company submitted their Further Information (FI) on 16 February 2017.

Advertisement was made in the local press week commencing 20 February 2017 and the relevant documents were placed in the public domain, and opportunity given to those wishing to make a representation.

Scottish Ministers are satisfied that the general public as well as statutory and other consultees have been afforded the opportunity to consider and make representation on the proposed development.

Environmental Matters

Scottish Ministers are satisfied that an Environmental Statement and Further Information has been produced in accordance with the 2000 Regulations and that the applicable procedures regarding publicity and consultation laid down in the 2000 Regulations have been followed.

Scottish Ministers have considered the environmental impacts of the proposed development and have taken into consideration the environmental information, including the Environmental Statement, Further Information and representations from consultative bodies.

Scottish Ministers consider that there is sufficient information to allow Ministers to be satisfied that the Company has had regard to the desirability of preserving the natural beauty of the countryside, of conserving flora, fauna, and geological and physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic, or archaeological interest.

Scottish Ministers are satisfied that the Company has done what it reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects.

Under paragraph 3(3) of Schedule 9 of the 1989 Act, Scottish Ministers must avoid, so far as possible, causing injury to fisheries or to stock of fish in any waters. Scottish Ministers are satisfied that this is the case and more generally that the requirements of paragraph 3 have been met.

Public Representations

Scottish Ministers have considered the 9 Public Representations received and note the concerns raised in relation to concerns around construction traffic and access, cumulative impact with other windfarms, visual impact of another wind farm in the area and cumulative noise with nearby windfarms.

Scottish Ministers are satisfied that the matters pertaining to these objections have been appropriately assessed, and the proposal is consistent with the South Ayrshire Local Plan and policies, and subject to conditions and mitigation measures being implemented.

Public Local Inquiry

In terms of paragraph 2 of Schedule 8 to the Electricity Act if the Planning Authority make an objection and that objection is not withdrawn, the Scottish Ministers must cause a public inquiry to be held unless the Scottish Ministers propose to accede to the application subject to such modifications or conditions as will give effect to the objection of the Planning Authority. Following the consultation exercise South Ayrshire Council (a statutory consultee and the relevant “Planning Authority”) did not object therefore a PLI is not a statutory requirement.

Paragraph 3 of Schedule 8 provides that where objections or copies of objections have been sent to the Scottish Ministers in pursuance of Regulations made under that paragraph, the Scottish Ministers must consider those objections together with all other material considerations with a view to determining whether a PLI should be held with respect to the application and, if they think it appropriate to do so, they must cause a PLI to be held.

Scottish Ministers have considered the 9 public objections received and have taken all material considerations into account, and consider that there are no significant issues which have not been adequately considered in the Environmental Statement, Further Information and consultation responses.

Ministers are satisfied there is sufficient information to be able to make an informed decision on the application and that it would not be appropriate to hold a PLI.

Climate Change and Renewable Energy Targets

The Climate Change (Scotland) Act 2009, passed by the Scottish Parliament in 2009, sets out the targets for reducing greenhouse gas emissions as an interim 42% reduction target for 2020 and an 80% reduction target for 2050.

The Scottish Government's 2020 Routemap for Renewable Energy in Scotland published in June 2011 and updated in September 2015 confirms that the Scottish Government's target for renewable electricity generation is for renewables to generate at least the equivalent of 100% of gross annual consumption by 2020.

The Scottish Government's ambitions for renewables and the delivery of clean electricity in Scotland goes beyond the current 2020 targets. The Scottish Government has set a 2030 decarbonisation target, to achieve a carbon intensity of 50 gCO₂/kWh of electricity generation in Scotland.

The publication of statistics in December 2017, provides an update on Scotland's progress against renewable energy and electricity targets. In 2016, the equivalent of 54% of gross electricity consumption was from renewable sources, which means we remain above our interim 2015 target of 50% showing progress towards our target of 100% by 2020.

Data as at September 2017 shows Scotland had 9.7 GW of installed renewable electricity generation capacity, with an additional 11.6 GW of capacity either under construction or consented, the majority of which are wind generation projects. Not all consented schemes will progress to implementation for a variety of reasons.

In December 2017 the Scottish Government published its first Energy Strategy setting out Scottish Government's vision for the future energy system in Scotland. To maintain momentum and remain on track to meet its ambitious climate change goals the Strategy proposes a new 2030 all energy renewables target setting an ambitious challenge to deliver the equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources. As set out in the Onshore Wind Policy Statement, the Scottish Government remains committed to overcoming barriers to deployment to support the growth in onshore wind where possible to meet climate change and renewables targets.

Scotland Third National Planning Framework (NPF3)

NPF3 is the spatial expression of the Scottish Government's economic strategy. It brings together plans and strategies across sectors to provide a coherent vision of how Scotland should evolve over the next 20 to 30 years. It establishes the Scottish Government's commitment to ascertaining Scotland as a leading location for the development of renewable energy technology. It sets out that onshore wind will continue to make a significant contribution to the diversification of energy supplies. In Scotland there has been significant progress towards low carbon objectives whilst continuing to protect our special places from significant adverse impacts.

NPF3 together with SPP further sets out what is expected of the planning system, including a spatial strategy for a low carbon place where an 80% reduction in greenhouse gas emissions is achieved by 2050.

NPF3 and the Electricity Generation Policy Statement reflect that Scottish Government commits to achieving at least 500 megawatts of renewable energy in community and local ownership by 2020. While the Scottish Government's 500 MW target for community and locally owned renewables has been met, support for community and local ownership remains undiminished.

Scottish Ministers note that this development makes a considerable contribution towards meeting greenhouse gas emission and renewable electricity targets, as well as the diversification of energy supplies. However the development does not support the Scottish Government's ambitions for community and local ownership of renewables as expressed in the Community Energy Policy Statement.

Scottish Planning Policy 2014 (SPP)

The Scottish Government supports onshore wind energy development in appropriate locations. SPP introduces a presumption in favour of development that contributes to sustainable development.

It sets out that policies and decisions should be guided by certain principles, including: giving due weight to net economic benefit; supporting delivery of infrastructure, including energy, and; protecting natural heritage, including landscape and the wider environment. SPP also states that the planning system should support the development of a diverse range of electricity generation from renewable energy technologies – including the expansion of renewable energy generation capacity.

SPP outlines Scottish Government planning policy on Renewable Energy Development. Whilst it makes clear that the criteria against which applications should be assessed will vary depending on the scale of the proposal and area characteristics, it states that these are likely to include impacts on: landscapes and visual (including wild land); natural heritage (including birds); carbon rich soils; public access (including long distance walking, cycling and scenic identified in NPF); historic environment; tourism and recreation; road traffic; adjacent trunk roads; the water environment (including flood risk); communities and individual dwellings; aviation; telecommunications; noise; shadow flicker; greenhouse gas emissions; and any cumulative impacts that are likely to arise. It also makes clear that, where relevant, the following should be a material consideration when considering an application: net economic benefit; the scale of contribution to renewable energy generation targets; opportunities for energy storage; the need for conditions relating to decommissioning and site restoration; and the need for robust planning obligations to ensure site restoration is achieved.

SPP also introduces a new spatial framework for onshore wind projects. The Chirmorie development has been identified as falling into Group 2 of Table 1: Areas

of significant protection by reason of the area being a location where carbon rich soils, deep peat and priority habitat exist. In these areas wind farms may be appropriate in some circumstances however further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.

Scottish Ministers have given consideration to the impacts of the development on nationally important carbon rich soils and note South Ayrshire Council's and SEPA's early concerns on the grounds of lack of information regarding borrow pit restoration, reuse of peat on the site and mitigation measures regarding GWDTE. These concerns were subsequently withdrawn subject to the Company submitting a site specific Construction Environmental Management Plan (CEMP) to include a detailed restoration plan and peat management plan prior to any construction. This will be secured by way of a condition to any consent.

Scottish Ministers note the proposal will have no significant effects on the Merrick Wild Land Area (WLA).

Scottish Ministers are satisfied that the matters pertaining to SPP have been addressed in the application and responses to the consultation by the Planning Authority, SEPA, SNH and other relevant bodies.

Local Development Plans and Supplementary Guidance

South Ayrshire Council, as the relevant Planning Authority, assessed the proposed development against their local development plan policies during consideration of the proposal. These are:

- South Ayrshire Local Development Plan: wind energy (adopted on 23rd September 2014)
- South Ayrshire LDP Supplementary Guidance: Wind Energy (adopted December 2015)

Scottish Ministers, having considered in full the Planning Authority's responses, are satisfied that the proposed development is in general accordance with aforementioned local development plans, policies and guidance.

Site Visit

Scottish Government officials undertook a site visit on 11 October 2016 accompanied by Company officials and Planning Officer from South Ayrshire Council. The purpose of the site visit was to gain an understanding of the development relationship with the surrounding landscape and neighbouring community. Some viewpoints of the proposed wind farm published in the Environmental Statement were visited.

Main determining issues

Officials, having taken account of all relevant information, consider that the main determining issues are:

- the extent to which the proposed development accords with and is supported by Scottish Government policy;
- environmental impacts of the proposed development, in particular the **landscape and visual impact** of the proposed development;
- the estimated economic benefits which the proposed development is likely to bring, and;
- the renewable energy benefits of the proposed development

Landscape and Visual Impacts

The Environmental Statement submitted by the Company recognises that there will be significant effects on the landscape character and visual amenity in some areas.

SNH did not object, they raised concerns in relation to the landscape and visual impacts of the proposed development. In their response SNH confirm “The introduction of a large typology wind energy development in this location complies with the existing pattern of development at a regional level.”

SNH considered the landscape effects and summarised “while the proposal responds well to the scale and gentle undulating landform of the plateau the proposal will overwhelm and detract from the locally distinctive hill of Chirmorie Cairn which forms the easterly periphery of the site.” SNH advised Scottish Ministers that a “design iteration be explored to avoid or reduce these adverse effects. In particular exploring removal of the turbines to the east, near Chirmorie Cairn.”

With regard to visual effects SNH advised the proposal would frequently be viewed in combination with Arecleoch and/or Kilgallioch wind farms. SNH said “visual intrusion from key routes appears limited, with significant adverse effects from the minor road (C72 Barrhill to New Luce) due to close proximity of turbines seen in combination with Kilgallioch wind farm, as presented in viewpoint 1(1.4km).” SNH advised “this viewpoint also illustrates the poor landscape fit of turbines with Chirmorie Cairn hill” and again suggested design iteration be explored, in particular the removal of the turbines to the east.

In relation to views of the proposal from the designated tourist route A714, SNH advised “the addition of Chirmorie wind farm will considerably reduce the ‘space’ between Arecleoch and Kilgallioch Windfarms. In our opinion it would be beneficial to remove the eastern turbines to create a more coherent and compact design and retain more ‘space’ between Chirmorie and Kilgallioch developments” and “In views from the hills to the south, east and west the proposal is seen in combination with

Arecleoch and Kilgallioch wind farms, and will appear as an extension to these existing wind farms”

South Ayrshire Council initially objected to the proposal in relation to residential amenity, natural heritage matters and carbon rich soils. They did not object on landscape and visual effects. They did however raise similar concerns as SNH. In their report dated 2 March 2016 to the Regulatory Panel at Landscape Assessment they considered the landscape type “Plateau Moorland with Forestry and Wind Farms has the capacity to accommodate the proposed development at Chirmorie”, Scottish Ministers were requested to consider the benefits of mitigation of landscape and visual impacts that may be afforded by the removal of turbines closest to Chirmorie Cairn.” The Council’s Visual Impacts Assessment in their report also concluded “Removal of these turbines may also improve the design and compatibility of the development when seen from in conjunction with Arecleoch and Kilgallioch wind farms in views from the A714 and Duisk Valley.”

South Ayrshire Council also concluded in their March 2016 response that the proposed wind farm site has the capacity to accommodate the proposed development without unacceptable cumulative impact, however said “cumulative impacts could be mitigated through the removal of turbines such that the setting of Chirmorie Cairn is more sensitively treated.”

In February 2017 at the request of Scottish Ministers the Company submitted their Further Information (FI) Report addressing South Ayrshire’s Council’s earlier request for information on residential amenity, natural heritage matters and carbon rich soils. The FI included an additional LVIA note dated 16 May 2016 in response to comments made by SNH and South Ayrshire Council as set out above. This additional LVIA note included a review of their Landscape and Visual Impact Assessment (LVIA) provided in the ES and concluded:

- removal of the four wind turbines (15,19,20,22) from the design is not predicted to have a material beneficial change to the design as assessed in the LVIA in term so effects on the landscape setting of Chirmorie, the landscape and visual coherence of the wind farm design or its visual relationship with Kilgallioch wind farm when seen in views form the north; and
- turbine removal would not change the findings of the LVIA in terms of the significance of visual and/or landscape effects from any of the viewpoints.

Scottish Ministers note that South Ayrshire Council was generally satisfied that in regard to visual amenity, specific impacts of the Chirmorie development were not unacceptable.

Site Visit

Scottish Government officials attended a site visit in October 2016 with the Company and a representative of South Ayrshire Council. It became clear to the Company and Officials that a key concern of South Ayrshire Council related to the presence of

turbine 22 which would be seen in some views from the wind farm from the north and south as a slightly outlying turbine. The Company subsequently stated in their FI dated February 2017 that removing turbine 22 would only slightly reduce the visual impact of the proposal on Chirmorie Cairn and slightly enhance the design fit with the landscape, however they agreed to accept a condition of consent not to install turbine 22.

In response to the FI consultation SNH stated the Company had demonstrated that they had given consideration to their earlier comments in relation to the impacts on Chirmorie Cairn, but considered their consultation response still remained relevant. However SNH were content that the issue best resolved through discussions with SAC and Scottish Government.

In their response to the FI South Ayrshire Council withdrew their earlier objection to the application on matters relating to residential amenity, natural heritage matters and carbon rich soils, and advised Scottish Ministers that the Company had undertaken the review of the wind farm design and proposed and agreed that should consent be granted a condition be imposed prohibiting the construction of turbine 22.

Scottish Ministers recognise that there will be significant landscape and visual impacts including cumulative impacts arising from this development. Having considered SNH and the Planning Authority's advice, Scottish Ministers consider these impacts to be acceptable in the context of the benefits of the development.

Economic and Renewable Energy Benefits

The Company in its Environmental Statement calculated that the wind farm if built to the indicative installed capacity with the proposed development of 22 turbines would provide energy sufficient to power up to approximately 36,000 average households per year.

Scottish Ministers consider with 21 turbines this development will still makes a significant contribution towards Renewable Energy targets.

Scottish Ministers note that an increase in the amount of renewable energy produced is entirely consistent with the Scottish Government's policy on the promotion of renewable energy and its target for renewable sources to generate the equivalent of 100% of Scotland's annual electricity demand by 2020.

Significant economic benefits to Scotland are anticipated through investment in construction and employment, and there are also anticipated economic benefits to the country arising from the production of electricity - through its export, which is an important economic aspiration for Scotland, and through the fact that it will support security of supply which is essential to the country's economic wellbeing.

During the construction and decommissioning period the Company have estimated in their application there will be 30 to 50 FTE for a period of up to 12 months. During

operation there would be 1 FTE job for permanent site operatives and the predicted demand for wind farm maintenance is expected to support up to a further 4 FTE jobs.

Overall there is predicted to be a beneficial effect on the local economy through spend by the workforce in local shops and on accommodation

Environmental Benefits and Carbon Payback

Scottish Ministers consider the proposal will make a significant positive contribution to reducing CO₂ emissions. The total carbon dioxide saving from the proposed 22 turbine wind farm was estimated by the Company in their Environmental Statement to be 98,600 tonnes per year through displacement of fossil fuel mix of electricity generation or 71,700 over grid mix electricity generation.

The Company has provided its estimation of the time required for the proposed development to generate enough carbon-free electricity to offset its own carbon footprint (known as the “CO₂ payback period”). The minimum and maximum periods are calculated at approximately 0.8 years (fossil fuel mix) and 1.1 years (grid mix) respectively.

The Company’s calculation of the CO₂ payback period serves to demonstrate that the wind farm will make a significant positive contribution to reducing CO₂ emissions.

Scottish Ministers note these figures would be reduced slightly to take account of excluding construction of turbine 22.

Non material consideration

Community Benefit is not a matter that can be considered in the assessment of the acceptability of a proposal however Scottish Ministers note the Company’s commitment stated in their application to contribute to a community benefit fund to be used in support of suitable local projects.

Summary of Scottish Ministers’ Considerations

Scottish Ministers consider that the proposal is supported by Scottish Planning Policy and recognise the renewable energy benefits and economic benefits the proposal will bring.

Scottish Ministers have considered the issues raised in objections in relation to the visual impact, construction traffic, cumulative impacts and cumulative noise issues with other Windfarms, visual intrusion on the Merrick Wild Land Area, inadequate Peat Management Plan and loss/damage to peat and the possible negative impact on tourism to the area.

Scottish Ministers are satisfied that the matters pertaining to these objections have been appropriately assessed, and the proposal is consistent with the South Ayrshire Local Plan and policies, subject to conditions and mitigation measures being implemented.

Ministers note the proposed development has been assessed against the relevant local development plans in relation to its impacts on tourism and recreation. South Ayrshire Council concluded there “will consequently be no additional impacts on the value of the locality as a recreational and tourism resource”.

Scottish Ministers note that South Ayrshire Council and SNH consider there will be no significant effects on the Merrick Wild Land Area (WLA) due its distance (>23km) from the development.

Scottish Ministers have given weight to the views of South Ayrshire Council’s on landscape and visual effects of the development. The Council concluded there is capacity to accommodate further wind farm development within the *Plateau with Forest and wind farms* landscape character type. South Ayrshire Council considers that the proposed wind farm site has the capacity to accommodate the development without unacceptable cumulative impact.

Scottish Ministers agree that excluding consent for Turbine 22 as suggested by the Company would provide a degree of mitigation, only slightly reducing the developments visual impact on Chirmorie Cairn and slightly enhancing the design fit with the landscape when seen from C72 Barrhill to New Luce and A714. The removal of Turbine 22 would help increase the separation distance of the development from Kilgallioch wind farm.

South Ayrshire Council was generally satisfied that in regard to visual amenity specific impacts of the Chirmorie development are not unacceptable.

Ministers agree the recommended Noise condition suggested by South Ayrshire Council be attached to this consent to address objections raised in relation to cumulative noise.

To address objections raised regarding construction traffic the preparation of a Traffic Management Plan be applied as a condition to this consent. The Traffic Management Plan will include route and traffic management measures put in place by the Company to bypass Barrhill village.

Scottish Ministers note Scottish Natural Heritage considers the landscape character can generally accommodate this scale of turbines, and SNH are content the issues raised in relation to Chirmorie Cairn best resolved by discussions between South Ayrshire Council, Energy Consents and the Company.

Scottish Ministers note with regard to impacts on peat SEPA are content from the environmental information provided that impacts will be minimised. A finalised Peat

Management Plan will be agreed with the Planning Authority in consultation with SEPA and this is secured in conditions attached to this decision.

The landscape and visual impacts arising, although significant are not of a level which would warrant a refusal of consent.

Scottish Ministers consider that the balance is in favour of this development and that, subject to conditions and refusal of consent for turbine numbered 22, consent under section 36 of the Electricity Act 1989 should be granted and a direction be made under section 57(2) of the Town and Country Planning (Scotland) Act 1997 that planning permission be deemed to be granted reflecting the refusal for turbine numbered 22

Significant Effects on the Environment

Scottish Ministers have considered fully the information presented in the Environmental Statement, Further Information and any other environmental information in relation to the Development. Officials consider the significant effects of the development on the environment are as follows:

- Landscape and visual impacts as detailed within Chapter 8 of the ES;

Scottish Ministers are satisfied that this reasoned conclusion is still up to date.

Scottish Ministers are satisfied that any other environmental issues can be appropriately addressed by way of mitigation, and any impacts which remain are outweighed by the benefits the Development will bring.

A detailed description of the Company's proposed mitigation measures are set out in Annex B of the Company's ES - Collated Mitigation Measures.

Any impacts which remain are outweighed by the benefits the development will bring.

Duration of planning permission

Section 58(1) of the Town and Country Planning (Scotland) Act 1997 provides that planning permission lapses if development has not begun within a period of 3 years. Section 58(2) of that Act enables Ministers to direct that a longer period is allowed before planning permission lapses.

Scottish Ministers consider that due to the constraints, scale and complexity of constructing such developments and the timeframes associated with the commissioning of grid infrastructure to connect them, a 5 year time scale for the Commencement of Development is appropriate in this case.

The Scottish Ministers' Determination

Subject to the conditions set out in Part 1 of Annex 2, Scottish Ministers **grant consent** under section 36 of the Electricity Act 1989 for construction and operation of the Chirmorie Wind Farm electricity generating station in the South Ayrshire Council area (as described in Annex 1) but **refuse consent for turbine number 22**

Subject to the conditions set out in Part 2 of Annex 2, Scottish Ministers direct under section 57 (2) of the Town and Country Planning (Scotland) act 1997 that **planning permission be deemed to be granted** in respect of the development described in Annex 1. **Deemed planning permission is not granted for turbine number 22.**

The consent hereby granted will last for a period of 25 years from the earlier of: i) the date when electricity is first exported to the electricity grid network from all of the wind turbines hereby permitted; or ii) the date falling 18 months after electricity is generated from the first of the wind turbines hereby permitted.

The Scottish Ministers direct that section 58(1) of the Town and Country Planning (Scotland) Act 1997 is not to apply with regard to that planning permission because of the constraints of constructing or extending a generating station with a capacity of over 50MW within 3 years and that planning permission is to lapse on the expiry of a period of 5 years from the date of this direction if there has not been Commencement of the Development within that period.

In accordance with the EIA Regulations, the Company must publicise this determination on a website maintained for the purpose of making information publicly available and in the Edinburgh Gazette and a newspaper circulating in the locality in which the land to which the application relates is situated.

Copies of this letter and the consent have been sent to the Planning Authority. This letter has also been published on the Scottish Government Energy Consents website www.energyconsents.scot

The Scottish Ministers' decision is final, subject to the right of any aggrieved person to apply to the Court of Session for judicial review. Judicial review is the mechanism by which the Court of Session supervises the exercise of administrative functions, including how the Scottish Ministers exercise their statutory function to determine Applications for consent. The rules relating to the judicial review process can be found on the website of the Scottish Courts – <http://www.scotcourts.gov.uk/docs/default-source/rules-and-practice/rules-of-court/court-of-session/chap58.pdf?sfvrsn=20>

Your local Citizens' Advice Bureau or your solicitor will be able to advise you about the applicable procedures.

Yours sincerely

Redacted

**For and on behalf of the Scottish Ministers
A member of the staff of the Scottish Government**

Part 1 - Description of the Development

The Development comprises a wind powered electricity generating station known as Chirmorie Wind Farm, located 5 kilometres south of Barrhill, in the South Ayrshire Council planning area as specified in the Application and accompanying Environmental Statement submitted on 15 November 2015 and Further Information submitted on 16 February 2017.

The *principal* components of the wind farm and related ancillary developments of the wind farm will comprise:

- 21 wind turbines with a blade tip height of up to 146.5m
- Two permanent anemometer masts approximately 90m in height
- One temporary anemometer mast (already consented) for the purposes of meteorological monitoring prior to and during construction
- A permanent site access to be formed where the main wind farm access track merges with the C71 Barrhill to New Luce Public Road
- On site access tracks for access to turbines, substation, borrow pits and anemometer masts
- A bridge for wind farm traffic over the railway line which bisects the site to connect access tracks and turbines on either side of the railway
- An electrical substation and control building
- Underground cabling within the site from turbines to the substation
- Up to four temporary borrow pits from which stone for access track construction would be sourced
- Two temporary construction compounds including parking and laydown areas
- A temporary site office and store (these may be the same building) located within each construction compound
- A temporary helicopter landing pad to provide emergency site access during construction
- Associated communications and other infrastructure
- Permanent foundations supporting turbines
- Associated crane hard standings (used during construction, operation repair and decommissioning)
- Improvements to public roads and bridges to facilitate transport of turbine components to the site.

Part 2- Excluded Development

Consent is refused for –

- 1 turbine – numbered T22 (identified on Map at ANNEX 6);
- Any associated access tracks,
- Any associated crane hard standing areas.

CONDITIONS

Part 1 - Conditions attached to section 36 consent

1. Duration of the Consent

(1) Written confirmation of the date of First Commissioning shall be provided to the Planning Authority and the Scottish Ministers no later than one calendar month after each date.

Reason: *To allow the Planning Authority and the Scottish Ministers to calculate the date of expiry of the consent.*

2. Commencement of the Development

(1) Development shall be commenced no later than 5 years for the date of this consent, or in substitution such period as the Scottish Ministers may hereafter direct in writing.

(2) Written confirmation of the intended date of Commencement of Development shall be provided to both the Planning Authority and the Scottish Ministers no later than one calendar month before that date.

Reason: *To avoid uncertainty and ensure that consent is implemented within a reasonable period, and to allow the Planning Authority and the Scottish Ministers to monitor compliance with obligations attached to this consent and deemed planning permission as appropriate.*

3. Non-assignment of consent

(1) This consent may not be assigned without the prior written authorisation of the Scottish Ministers. The Scottish Ministers may authorise the assignment of the consent with or without conditions.

(2) The Company shall notify the Planning Authority in writing of the name of the assignee, principal named contact and contact details within 14 days of the consent being assigned.

Reason: *To safeguard the obligations of the consent if transferred.*

4. Serious incident reporting

(1) In the event of any breach of health and safety or environmental obligations relating to the Development during the period of this consent, the Company will provide written notification of the nature and timing of the incident to the Scottish Ministers, including confirmation of remedial measures taken and/ or to be taken to rectify the breach, within 24 hours of the incident occurring.

Reason: To keep the Scottish Ministers informed of any such incidents which may be in the public interest.

Part 2 - Conditions attached to the deemed Planning Permission

5. Implementation in accordance with approved plans and requirements of this permission

(1) Except as otherwise required by the terms of the section 36 consent and this deemed planning permission, the Development shall be undertaken in accordance with the application including

- a. the approved drawing figure 3.1 site layout map (amended post application to remove WTG22) at Annex 5 to this decision notice
- b. Environmental Statement as supplemented or amended by Further Information dated 16 February 2017.

Reason: to ensure that the Development is carried out in accordance with the approved details.

6. Duration of works

(1) No development shall commence unless and until a timetable for the construction period has been agreed in writing with the Planning Authority.

(2) It shall include the start and finish date, noting that the construction work shall not exceed beyond a period of three years from the date of commencement unless with the express consent of the Planning Authority.

Reason: To ensure proper planning and other environmental control of the development.

7. Design and operation of wind turbines

(1) No development shall commence unless and until full details of the proposed wind turbines (including, but not limited to, the power rating and sound power levels, the size, type, and external finish and colour), the monitoring masts, any external transformer units and all associated apparatus have been submitted to, and approved in writing by, the Relevant Planning Authority.

(2) The overall height of the wind turbines shall not exceed 146.5 metres to the tip of the blades in a vertical position as measured from natural ground conditions immediately adjacent to the turbine base.

(3) The wind turbines shall be constructed and operated in accordance with the approved details and maintained in the approved colour, free from external rust, staining or discolouration, until such time as the wind farm is decommissioned.

(4) Each wind turbine shall have three blades and all wind turbines shall rotate in the same direction.

(5) The turbine shall be designed to permit individually controlled operation, or cut-out at specified speeds in order to enable and ensure compliance with noise level criteria stated in these conditions.

Reason: *To ensure that the environmental impacts of the turbines forming part of the Development conform to the impacts assessed in the environmental statement and in the interests of the visual amenity of the area.*

8. Signage

(1) No wind turbine, anemometer, power performance mast, switching station, transformer building or enclosure, ancillary building or above ground fixed plant shall display any name, logo, sign or advertisement (other than health and safety signage) unless and until otherwise approved in writing by the Planning Authority.

Reason: *In the interests of the visual amenity of the area.*

9. Design of rail bridge and ancillary development

(1) No development shall commence unless the design of the proposed road bridge over the railway and any associated works has been approved in writing by the Planning Authority in consultation with Network Rail.

Reason: *To ensure the design and construction works comply with current Railway Standards and Guidelines*

10. Design of sub-station and ancillary development

(1) No development shall commence unless and until final details of the external appearance, dimensions, and surface materials of the substation building and temporary construction compound (including details of the external appearance of and materials for any buildings within the compound and any associated parking area) have been submitted to, and approved in writing by, the Planning Authority.

(2) The development shall take place in accordance with the approved details or such other detail as may be approved in writing by the Planning Authority from time to time.

(3) The development shall be maintained in the approved colour, free from external rust, staining or discolouration, until such time as the wind farm is decommissioned.

Reason: *To ensure that the environmental impacts of the sub-station and ancillary development forming part of the Development conform to the impacts assessed in the environmental statement and in the interests of the visual amenity of the area.*

11. Micro-siting

(1) Subject to paragraph (2), all wind turbines, buildings, masts, areas of hardstanding and tracks shall be constructed in the location as shown on figure 3.1 site layout map (amended post application to remove WTG22) attached at **Annex 5** of this decision notice.

(2) Wind turbines, buildings, masts, areas of hardstanding and tracks may be adjusted by micro-siting within the site as shown on Figure 3.1 site layout map attached at **Annex 5** of this decision notice. However, unless otherwise approved in advance in writing by the Planning Authority (in consultation with SEPA, SNH and Network Rail as necessary) micro-siting is subject to the following restrictions:

- (a) No wind turbine, building, mast, track or hardstanding shall be moved more than 30 metres from the position shown on figure 2.1 of the Environmental Statement
- (b) No micro-siting shall take place into areas hosting Ground Water Dependent Terrestrial Ecosystems;
- (c) No wind turbine or mast will be located within 150m of the railway line boundary
- (d) No access track shall be moved more than 30m from the position shown on figure 2.1 of the Environmental Statement.
- (e) With the exception of watercourse crossings and related tracks, no element of the Development shall be micro-sited to a location within 50 metres of a watercourse (or closer to a watercourse if approved within such distance);
- (f) All micro-siting permissible under this condition must be approved in advance in writing by the Environmental Clerk of Works (EcoW) appointed under **condition 15.**

(3) Within one calendar month of the Final Commissioning Date the Company shall send to the Planning Authority a plan of the development as built showing the final position of all wind turbines, masts, areas of hardstanding, tracks and associated infrastructure forming part of the Development. The plan should also specify areas where micro-siting has taken place and, for each instance, be accompanied by copies of the Ecological Clerk of Works (EcoW) or Planning Authority's approval, as applicable.

Reason: *To control environmental impacts while taking account of local ground conditions.*

12. Borrow Pits – Scheme of Works

(1) No Development shall commence unless a site specific scheme for the working and restoration of each borrow pit forming part of the Development has been submitted to and approved in writing by the Planning Authority in consultation with SEPA. The scheme shall include;

- (a) A detailed working method statement based on site survey information and ground investigations;
- (b) Details of the handling of any overburden (including peat, soil and rock);
- (c) Drainage, including measures to prevent surrounding areas of peatland, water dependant sensitive habitats and Ground Water Dependant Terrestrial Ecosystems (GWDTE) from drying out;
- (d) A programme of implementation of the works described in the scheme; and
- (e) Full details of the reinstatement, restoration and aftercare of the borrow pit(s) at the end of the construction period, to include topographic surveys of pre-construction profiles, and details of topographical surveys to be undertaken of the restored borrow pit profiles

(2) The approved scheme shall thereafter be implemented in full.

Reason: *To ensure that excavation of materials from the borrow pit(s) is carried out in a manner that minimises the impact on road safety, amenity and the environment, and that the mitigation measures contained in the Environmental Statement accompanying the application, or as otherwise agreed, are fully implemented. To secure the restoration of borrow pit(s) at the end of the construction period.*

13. Borrow Pits – Blasting

(1) No Blasting shall take place until a monitoring scheme to address borrow pit blasting have been submitted to, and approved in writing by, the Planning Authority. The scheme shall be implemented as approved by the Planning Authority. The scheme shall make provision for:

- a. Blasting monitoring locations
- b. Type of monitoring equipment to be used
- c. Frequency of monitoring
- d. The methods to be employed to minimise the effects of overpressure arising from blasting, having regard to blast design, methods of initiation and the weather conditions prevailing at the time
- e. Limits of overpressure levels at specified properties
- f. Submission of blasting records to the Planning Authority

(2) In the event of the monitoring scheme being approved in accordance with paragraph (1), blasting shall only take place on the site between the hours of 10.00 to 16.00 on Monday to Friday inclusive and 10.00 to 12.00 on Saturdays, with no blasting taking place on a Sunday or on a Bank Holiday or Public Holiday, unless otherwise approved in advance in writing by the Planning Authority.

(3) Ground vibration from blasting shall not exceed a peak particle velocity of 6mm/second at agreed blasting monitoring locations. The measurement shall be the maximum of three mutually perpendicular directions taken at the ground surface.

Reason: *To ensure that blasting activity is carried out within defined timescales and to control the impact on amenity.*

14. Planning Monitoring Officer

(1) No development shall commence unless and until the Planning Authority have approved in writing the terms of appointment by the Company of an independent and suitably qualified environmental consultant as Planning Monitoring Officer (“PMO”).

The terms of appointment shall:

- (a) Impose a duty to monitor compliance with the terms of the deemed planning permission and conditions attached to this consent;
- (b) Require the Planning Monitoring Officer to submit a monthly report (which will include a photographic record) to the Planning Authority summarising works undertaken on site; and during the operational phase an annual report;
- (c) Require the Planning Monitoring Officer to report to the Planning Authority any incidences of non-compliance with the terms of the terms of the deemed planning permission and conditions attached to this consent at the earliest practical opportunity.

(2) The Planning Monitoring Officer must be appointed on the approved terms during the period from the Commencement of Development to the completion of post construction restoration works.

Reason: To enable the development to be suitably monitored to ensure compliance with the consent issued.

15. Ecological Clerk of Works

(1) No development shall commence unless the Planning Authority has approved in writing the terms of appointment by the Company of an independent and suitable qualified Ecological Clerk of Works (ECoW) in consultation with SNH and SEPA as necessary. The terms of appointment shall:

- (a) impose a duty to monitor compliance with the ecological and hydrological requirements set out in the Environmental Statement and any other information lodged in support of the application, the Construction and Environmental Management Plan approved under **condition 16**, the Habitat Management Plan approved under **condition 19** and any other plans approved under **condition 16** (“the ECoW works”);
- (b) require the ECoW to report to the Company’s nominated construction project manager any incidences of non-compliance with the ECoW works at the earliest practical opportunity;
- (c) require the ECoW to submit monthly reports to the Relevant Planning Authority summarising works undertaken on site; and
- (d) require the ECoW to report to the Planning Authority any incidences of non-compliance with the ECoW Works at the earliest practical opportunity.

(2) The ECoW shall be appointed on the approved terms throughout the period from Commencement of Development, to completion of post construction restoration works.

(3) No later than 18 months prior to decommissioning of the Development or the expiry of this consent (whichever is the earlier), the Company shall submit details of the terms of appointment by the Company of an independent ECoW throughout the decommissioning, restoration and aftercare phases of the Development to the Planning Authority for written approval in consultation with SNH and SEPA.

(4) An ECoW shall also be appointed under the terms of this condition throughout the decommissioning and restoration phases of the Development.

Reason: To secure effective monitoring of and compliance with the environmental mitigation and management measures associated with the Development.

16. Construction and Environmental Management Plan

(1) No development shall commence unless a Construction and Environmental Management Plan (“CEMP”) outlining site specific details of all on-site construction works, post-construction reinstatement, drainage and mitigation, together with details

of their timetabling, has been submitted to and approved in writing by the Planning Authority in consultation with SNH and SEPA.

The CEMP shall include (but shall not be limited to):

- a. a site waste management plan (dealing with all aspects of waste produced during the construction period other than peat), including details of contingency planning in the event of accidental release of materials which could cause harm to the environment;
- b. details of the formation of the construction compound, welfare facilities, any areas of hardstanding, turning areas, internal access tracks, car parking, material stockpiles, oil storage, lighting columns, and any construction compound boundary fencing;
- c. a dust management plan;
- d. noise management plan
- e. site specific details for management and operation of any concrete batching plant (including disposal of pH rich waste water and substances);
- f. details of measures to be taken to prevent loose or deleterious material being deposited on the local road network including wheel cleaning and lorry sheeting facilities, and measures to clean the site entrances and the adjacent local road network;
- g. a pollution prevention and control method statement, including arrangements for the storage and management of oil and fuel on the site;
- h. soil storage and management;
- i. a site specific peat management plan, to include details of vegetated turf stripping and storage, peat excavation (including volumes), handling, storage and re-use;
- j. a drainage management strategy, demonstrating how all surface and waste water arising during and after development will be managed and prevented from polluting any watercourses or sources;
- k. a surface water and groundwater management and treatment plan, including details of the separation of clean and dirty water drains, and location of settlement lagoons for silt laden water;
- l. sewage disposal and treatment;
- m. temporary site illumination;
- n. the construction of the access into the site and the creation and maintenance of associated visibility splays;
- o. the method of construction of the crane pads;
- p. the method of construction of the turbine foundations;
- q. the method of working cable trenches;
- r. the method of construction and erection of the wind turbines and meteorological masts;
- s. details of watercourse crossings;
- t. Post-construction restoration/ reinstatement of the working areas not required during the operation of the Development, including construction access tracks, borrow pits, construction compound, storage areas, laydown areas, access tracks, passing places and other construction areas. Wherever possible, reinstatement is to be achieved by the careful use of turfs removed prior to

construction works. Details should include all seed mixes to be used for the reinstatement of vegetation;

- u. a wetland ecosystems survey and mitigation plan
- v. a felling and tree management plan
- w. a public road improvement plan
- x. a restoration plan
- y. a decommissioning plan

(2) All construction work associated with the Development must be carried out in accordance with the current BS 5228, 'Code of practice for noise and vibration control on construction and open sites'.

Reason: *To ensure that all construction operations are carried out in a manner that minimises their impact on amenity and the environment, and that the mitigation measures contained in the Environmental Statement and Further Information dated February 2017 which accompany the application, or as otherwise agreed, are fully implemented.*

17. Construction Hours

(1) Construction work which is audible from any noise-sensitive receptor shall only take place on the site between the hours of 07.00 to 19.00 on Monday to Friday inclusive and 07.00 to 16.00 on Saturdays, with no construction work taking place on Sundays or on national public holidays. Out with these specified hours, development on the site shall be limited to turbine erection, maintenance, emergency works, dust suppression, and the testing of plant and equipment, unless otherwise approved in advance in writing by the Planning Authority.

(2) HGV movements to and from the site (excluding abnormal loads) during construction of the wind farm shall be limited to 07.00 to 19.00 Monday to Friday, and 07.00 to 16.00 on Saturdays, with no HGV movements to or from site taking place on Sundays or on national public holidays.

Reason: *In the interests of local amenity.*

18. Traffic Management Plan

(1) No development shall commence until a Traffic Management Plan ("the TMP") has been submitted to and approved in writing by the Planning Authorities. The TMP shall include:

- (a) the routing of all traffic associated with the Development on the local road network, including any speed restrictions;
- (b) The route and traffic management measures in place to bypass Barrhill village
- (c) measures to ensure that the specified routes are adhered to, including monitoring procedures;

- (d) details of all signage and lining arrangements to be put in place;
- (e) provisions for emergency vehicle access;
- (f) identification of a nominated person to whom any road safety issues can be referred;
- (g) a plan for access by vehicles carrying abnormal loads, including the number and timing of deliveries, the length, width and axle configuration of all extraordinary traffic accessing the site. The plan will (where appropriate) incorporate swept path analysis diagrams.
- (h) detailed plans identifying off-site accommodation works (to include verge strengthening/carriageway widening and associated works.
- (i) Video surveys of routes proposed to access the development before and after construction

(2) The TMP shall be implemented as approved.

Reason: *In the interests of road safety and to ensure that abnormal loads access the site in a safe manner.*

19. Habitat Management Plan

(1) No development shall commence unless a habitat management plan has been submitted to and approved in writing by the Planning Authority in consultation with SNH, SEPA and RSPB. The habitat management plan shall set out proposed habitat management of the wind farm site during the period of construction, operation, decommissioning, restoration and aftercare of the site, and shall provide for the improvement, maintenance, monitoring and reporting of high focus habitats and species within the Galloway and Southern Biosphere Area.

(2) The approved habitat management plan shall include provision for regular monitoring and review to be undertaken to consider whether amendments are needed to better meet the habitat plan objectives. In particular, the approved habitat management plan will be updated to reflect ground condition surveys undertaken following construction and prior to the date of Final Commissioning and submitted to the Planning Authority for written approval in consultation with SNH and SEPA.

(3) Unless otherwise agreed in advance in writing with the Planning Authority, the approved habitat management plan shall be implemented in full.

Reason: *In the interests of good land management and the protection of habitats and species.*

20. Recreation and Access Plan

No development shall commence unless a Recreation and Access Plan for the construction and operation phases of the wind farm has been submitted to and agreed by the Planning Authority. Thereafter the plan shall be implemented in full.

Reason: *In the interests of public access.*

21. Water Protection Plan

(1) No development shall commence unless a water protection plan has been submitted to and approved in writing by the Planning Authority in consultation with SEPA, Marine Scotland, Ayrshire Rivers Trust and Galloway Fisheries Trust.

(2) The Water Protection Plan shall set out measures for the protection of water courses and ground water from the period Commencement of Development until the date of completion of restoration.

(3) The approved plan will include a programme for electrofishing of watercourses, fish and microinvertebrate surveys and proposals for water quality monitoring and reporting.

Reason: *In the interests of good water management and the protection of the aquatic environment.*

22. Bat Protection

(1) Turbine 15 shall be shut down at wind speeds of 6.5m/s or less measured at hub height from sunset to sunrise during the months of May to September. This restriction to operation hours shall apply in perpetuity unless otherwise agreed in writing by the Planning Authority. Any request to the Planning Authority to vary this restriction shall be accompanied by a post construction monitoring report.

Reason: *to ensure that the wind farm has no significant adverse effects on the conservation of local bat species.*

23. Archaeological Clerk of Works

(1) No development shall commence unless the Planning Authority has, in consultation with the West of Scotland Archaeology Service and Historic Environment Scotland, approved in writing the terms of appointment by the Company of an independent Archaeological Clerk of Works (AcoW). The scope of the AcoW's appointment shall include:

- a. Monitoring compliance with the archaeological mitigation works that have been approved in this consent;
- b. Advising the Company on adequate protection and recording of archaeological interests on the site;
- c. Checking for new records of archaeological interests for which additional mitigation may be required;
- d. Directing the micro-siting and placement of turbines and tracks;

- e. Monitoring the compliance with mitigation, reinstatement and restoration measures approved in this consent; and
- f. Reporting any breaches of the mitigation, reinstatement and restoration measures approved in this consent to the Planning Authority in writing.

(2) The ACoW shall be appointed on the approved terms throughout the period from Commencement of Development, throughout any period of construction activity and during any period of post construction restoration works approved in terms of **condition 33**.

(3) No later than 18 months prior to decommissioning of the Development or the expiration of this consent (whichever is the earlier), the Company shall submit details of the terms of appointment by the Company of an independent ACoW throughout the decommissioning, restoration and aftercare phases of the Development to the Planning Authority for approval in consultation with Historic Environment Scotland. The ACoW shall be appointed on the approved terms throughout the decommissioning, restoration and aftercare phases of the Development.

Reason: *To ensure the protection or recording of archaeological features on the site.*

24. Peat Landslide Management

(1) No development shall commence unless and until a detailed peat landslide risk assessment, addressing construction phase of the development and post-construction monitoring, has been approved in writing by the Planning Authority.

(2) The peat landslide risk assessment shall comply with best practice contained in planning “Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments” published by the Scottish Government in January 2007, or such replacement standard as may be in place at the time of submission of the peat landslide risk assessment for approval.

(3) The peat landslide risk assessment shall include a scaled plan and details of any mitigation measures to be put in place.

(4) The approved peat landslide risk assessment shall thereafter be undertaken in full prior to Commencement of Development.

(5) No development shall commence unless and until the terms of appointment for an independent and suitably qualified geotechnical engineer (including specification of duties and duration of appointment) have been submitted to, and approved by, the Planning Authority, and the approved engineer has been appointed.

(6) Continuous monitoring of ground conditions during the construction and deforestation phases of the Development shall be carried out.

(7) Continuous analysis and call out services shall be provided by the geotechnical engineer throughout the construction phase of the Development.

(8) If a risk of peat failure is identified, the Company shall install such geotechnical instrumentation to monitor ground conditions as is recommended by the geotechnical engineer shall be installed and ground conditions shall be monitored.

(9) Any remediation work considered necessary by the geotechnical engineer shall be implemented to the satisfaction of the geotechnical engineer.

(10) Monitoring results shall be fed into risk analysis reports to be submitted to the Planning Authority on a quarterly basis during the construction and deforestation phases of the Development.

Reason: *To minimise the risk of peat failure arising from the Development.*

25. Noise

The rating level of noise immissions from the combined effects of the wind turbines forming part of the Development (including the application of any tonal penalty) when determined in accordance with the accompanying guidance notes at **Annex 3** (to this condition) or other method approved in writing by the Planning Authority, shall not exceed the values for the relevant integer wind speed set out in, or derived from, the tables attached to this condition at any dwelling which is lawfully existing or has planning permission at the date of this consent, except that any limits relating to Chirmorie Farm (approximate grid reference 220902, 576818) as selected from Tables 1 and 2 shall not apply for so long as that property is unoccupied. The turbines shall be designed to permit individually controlled operation or shut down at specified wind speeds and directions in order to facilitate compliance with noise criteria and:

- a. The Company shall continuously log power production, wind speed and wind direction all in accordance with Guidance Note 1(d). These data shall be retained for a period of not less than 24 months. The Company shall provide this information to the Planning Authority within 14 days of receipt in writing of a request to do so.
- b. The Company shall employ an independent consultant, approved by the Planning Authority, to measure, at the operator's own expense, the level of noise immissions from the wind turbines within the first year of the operation of the turbines, and every two years thereafter, unless and until the Planning Authority extend the period or determine that compliance monitoring is no longer required. The measurement procedures, including the duration of the measurements and requirements for filtering data according to wind direction, shall be agreed in writing with the Planning Authority prior to commencement of the noise measurements. The results of any

measurement exercise shall be forwarded to the Planning Authority within 2 months of completion of the monitoring exercise.

- c. There shall be no First Commissioning of the Development until the Company has received written approval from the Planning Authority of a list of proposed independent consultants who may undertake compliance measurements in accordance with this condition. Amendments to the list of approved consultants shall be made only with the prior written approval of the Planning Authority.
- d. Within 21 days from receipt of a written request from the Planning Authority following a complaint to it from an occupant of a dwelling alleging noise disturbance at that dwelling, the Company shall, at its expense, employ a consultant approved by the Planning Authority in terms of paragraph (b) above to assess the level of noise immissions from the wind farm at the complainant's property in accordance with the accompanying Guidance Notes or other method as approved in writing by the Planning Authority. The written request from the Planning Authority shall set out at least the date, time and location to which the complaint relates and any identified atmospheric conditions, including wind direction, and include a statement as to whether, in the opinion of the Planning Authority, the noise giving rise to the complaint contains or is likely to contain a tonal component.
- e. The assessment of the rating level of noise immissions shall be undertaken in accordance with an assessment protocol that shall previously have been submitted to and approved in writing by the Planning Authority. The protocol shall include the proposed location(s) where measurements for compliance checking purposes shall be undertaken, whether the noise giving rise to the complaint contains or is likely to contain a tonal component, and also the range of meteorological and operational conditions (which shall include the range of wind speeds, wind directions, power generation and times of day) to determine the assessment of rating level of noise immissions. The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, having regard to the written request of the Planning Authority under paragraph (d) above and such others as the independent consultant considers likely to result in a breach of the noise limits.
- f. In the event of a noise complaint concerning potential Amplitude Modulation (AM), and where in the reasonable opinion of the Planning Authority, AM is a contributing factor to the complaint under investigation, a protocol for AM noise assessment following relevant best practice guidance available at that time, will be submitted to the Planning Authority for written approval. The protocol will include proposed delivery timescales for the complaint investigation. The approved protocol shall then be carried out by the Company, at their own expense, and the results including any necessary identified mitigation measures and associated mitigation delivery timescales shall be submitted to

the Planning Authority for written approval. The approved mitigation measures shall then be delivered in line with the agreed timescales. Guidance Note 5 references a method for rating amplitude modulation.

- g. Where the property to which a complaint is related is not listed in the tables attached to this condition, the Company shall submit to the Planning Authority for written approval proposed noise limits selected from those listed in the Tables to be adopted at the complainant's dwelling for compliance checking purposes. The proposed noise limits are to be those limits selected from the Tables specified for a listed location which the independent consultant considers as being likely to experience the most similar background noise environment to that experienced at the complainant's property. The rating level of noise immissions resulting from the combined effects of the wind turbines hereby permitted when determined in accordance with the accompanying Guidance Notes, or other method as agreed in writing by the Planning Authority, shall not exceed the noise limits approved in writing by the Planning Authority for the complainant's property. For clarity and as stated in the Company's application Chirmorie Farm would not be occupied as a residence during the operational phase of the Windfarm.
- h. The Company shall provide to the Planning Authority the independent consultant's assessment of the rating level of noise immissions undertaken in accordance with the accompanying Guidance Notes or other method approved in writing by the Planning Authority, within 2 months of the date of the written request of the Planning Authority for compliance measurements to be made under paragraph d, unless the time limit is extended in writing by the Planning Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation used to undertake the measurements shall be calibrated in accordance with Guidance Note 1(a) and certificates of calibration of the instrumentation used to undertake the measurements shall be submitted to the Planning Authority with the independent consultant's assessment of the rating level of noise immissions.
- i. Where a further assessment of the rating level of noise immissions from the wind farm is required pursuant to Guidance Note 4(c), the Company shall submit a copy of the further assessment within 21 days of submission of the independent consultant's assessment pursuant to paragraph (e) above unless the time limit has been extended in writing by the Planning Authority.

Table 1 - Between 07:00 and 23:00 – Noise limits expressed in dB L_{A90,10 minute} as a function of the standardised wind speed (m/s) at 10 metre height as determined within the site averaged over 10 minute periods

Location		Standardised wind speed at 10m height in m/s within the site averaged over 10 minute periods									
Property Name	Map Reference (easting, northing)	3	4	5	6	7	8	9	10	11	12
Markdhu	218469, 573584	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Miltonise	218966, 573415	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Laggish	223168, 578199	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Dochroyle Cottage	223094, 579107	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Marklach	217564, 572364	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Strabracken	214319, 575702	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0

Table 2 - Between 23:00 and 07:00 – Noise limits expressed in dB L_{A90,10-minute} as a function of the standardised wind speed (m/s) at 10 metre height as determined within the site averaged over 10 minute periods

Location		Standardised wind speed at 10m height in m/s within the site averaged over 10 minute periods									
Property Name	Map Reference (easting, northing)	3	4	5	6	7	8	9	10	11	12
Markdhu	218469, 573584	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Miltonise	218966, 573415	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Laggish	223168, 578199	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Dochroyle Cottage	223094, 579107	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0

Marklach	217564, 572364	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Strabracken	214319, 575702	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0

Note to Tables 1, 2 and the first paragraph of this condition: The geographical coordinate references are provided for the purpose of identifying the general location of dwelling(s) to which a given set of noise limits applies.

Reason: *to protect nearby residents from undue noise and disturbance. To ensure that noise limits are not exceeded and to enable prompt investigation of complaints.*

26. Shadow Flicker

(1) No development shall commence unless and until a scheme for the avoidance or mitigation of any shadow flicker experienced by residential and commercial properties situated within 2.5 km of any turbine forming part of the Development and which lawfully exist or for which planning permission has been granted at the date of this consent has been submitted to and approved in writing by the Planning Authority.

(2) The approved mitigation scheme shall thereafter be implemented in full.

Reason: *To offset impacts of shadow flicker on residential and commercial property amenity.*

27. Television Reception

(1) No development shall commence unless and a Television Reception Mitigation Plan has been submitted to, and approved in writing by, the Planning Authority. The Television Reception Mitigation Plan shall provide for a baseline television reception survey to be carried out prior to the installation of any turbine forming part of the Development, the results of which shall be submitted to the Planning Authority.

(2) The approved Television Reception Mitigation Plan shall be implemented in full.

(3) Any claim by any individual person regarding television picture loss or interference at their house, business premises or other building, made during the period from installation of any turbine forming part of the Development to the date falling twelve months after the date of Final Commissioning, shall be investigated by a qualified engineer appointed by the Company and the results shall be submitted to the Planning Authority.

(4) Should any impairment to the television signal be attributable to the Development, the impairment shall be remedied so that the standard of reception at the affected property is equivalent to the baseline television reception.

Reason: *To ensure local television services are sustained during the construction and operation of the Development.*

28. Private Water Supplies

(1) No development shall commence unless and until a method statement has been submitted to and approved in writing by the Planning Authority.

(2) This must detail all mitigation measures to be taken to secure the quality, quantity and continuity of water supplies to properties which are served by private water supplies at the date of this consent and which may be affected by the Development.

(3) The method statement shall include water quality sampling methods and shall specify abstraction points. The approved method statement shall be implemented in full.

Reason: *To maintain a secure and adequate quality water supply to all properties with private water supplies which may be affected by the development.*

29. Redundant turbines

(1) If one or more turbine fails to generate electricity for a continuous period of 6 months, then unless otherwise agreed in writing by the Planning Authority, the Company shall, no later than 14 days after the date of expiry of the 6 month period, submit a scheme to the Planning Authority for its written approval setting out how the relevant turbine(s) and associated infrastructure will be removed from the site and the ground restored including a timetable for its full implementation. The scheme shall have regard to the restoration strategy approved under **condition 33**.

(2) The approved scheme shall be implemented in accordance with the approved timetable.

Reason: *To ensure that any redundant wind turbine is removed from Site, in the interests of safety, amenity and environmental protection*

30. Aviation Safety

No development shall commence until the Company has provided the Planning Authority, Ministry of Defence, Defence Infrastructure Organisation Safeguarding (DIOS), Defence Geographic Centre (DGC) and NATS have been provided with the

following information, and evidence has been provided to the Planning Authority that this has been done;

- (a) the date of the expected commencement of each stage of construction;
- (b) the height above ground level of the tallest structure forming part of the Development;
- (c) the maximum extension height of any construction equipment; and
- (d) the position of the turbines and masts in latitude and longitude.

Reason: *In the interests of aviation safety.*

31. Aviation Lighting

(1) No wind turbines shall be erected until a scheme for aviation lighting for the Development has been submitted to and approved by the Planning Authority. The scheme shall include details of infra-red aviation lighting to be applied.

(2) No lighting other than that described in the scheme may be applied at the site, other than as required for health and safety, unless otherwise agreed in advance and in writing by the Planning Authority.

(2) The Development shall be operated fully in accordance with the approved scheme.

Reason: *In the interests of aviation safety.*

32. Post Construction Restoration

(1) No development shall commence until a scheme of restoration of areas disturbed as a result of the construction process has been submitted and approved in writing by the Planning Authority.

The scheme will include (but not limited to):

- Offsite bridge structures and retaining walls
- Offsite carriageway and road widening
- On site borrow pits
- Area of temporary construction compound
- Anemometer mast(s)
- Areas around turbines
- Track edges and trenching

(2) Thereafter it will be implemented at the appropriate time to the satisfaction of the Planning Authority.

Reason: *To maintain proper planning control*

33. Site Decommissioning, Restoration and Aftercare

(1) The Development shall cease to generate electricity and shall be decommissioned by no later than the date falling twenty five years from the date of Final Commissioning. The total period for restoration of the Site in accordance with this condition shall not exceed three years from the date of Final Decommissioning without prior written approval of the Scottish Ministers in consultation with the Planning Authority.

(2) No development shall commence unless a decommissioning, restoration and aftercare strategy has been submitted to and approved in writing by the Planning Authority in consultation with SNH and SEPA. This strategy will be reviewed every 5 years. The strategy shall outline measures for the decommissioning of the Development, restoration and aftercare of the site and will include, without limitation, proposals for the removal of the Development, the treatment of ground surfaces, the management and timing of the works, and environmental management provisions.

(3) No later than three years prior to decommissioning of the Development or the expiration of this consent (whichever is the earlier) a detailed decommissioning, restoration and aftercare plan, based upon the principles of the approved decommissioning, restoration and aftercare strategy, shall be submitted to the Planning Authority for their written approval in consultation with SNH and SEPA. The detailed decommissioning, restoration and aftercare plan will provide updated and detailed proposals for the removal of the Development, the treatment of ground surfaces, the management and timing of the works and environment management provisions which shall include:

- a. a site waste management plan (dealing with all aspects of waste produced during the decommissioning, restoration and aftercare phases);
- b. details of the formation of the construction compound, welfare facilities, any areas of hardstanding, turning areas, internal access tracks, car parking, material stockpiles, oil storage, lighting columns, and any construction compound boundary fencing;
- c. a dust management plan;
- d. construction noise management plan
- e. details of measures to be taken to prevent loose or deleterious material being deposited on the local road network including wheel cleaning and lorry sheeting facilities, and measures to clean the site entrances and the adjacent local road network;
- f. a pollution prevention and control method statement, including arrangements for the storage and management of oil and fuel on the site;
- g. details of measures for soil storage and management;
- h. a surface water and groundwater management and treatment plan, including details of the separation of clean and dirty water drains, and location of settlement lagoons for silt laden water;
- i. details of measures for sewage disposal and treatment;
- j. temporary site illumination;

- k. the construction of any temporary access into the site and the creation and maintenance of associated visibility splays;
- l. details of watercourse crossings;
- m. a species protection plan based on surveys for protected species (including birds) carried out no longer than 18 months prior to submission of the plan.
- n. Traffic management plan
- o. Community liaison plan
- p. ECOW/site environment management appointment
- q. PMO appointment and reporting procedures

(4) The Development shall be decommissioned, the site restored and aftercare undertaken in accordance with the approved plan, unless otherwise agreed in writing in advance with the Planning Authority in consultation with SNH and SEPA.

Reason: *To ensure the decommissioning and removal of the Development in an appropriate and environmentally acceptable manner and the restoration and aftercare of the site, in the interests of safety, amenity and environmental protection.*

34. Financial Guarantee

(1) The Company shall deliver to the Planning Authority written details of the bond or other financial provision which it proposes to put in place to secure the cost of performance of all restoration, decommissioning and aftercare requirements as contained in **conditions 32 & 33** for the written approval of the Planning Authority. Before giving its written approval, the Planning Authority may require the Company to provide a review of the suitability of the legal arrangements for provision of the bond or other financial provision and/or its value by a suitably qualified independent professional commissioned for the purpose by the Company with the approval of the relevant Planning Authority.

(2) No development shall commence until the Company has delivered to the Planning Authority the bond or other financial provision and the Planning Authority has given written confirmation that the bond or other financial provision is satisfactory.

(3) The Company shall ensure that the approved bond or other financial provision is maintained in favour of the Planning Authority and is of a suitable value throughout the duration of this consent and until the date of completion of all work required under **condition 32 & 33**

(4) The adequacy of the approved bond or other financial provision shall be reviewed at five yearly intervals, or such other intervals as agreed by the Planning Authority, from Commencement of Development, by a suitably qualified independent professional commissioned by the Company with the approval of the relevant Planning Authority. The findings of such reviews shall be provided to the Company and the Planning Authority within 14 days of the review taking place. Any revisions to the bond or other financial provision recommended by the review and agreed in

writing by the Planning Authority shall be made by the Company within 28 days of the Company's receiving the Planning Authority's written agreement. The Company shall without delay provide documentary evidence to the Planning Authority that the agreed revision has been made.

Reason: *to ensure that there are sufficient funds to secure performance of the decommissioning, restoration and aftercare conditions attached to this deemed planning permission in the event of default by the Company.*

Definitions

In this consent and deemed planning permission:-

“The application” means the application submitted by the Company on 30 November 2015 for construction and operation of the Development.

“Bank Holiday” means:-

New Year's Day, if it is not a Sunday or, if it is a Sunday, 3rd January.

2nd January, if it is not a Sunday or, if it is a Sunday, 3rd January.

Good Friday.

The first Monday in May.

The first Monday in August.

30th November, if it is not a Saturday or Sunday or, if it is a Saturday or Sunday, the first Monday following that day.

Christmas Day, if it is not a Sunday or, if it is a Sunday, 27th December.

Boxing Day, if it is not a Sunday or, if it is a Sunday, 27th December.

“Commencement of the Development” means the carrying out of a material operation within the meaning of section 26 of the Town and Country Planning (Scotland) Act 1997.

“the Company” means Chirmorie Wind Farm Ltd having a registered office at 22-24 King Street, Maidenhead, Berkshire, United Kingdom SL6 1EF Company registration 09171934, or such other person as from time to time has the benefit of the consent granted under section 36 of the Electricity Act 1989.

“the Development” means the wind powered electricity generating station near Barrhill in South Ayrshire as defined in Annex 1 of this decision letter.

“the proposed Development” means the Development as described in Figure 3.1 (site layout plan) of the Environmental Statement submitted on 30 November 2015 and Annex 6 of this decision letter.

“Environmental Statement” or “ES” means the Environmental Statement submitted by the Company with the Application on 30 November 2015;

“First Commissioning” means the date on which electricity is first exported to the grid network on a commercial basis from any of the wind turbines forming part of the Development.

“Final Commissioning” means the earlier of (a) the date on which electricity is exported to the grid on a commercial basis from the last of the wind turbines forming part of the Development; or (b) the date falling eighteen months from the date of First Commissioning.

“Further Information” or “FI” means the further information submitted by the Company on 16 February 2017

“Planning Authority” means South Ayrshire Council.

“Planning Authorities” means South Ayrshire Council and Dumfries & Galloway Council

“Public Holiday” means Good Friday, Easter Monday, the first Monday in May and the third Monday in September.

“SEPA” means the Scottish Environmental Protection Agency.

“SNH” means Scottish Natural Heritage

“Site” means the area of land outlined in red on figure 3.1 site layout plan of the Environmental Statement and **Annex 5** of this decision letter.

Guidance Notes for Noise Conditions

These notes are to be read with and form part of the noise **condition 25**. They further explain the condition and specify the methods to be employed in the assessment of complaints about noise immissions from the wind farm. The rating level at each integer wind speed is the arithmetic sum of the wind farm noise level as determined from the best-fit curve described in Guidance Note 2 of these Guidance Notes and any tonal penalty applied in accordance with Guidance Note 3. Reference to ETSU-R-97 refers to the publication entitled “The Assessment and Rating of Noise from Wind Farms” (1997) published by the Energy Technology Support Unit (ETSU) for the Department of Trade and Industry (DTI).

Guidance Note 1

- (a) Values of the $L_{A90,10 \text{ minute}}$ noise statistic should be measured at the complainant’s property, using a sound level meter of EN 60651/BS EN 60804 Type 1, or BS EN 61672 Class 1 quality (or the equivalent UK adopted standard in force at the time of the measurements) set to measure using the fast time weighted response as specified in BS EN 60651/BS EN 60804 or BS EN 61672-1 (or the equivalent UK adopted standard in force at the time of the measurements). This should be calibrated in accordance with the procedure specified in BS 4142: 1997 (or the equivalent UK adopted standard in force at the time of the measurements). Measurements shall be undertaken in such a manner to enable a tonal penalty to be applied in accordance with Guidance Note 3.
- (b) The microphone should be mounted at 1.2 – 1.5 metres above ground level, fitted with a two-layer windshield or suitable equivalent approved in writing by the Planning Authority, and placed outside the complainant’s dwelling. Measurements should be made in “free field” conditions. To achieve this, the microphone should be placed at least 3.5 metres away from the building facade or any reflecting surface except the ground at the approved measurement location. In the event that the consent of the complainant for access to his or her property to undertake compliance measurements is withheld, the wind farm operator shall submit for the written approval of the Planning Authority details of the proposed alternative representative measurement location prior to the commencement of measurements and the measurements shall be undertaken at the approved alternative representative measurement location.
- (c) The $L_{A90,10 \text{ minute}}$ measurements should be synchronised with measurements of the 10-minute arithmetic mean wind and operational data logged in accordance with Guidance Note 1(d), including the power generation data from the turbine control systems of the wind farm.

- (d) To enable compliance with the conditions to be evaluated, the wind farm operator shall continuously log arithmetic mean wind speed in metres per second and wind direction in degrees from north at hub height for each turbine and arithmetic mean power generated by each turbine, all in successive 10-minute periods. Unless an alternative procedure is previously agreed in writing with the Planning Authority, this hub height wind speed, averaged across all operating wind turbines, shall be used as the basis for the analysis. All 10 minute arithmetic average mean wind speed data measured at hub height shall be “standardised” to a reference height of 10 metres as described in ETSU-R-97 at page 120 using a reference roughness length of 0.05 metres. It is this standardised 10 metre height wind speed data, which is correlated with the noise measurements determined as valid in accordance with Guidance Note 2, such correlation to be undertaken in the manner described in Guidance Note 2. All 10-minute periods shall commence on the hour and in 10-minute increments thereafter.
- (e) Data provided to the Planning Authority in accordance with the noise condition shall be provided in comma separated values in electronic format.
- (f) A data logging rain gauge shall be installed in the course of the assessment of the levels of noise immissions. The gauge shall record over successive 10-minute periods synchronised with the periods of data recorded in accordance with Note 1(d).

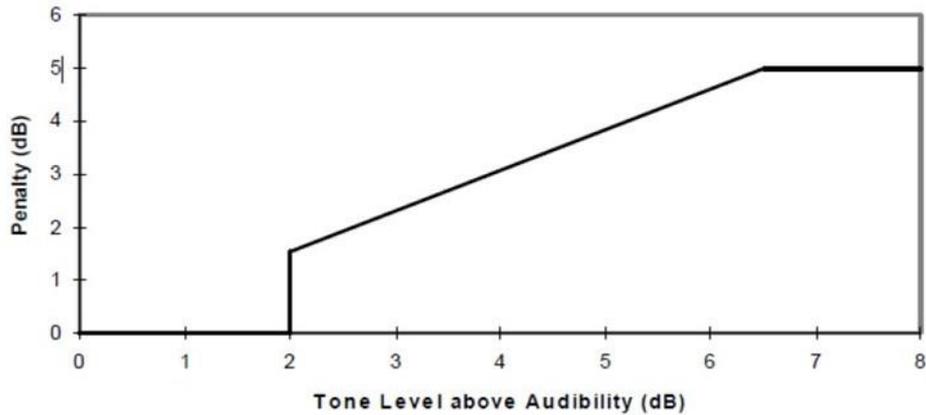
Guidance Note 2

- (a) The noise measurements shall be made so as to provide not less than 20 valid data points as defined in Guidance Note 2 (b)
- (b) Valid data points are those measured in the conditions specified in the agreed written protocol under paragraph (e) of **condition 25** but excluding any periods of rainfall measured in the vicinity of the sound level meter. Rainfall shall be assessed by use of a rain gauge that shall log the occurrence of rainfall in each 10 minute period concurrent with the measurement periods set out in Guidance Note 1. In specifying such conditions the Planning Authority shall have regard to those conditions which prevailed during times when the complainant alleges there was disturbance due to noise or which are considered likely to result in a breach of the limits.
- (c) For those data points considered valid in accordance with Guidance Note 2(b), values of the $L_{A90,10 \text{ minute}}$ noise measurements and corresponding values of the 10-minute wind speed, as derived from the standardised ten metre height wind speed averaged across all operating wind turbines using the procedure specified in Guidance Note 1(d), shall be plotted on an XY chart with noise level on the Y-axis and the standardised mean wind speed on the X-axis. A least squares, “best fit” curve of an order deemed appropriate by the independent consultant

(but which may not be higher than a fourth order) should be fitted to the data points and define the wind farm noise level at each integer speed.

Guidance Note 3

- (a) Where, in accordance with the approved assessment protocol under paragraph (e) of **condition 25**, noise immissions at the location or locations where compliance measurements are being undertaken contain or are likely to contain a tonal component, a tonal penalty is to be calculated and applied using the following rating procedure.
- (b) For each 10 minute interval for which $L_{A90,10 \text{ minute}}$ data have been determined as valid in accordance with Guidance Note 2 a tonal assessment shall be performed on noise immissions during 2 minutes of each 10 minute period. The 2 minute periods should be spaced at 10 minute intervals provided that uninterrupted uncorrupted data are available (“the standard procedure”). Where uncorrupted data are not available, the first available uninterrupted clean 2 minute period out of the affected overall 10 minute period shall be selected. Any such deviations from the standard procedure, as described in Section 2.1 on pages 104-109 of ETSU-R-97, shall be reported.
- (c) For each of the 2 minute samples the tone level above or below audibility shall be calculated by comparison with the audibility criterion given in Section 2.1 on pages 104-109 of ETSU-R-97.
- (d) The tone level above audibility shall be plotted against wind speed for each of the 2 minute samples. Samples for which the tones were below the audibility criterion or no tone was identified, a value of zero audibility shall be used.
- (e) A least squares “best fit” linear regression line shall then be performed to establish the average tone level above audibility for each integer wind speed derived from the value of the “best fit” line at each integer wind speed. If there is no apparent trend with wind speed then a simple arithmetic mean shall be used. This process shall be repeated for each integer wind speed for which there is an assessment of overall levels in Guidance Note 2.
- (f) The tonal penalty is derived from the margin above audibility of the tone according to the figure below.



Guidance Note 4

- (a) If a tonal penalty is to be applied in accordance with Guidance Note 3 the rating level of the turbine noise at each wind speed is the arithmetic sum of the measured noise level as determined from the best fit curve described in Guidance Note 2 and the penalty for tonal noise as derived in accordance with Guidance Note 3 at each integer wind speed within the range specified by the Planning Authority in its written protocol under paragraph (e) of **condition 25**.
- (b) If no tonal penalty is to be applied then the rating level of the turbine noise at each wind speed is equal to the measured noise level as determined from the best fit curve described in Guidance Note 2.
- (c) In the event that the rating level is above the pertinent limit(s) taken from Tables 1 and 2 of **condition 25**, or the noise limits for a complainant's dwelling approved in accordance with paragraph (g) of **condition 25**, the independent consultant shall undertake a further assessment of the rating level to correct for background noise so that the rating level relates to wind turbine noise immission only.
- (d) The wind farm operator shall ensure that all the wind turbines in the development are turned off for such period as the independent consultant requires to undertake the further assessment. The further assessment shall be undertaken in accordance with the following steps:
- (e) Repeating the steps in Guidance Note 2, with the wind farm switched off, and determining the background noise (L3) at each integer wind speed within the range requested by the Planning Authority in its written request under paragraph (d) of **condition 25** and the approved protocol under paragraph (e) of **condition 25**.

- (f) The wind farm noise (L1) at this speed shall then be calculated as follows where L2 is the measured level with turbines running but without the addition of any tonal penalty:

$$L_1 = 10 \log \left[10^{L_2/10} - 10^{L_3/10} \right]$$

- (g) The rating level shall be re-calculated by adding arithmetically the tonal penalty (if any is applied in accordance with Note 3) to the derived wind farm noise L1 at that integer wind speed.
- (h) If the rating level after adjustment for background noise contribution and adjustment for tonal penalty (if required in accordance with note 3 above) at any integer wind speed lies at or below the values set out in Tables 1 and 2 of **condition 25** or at or below the noise limits approved by the Planning Authority for a complainant's dwelling in accordance with paragraph (g) of **condition 25** then no further action is necessary. If the rating level at any integer wind speed exceeds the values set out in Tables 1 and 2 of condition 25 or the noise limits approved by the Planning Authority for a complainant's dwelling in accordance with paragraph (g) of **condition 25** then the development fails to comply with the conditions.

Guidance Note 5

The Institute of Acoustics' Noise Working Group (Wind Turbine Noise) document "A Method for Rating Amplitude Modulation in Wind Turbine Noise", Final Report dated 9th August 2016 presents a method for rating amplitude modulation.

Summary of Consultation Responses

Statutory Consultees

South Ayrshire Council

On 2 March 2016 **South Ayrshire Council** considered the relevant Development Plan policies in their assessment of the application and objected, on the grounds that they would withdraw their objection subject to the resolution of specific matters of concern. These focused on

- Residential amenity – specifically that the cumulative noise and visual impacts of the proposal would not be unacceptable.
- Carbon rich soils - effects on Natural Heritage resources or carbon rich soils, deep peat and priority habitats.
- Natural heritage matters - that the development would not result in significant effects on the Glen App and Galloway Moors SPA and SSSI, Groundwater Dependent Terrestrial Ecosystems (GWDTE's) or protected species.

In their response South Ayrshire Council also wished the Scottish Government to consider the benefits and mitigation of an alternative means of access to the site, particularly with regard to impacts and disruption to residents of Barrhill, to consider the benefits and mitigation of landscape and visual impacts that may be afforded by the removal of turbines closest to Chirmorie Cairn and ask Ministers to request the Company to demonstrate the relative benefits of creating borrow pits on site compared to importing materials from existing local quarries.

The Company submitted Further Information (FI) which included information on access, water quality, an updated swept path analysis drawing, a Cumulative Noise Assessment Clarification note, a report on landscape and visual impact assessment undertaken by the company in April 2016. Clarification on natural heritage issues including GWDTE's and peat disturbance, reinstatement of borrow pits and benefits of onsite borrow pits, SPA & hen harrier was also included.

On 21 April 2017 following review of the Company's FI South Ayrshire Council withdrew its objection approving delegated authority to conclude and secure planning conditions with Energy Consents Officials. In their previous comments to Ministers the Council suggested "design iterations were explored in relation to the proximity of turbines to Chirmorie Hill in relation to the wider perspective of the turbines when viewed at distance and the desirability of retaining a gap between Arecloch and Kilgallioch wind farms." The Council concluded "The Company had undertaken a review of the wind farm design and proposes and agreed should consent be granted to accept a condition NOT to construct turbine 22. The Scottish Government should consider whether this measure was adequate to achieve these objectives in light of representations received"

Scottish Natural Heritage (SNH)

SNH confirmed the proposal will not impact on classified features of any internationally or nationally important natural heritage sites, agreeing that there is unlikely connectivity between hen harriers on site and the hen harrier population of the Glen App and Galloway Moors SPA. Specially protected mammal species on site will however require measures to provide an adequate level of protection during construction and operational life of the wind farm. SNH suggest measures can be incorporated into a Construction Management Plan (CMP) along with other mitigation measures to be delivered through the CMP. SNH agree there will be no significant adverse effect on Merrick Wild Land Area given the site is a distance of 23 km away.

SNH agreed whilst the development generally responds to the scale and gentle undulating landforms of the plateau, in their view the proposed turbine layout will overwhelm and detract from the locally distinctive hill of Chirmorie Cairn. Following review of the FI landscape information, SNH confirmed it did not change their original assessment of the landscape and visual impacts, and SNH advice remained to explore the removal or relocation of the turbines in close proximity to Chirmorie Cairn to avoid or minimise landscape and visual impacts on the cairn. This would aim to improve the landscape fit in views from the north and avoid significant adverse effects in relation to the locally distinctive Chirmorie Hill cairn.

Scottish Environment Protection Agency (SEPA)

No objection: subject to the Company submitting a site specific CEMP including a detailed restoration plan and peat management plan for their review.

Historic Environment Scotland (HES)

No objection: HES concluded although the proposal would have a moderate adverse impact on the integrity of the setting of two scheduled monuments, these impacts would not significantly diminish the ability to understand and appreciate the cultural significance of these monuments and therefore, we consider that the development does not raise issues of national importance.

Non-statutory Consultees

Ayrshire Rivers Trust (ART)

No Objection: The proposed wind farm development has the potential to impact on the water environment due to its close proximity to important tributaries of the River Stinchar. ART welcome the inclusion of mitigation measures and given the potential for the proposed development to indirectly impact catchments downstream, ART are pleased a monitoring plan is included in the water protection plan with annual fish

surveys completed before, during and after construction. ART also suggest macroinvertebrate surveys be included in the monitoring plan. ART therefore also suggest monitoring sites further downstream which would be able to assess all the watercourses and not just those highlighted as high risk. It is essential that any road crossings are designed to allow fish passage and that adequate protection is in place before and during the construction phases of the development to prevent pollution from reaching the burns. ART welcome the inclusion of mitigation measures that states fish rescues should be undertaken during culvert installation or watercourse realignment and ART and the River Stinchar DSFB will be consulted before any such work is undertaken.

Atkins Global

No Objection: was examined in relation to UHF Radio Scanning Telemetry communications used by their Client in that region and that we have no objection to the proposal. Please note that this is not in relation to any Microwave Links operated by Scottish Water.

Barhill Community Council

No objection: however raised concerns on behalf of their members in relation to Size and Location of the Proposed Windfarm/Cumulative Impact. Opinions are known to be divided, with some objecting and others not. It is recognised, however, that the proposed site appears to be located in the area designated as character type 18c in the adopted South Ayrshire Landscape Wind Capacity Report, though there are concerns there could be potential cumulative effects with the existing adjacent Arecleoch Windfarm (60 turbines) and the under construction Kilgallioch Windfarm, which will have 96 turbines when completed, not to mention others being proposed nearby. *Stranoch Windfarm has now received consent, which will add another 24 turbines.* There are strong feelings by some in the community that there are more than enough turbines in the area already, with serious concerns about the possible cumulative impact.

On this matter of the proposed traffic and access route however, there is no such diversity of views. There are grave concerns in this regard, especially for abnormal loads which, according to the application, are to be transported through the centre of Barrhill village streets and up the narrow single track C72 road, passing Barrhill railway station to the Chirmorie site beyond.

Use of this route through the centre of the village would severely impact on the residents, especially those whose properties are located in Main Street and Gowlands Terrace. Abnormal wind turbine loads are normally moved during 'quiet hours for traffic' and this would disturb local residents in their homes.

In addition, there is also concern regarding possible damage to properties, not to mention roads, *bridges* and pavements, due to these heavy loads being transported over totally unsuitable village roads and adjacent to houses located on deep peat bed, rather than rock, foundations.

While it is noted that loads should not now be ‘literally centimetres from the houses in order to negotiate corners’, this appears to be dependent on new, relatively untried technology reducing the length of turbine blades.

Possible disruption to daily traffic is also of concern, should problems with abnormal loads negotiating difficult bends/bridges result in road closures. Should this occur at a time when the A77 is closed, as it frequently is, when the A714 is normally used for diverted traffic, what contingency plans have been made for such an occurrence?

In conclusion, Barrhill Community Council would again strongly urge in the event of planning consent being granted, Ministers make it a condition that an alternative traffic route must be found.

BT

No objection: BT have studied this wind farm proposal with respect to EMC and related problems to BT point-to-point microwave radio links and concluded that, the Wind turbine Project indicated should not cause interference to BT’s current and presently planned radio networks.

CAA

No objection: CAA raised no objection to the proposed development, but observed that the Defence Geographic Centre would need to be notified of the turbine locations, heights, lighting status as well as the estimated and actual dates of construction and the maximum height of any construction equipment to be used, at least 10 weeks prior to the start of construction, to allow for the appropriate notification to the relevant aviation communities.

Defence Infrastructure Organisation (DIO)

No objection: DIO raised no objection to the development, but requested that perimeter turbines be fitted with lighting in the interest of air safety, and that they be informed of the height and location of the turbines and construction equipment, the latitude and longitude of every turbine, as well as the dates of when construction begins and ends.

Dumfries and Galloway Council

Responded with no comments (due to timescales and unable to prepare a report to the Council’s Planning Applications Committee): The Council’s internal Roads Authority responded with a list of recommendations as the roads within Dumfries and Galloway Council area will be utilised by construction traffic and in particular all Abnormal Indivisible Loads (AIL’s).

Forestry Commission Scotland (FCS)

No objection: No forestry interests directly affected by this proposal

Galloway Fisheries Trust on behalf of River Luce District Salmon Fishery Board:

No objection: Galloway Fisheries Trust would be happy to comment on the Construction Environmental Management Plan (CEMP) and liaise with the Ecological Clerk of Works (ECoW) if required.

Glasgow Prestwick Airport

No objection: The proposed development does not conflict with Glasgow Prestwick Airport safeguarding criteria.

CH2MHill (Scottish Government advisor on peat matters)

No objection: Halcrow consider that the submission does provide an adequate assessment of the peat landslide risk at the proposed Chirmorie Wind Farm site for this stage in the application process. However, there are elements of the methodology which could be improved. It is unlikely that these changes will materially change the level of risk at the site, but addressing these issues would make the report and assessment substantially more robust.

John Muir Trust

Objection: John Muir Trust objected for a number of reasons, including cumulative impact due to combined visibility Arecleoch and Kilgallioch wind farms are to the east and west of the site which will result in the three wind farms appearing as one, the significant visual intrusion on the Merrick Wild Land Area therefore against NPF3 and SPP(2), an inadequate Peat Management Plan, loss / damage to peat and the possible negative impact on tourism to the area.

Joint Radio Company (JRC)

No objection: JRC stated that they foresee no problems arising from this development.

Marine Scotland (Scottish Government internal advisor)

No objection, subject to conditions: Marine Scotland raised no objection to the development, but recommended that monitoring water quality and fish populations before, during and after construction could act as a further form of mitigation whereby any changes, should they occur, could be detected and rapid remediation carried out.

NATS Safeguarding

No objection: The proposed development does not conflict with safeguarding criteria. Accordingly, NATS (En Route) Public Limited Company (“NERL”) has no safeguarding objection to the proposal.

Network Rail

No objection, subject to conditions: due to the close proximity to the operational railway all turbines must be located at least a minimum distance of 150 meters from the railway boundary. The design and construction of any proposed road bridge over the railway will have to comply with current Railway Standards and Guidelines. Uncontrolled drainage towards the railway may have a direct impact on the reliability and frequency of the rail transport in your area. Suitable barriers must be put in place by the Company to prevent unauthorised and unsafe access to the railway. Construction works must be undertaken in a safe manner which does not disturb the operation of the neighbouring railway. Applicants must be aware of any embankments and supporting structures which are in close proximity to their development. The developer must contact Network Rails Asset Protection Engineers.

New Luce Community Council

Objection: New Luce CC objected on the grounds of Cumulative Effect this proposal would effectively fill in a gap between two existing wind farms giving the impression of one massive development. Scotland currently has a surplus capacity in wind power generation. The CC recommends the removal of turbines 15,19,20,21 and 22 to address the visual blocking of the New Luce to Barrhill road.

Ofcom

No Objection: no fixed links.

RSPB Scotland

No objection, subject to conditions: The original objection was removed subject to concerns around the SPA, hen harrier and black grouse. Conditions before consent for a Habitat Management Group to oversee a Habitat Management Plan(HMP) containing measures to benefit species for which the Glen App and Galloway Moors SPA and SSSIs are designated. This plan should cover the full lifespan of the wind farm, including decommissioning. Pre-construction surveys for black grouse lek sites and implementation of post-construction bird monitoring. Additional peat probing as part of pre-construction. Delivery of the HMP secured through Section 75 obligation, with appropriate financial security.

Scottish Water

No objection: no Scottish Water drinking water abstraction sources or wider drinking water catchments are in the area affected by the proposed development.

Transport Scotland (Scottish Government internal advisor)

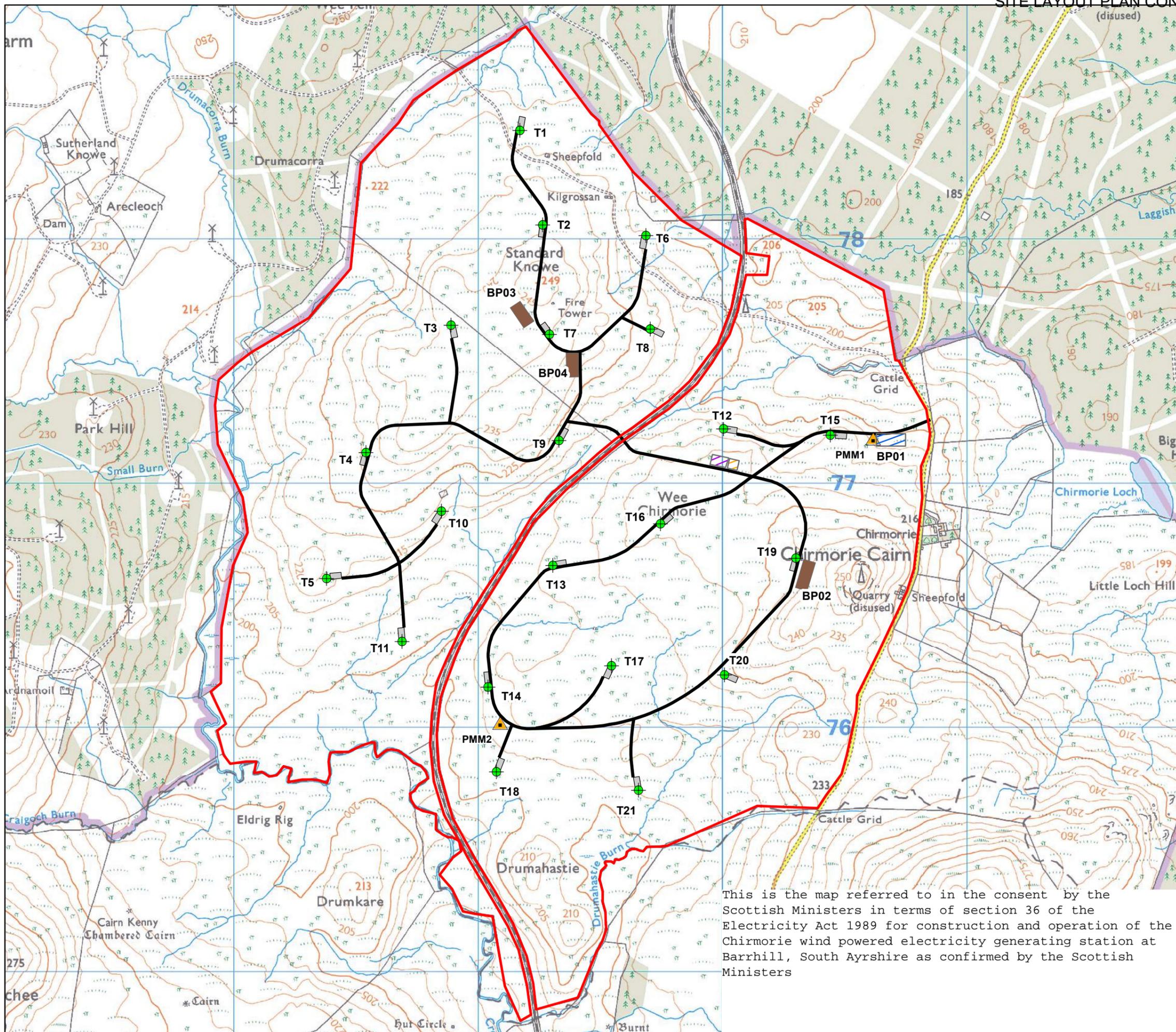
No objection, subject to conditions: to minimise impact on the trunk road network approval must be sought to accommodate junction widening and traffic management. A recognised traffic management consultant to ensure any additional signing or temporary traffic measures due to the size of abnormal loads.

Visit Scotland

No objection: Visit Scotland raised no objection to the development, but recommended that any potential detrimental impact of the proposed development on tourism - whether visually, environmentally and economically - be identified and considered in full.

The following bodies had no comments or did not respond:

Arquiva, Association of Salmon Fisheries Board, Ayrshire Road Alliance, British Horse Society, Cycling Scotland, Galloway Fisheries Trust Mountaineering Council of Scotland, Nuclear Safety, Scottish Rights of Way Society (Scotways), Scottish Wildlife Trust, Scottish Wild Land Group, Stinchar District Salmon Fisheries Board, The Crown Estate and West of Scotland Archaeology Service



Key

- Development Area
- + Wind Turbine
- Borrow Pit/Site Compound
- Main Borrow Pit
- ▲ Permanent Met Mast
- Secondary Construction Compound
- Access Track
- Hardstanding Area
- Proposed Substation

1:15,000 @ A3
 0 0.25 0.5 km

Chirmorie Wind Farm
 Environmental Statement
(amended post application to remove WTG22)

Drawn: AG	Revision: 0	Checked: HM	Date: 16/01/2018
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Figure 3.1: Site Layout Plan



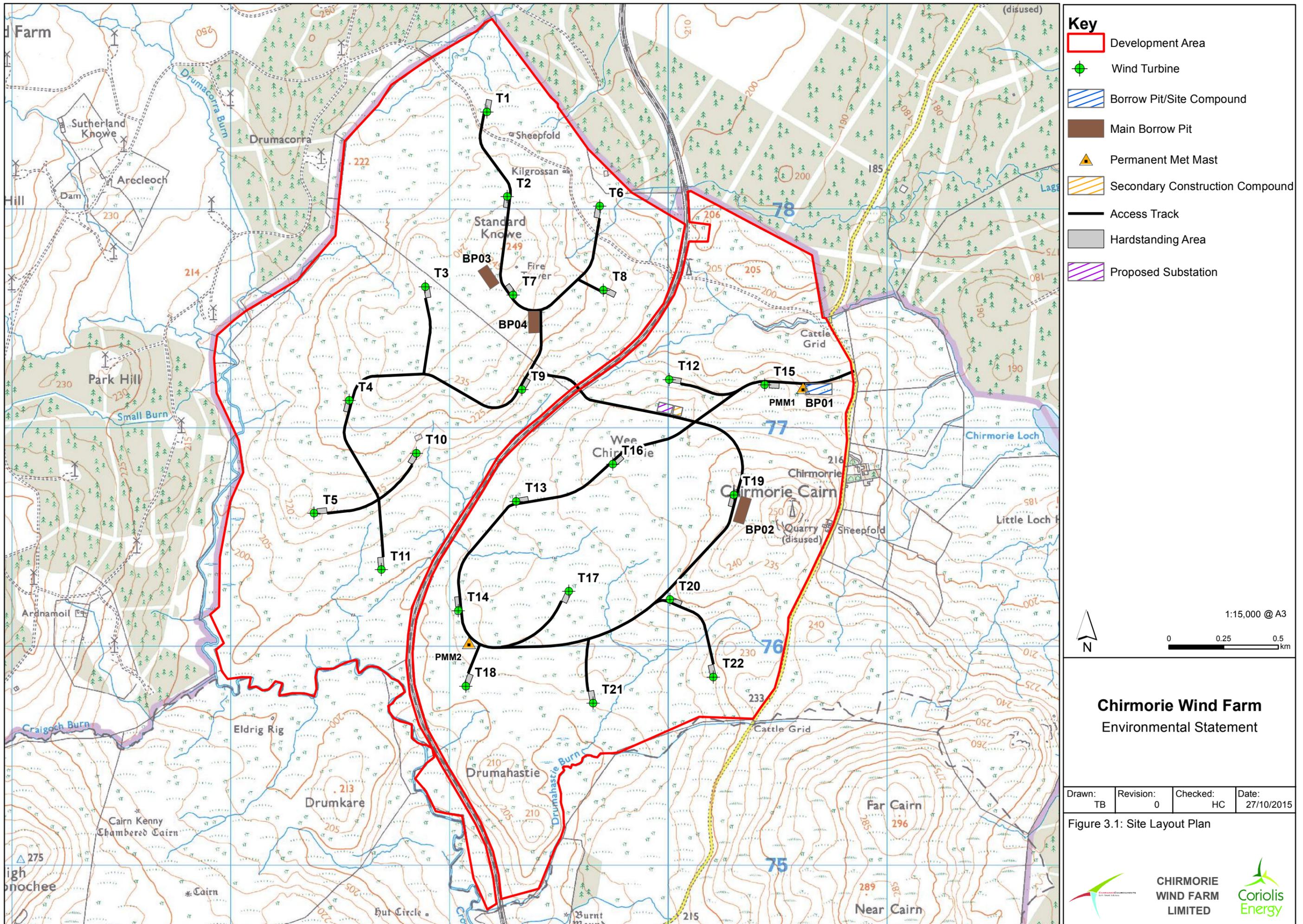
ITPENERGISED
Earth Smart Solutions

CHIRMORIE WIND FARM LIMITED



Coriolis Energy

This is the map referred to in the consent by the Scottish Ministers in terms of section 36 of the Electricity Act 1989 for construction and operation of the Chirmorie wind powered electricity generating station at Barrhill, South Ayrshire as confirmed by the Scottish Ministers



APPENDIX 3: DRAFT PROPOSED VARIATIONS TO THE CONSENT AND DRAFT SECTION 57 (2ZA) DIRECTION

Subject to the conditions set out in Annex 2, the Scottish Ministers direct under section 57 (2ZA) of the Town and Country Planning (Scotland) act 1997 that planning permission be deemed to be granted in respect of the Proposed Varied Development as described in Annex 1, as so varied in accordance with the variation application.

Updated and revised conditions are sought in relation to the following conditions contained in Annex 2 of the relevant section 36 consent:

- Condition 5 – Implementation in accordance with approved plans and requirements of this permission
- Condition 33 – Site Decommissioning, Restoration and Aftercare

Proposed amended text for each of the above conditions is listed below:

ANNEX 2

CONDITIONS

Part 2 - Conditions attached to the deemed Planning Permission

5. Implementation in accordance with approved plans and requirements of this permission

- (1) Except as otherwise required by the terms of the section 36 consent and this deemed planning permission, the Development shall be undertaken in accordance with the application including

~~a.~~ the approved drawing figure 3.1A and 3.1B site layout map and access route map (amended post application to remove WTG22) which are included in Appendix 4 of the section 36C variation application dated x May 2019~~at Annex 5 to this decision notice~~

~~b.a.~~

~~b.~~ Environmental Statement as supplemented or amended by Further Information dated 16 February 2017 or the s36C application dated 7 June 2019.

Reason: *to ensure that the Development is carried out in accordance with the approved details.*

33. Site Decommissioning, Restoration and Aftercare

- (1) The Development shall cease to generate electricity and shall be decommissioned by no later than the date falling ~~twenty-fivethirty~~ years from the date of Final Commissioning. The total period for restoration of the Site in accordance with this condition shall not exceed three years from the date on which the development ceases to generate electricity in accordance with this

~~consent of Final Decommissioning~~ without prior written approval of the Scottish Ministers in consultation with the Planning Authority.

- (2) No development shall commence unless a decommissioning, restoration and aftercare strategy has been submitted to and approved in writing by the Planning Authority in consultation with SNH and SEPA. This strategy will be reviewed every 5 years. The strategy shall outline measures for the decommissioning of the Development, restoration and aftercare of the site and will include, without limitation, proposals for the removal of the Development, the treatment of ground surfaces, the management and timing of the works, and environmental management provisions.
- (3) No later than three years prior to decommissioning of the Development or the expiration of this consent (whichever is the earlier) a detailed decommissioning, restoration and aftercare plan, based upon the principles of the approved decommissioning, restoration and aftercare strategy, shall be submitted to the Planning Authority for their written approval in consultation with SNH and SEPA. The detailed decommissioning, restoration and aftercare plan will provide updated and detailed proposals for the removal of the Development, the treatment of ground surfaces, the management and timing of the works and environment management provisions which shall include:
 - a. a site waste management plan (dealing with all aspects of waste produced during the decommissioning, restoration and aftercare phases);
 - b. details of the formation of the construction compound, welfare facilities, any areas of hardstanding, turning areas, internal access tracks, car parking, material stockpiles, oil storage, lighting columns, and any construction compound boundary fencing;
 - c. a dust management plan;
 - d. construction noise management plan
 - e. details of measures to be taken to prevent loose or deleterious material being deposited on the local road network including wheel cleaning and lorry sheeting facilities, and measures to clean the site entrances and the adjacent local road network;
 - f. a pollution prevention and control method statement, including arrangements for the storage and management of oil and fuel on the site;
 - g. details of measures for soil storage and management;
 - h. a surface water and groundwater management and treatment plan, including details of the separation of clean and dirty water drains, and location of settlement lagoons for silt laden water;
 - i. details of measures for sewage disposal and treatment;
 - j. temporary site illumination;
 - k. the construction of any temporary access into the site and the creation and maintenance of associated visibility splays;
 - l. details of watercourse crossings;
 - m. a species protection plan based on surveys for protected species (including birds) carried out no longer than 18 months prior to submission of the plan.
 - n. Traffic management plan

- o. Community liaison plan
 - p. ECOW/site environment management appointment
 - q. PMO appointment and reporting procedures
- (4) The Development shall be decommissioned, the site restored and aftercare undertaken in accordance with the approved plan, unless otherwise agreed in writing in advance with the Planning Authority in consultation with SNH and SEPA.

Reason: To ensure the decommissioning and removal of the Development in an appropriate and environmentally acceptable manner and the restoration and aftercare of the site, in the interests of safety, amenity and environmental protection.

APPENDIX 4: FIGURE TO BE REFERENCED IN THE RELEVANT SECTION 36 CONSENT AS VARIED

The Applicant encloses the following:

- Figure V3.1: Proposed Varied Development

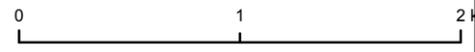
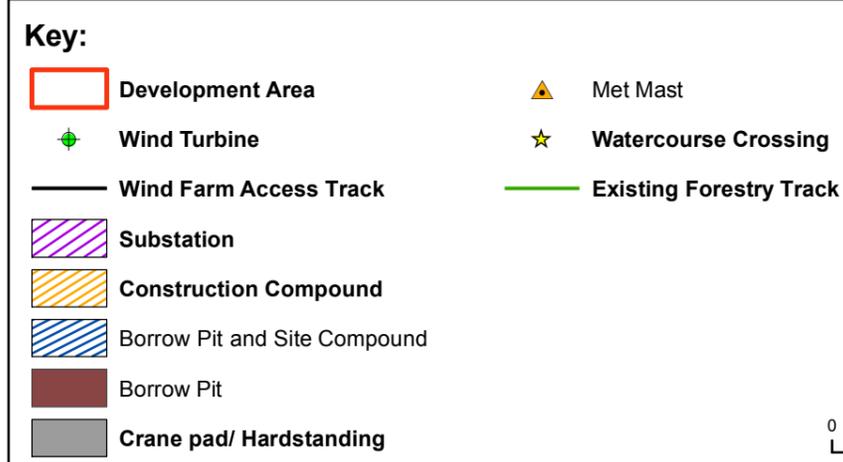


Figure Title
Site Layout Plan

Project Name
Chirmorie Wind Farm S36C Application

Project Number	R1700002445	Figure No.	V3.1
Date	May 2019	Prepared By	AG
Scale	1:32,000 @ A3	Issue	1
Client	Chirmorie Wind Farm Limited		



APPENDIX 5: ENVIRONMENTAL REPORT COVERING THE PROPOSED VARIATIONS

Intended for

Scottish Government Energy Consents Unit

Document type

Appendix Report

Date

May 2019

SECTION 36C VARIATION APPLICATION FOR CHIRMORIE WIND FARM

APPENDIX 5: ENVIRONMENTAL ASSESSMENT

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Annex B: Committed Mitigation

Annex C: Ecology Survey Report

Annex D: Borrow Pit Assessment

Environmental Assessment

1.1 Introduction

On 16th March 2018, Chirmorie Wind Farm Limited (the applicant) received section 36 consent from the Scottish Government Energy Consents Unit (ECU) to construct and operate a 21-turbine wind farm at Chirmorie Farm near Barrhill in South Ayrshire. Condition 18 of the Chirmorie Wind Farm (CWF) consent requires a Traffic Management Plan (TMP) to be agreed which would preclude construction access routing through Barrhill village and therefore an alternate access is required to the one which was assumed in the original Section 36 application. The conditions relating to submitting and getting the TMP approved by the local planning authority prior to the commencement of development still applies.

At the time of the wind farm application, negotiations were ongoing with the Forestry Commission Scotland (FCS) to secure agreement for the use of a forestry access track which would route construction traffic through Kilgallioch Forest and would avoid the need for vehicles to pass through Barrhill. This track has recently been upgraded for use during construction of Kilgallioch Wind Farm. The CWF Environmental Statement (ES) also provided a high-level assessment for the use of this alternative access, however as no agreement was in place the applicant was unable to provide any certainty on the use of this access.

The applicant is now taking forward proposals for access to CWF and is seeking consent for this as part of an application to vary the section 36 consent for the wind farm. The proposal is to access the wind farm from the A714 public road south of Barrhill at Wheeb Bridge via approximately 12km of existing forestry and wind farm track. To provide a connection to CWF, approximately 1km of new access track would also need to be constructed (see Section 1.1 and Figure 5A-1).

In this report, 'the proposed access' means:

- the existing 12 km section of forestry and wind farm track; and
- the proposed 1km section of new track.

In addition to the proposed access, the consented substation and its adjacent temporary compound are proposed to be relocated and extended within the CWF site area (see Figures 5A-2 and 5A-3). These works are required to facilitate the construction and operation of Chirmorie Wind Farm Limited and Scottish Power Energy Networks (SPEN) connection assets and to ensure that the substation is outwith the toppling distances of the nearest turbines.

An ecological survey of the proposed substation and temporary compound site has been undertaken as part of the surveys conducted for the proposals (see Annex C and Figure 5A-5). Based on the findings of this survey, the effects of the changes in the location and dimensions of the substation and compound are not predicted to have any significant environmental effects or to change the findings of the assessment presented in the ES.

As the proposed access was not considered in detail in the ES, an environmental assessment for this has been undertaken and is presented in Table A5.1 at the end of this environmental report.

The environmental report is structured as follows:

- Section 1.1 – describes the location and nature of the proposed access and the proposed amendments to the substation and compound area;

- Section 1.2 – sets out the approach to the assessment for the proposed access; and
- Section 1.3 – summarises the findings of the proposed access assessment.

All figures referred to within this report are presented in Annex A.

1.2 The Proposals

1.2.1 Location

The route of the proposed access is located on land to the east of the Chirmorie Wind Farm site. The consented Chirmorie Wind Farm is located on land at Chirmorrie Farm, situated approximately 5.5 km south west of Barrhill in South Ayrshire. The wind farm consent includes for construction and operation of a substation, which is proposed to be extended as part of this application and a temporary construction compound formed adjacent to it.

Figure 5A-1 in Annex A shows the location of the full Chirmorie Wind Farm Development (including variation). The proposed access, the substation and the temporary compound is presented on Figures 5A-1, 5A-2 and 5A-3.

The proposed substation and temporary compound relocation and extension is located within the boundary of the consented wind farm. The redline boundary for the proposed access covers an area of approximately 90 hectares (ha). The eastern end of the proposed access track connects with the A714 public road and the western end of the access track would connect to the C72 Barrhill to New Luce public road. The proposed access passes through an area predominantly of commercial forestry, and to the north of the Kilgallioch Wind Farm.

1.2.2 Description of the Proposals

Access Track

Construction traffic would join the existing access track via the existing junction with the A714 road approximately 7 km south east of Barrhill, at Wheeb Bridge. Traffic would follow approximately 11.8 km of the existing access track to a location approximately 1.2 km to the north east of the CWF development boundary.

A 1.2 km section of new track (8 m in width) would be constructed to form a spur with the existing track to connect with the C72 minor public road and the CWF site entry point (see Figures 5A-1 and 5A-3 in Annex A). The new section of track would route through an area of felled forestry before crossing a tributary of the Laggish Burn. The track would then extend for a short distance across an area of moorland used for rough grazing to connect with the C72 road.

Borrow Pit

Excavation works (some 4.5 ha in area) would be required where the new section of track passes across a minor high point in the local topography. It is intended that rock won from this excavation work would be used to construct the eastern part of the proposed track.

The borrow pit would only be used during the construction phase of the proposed access track and would be restored following completion of wind farm construction.

Substation and Temporary Compound

The CWF ES included for a substation and control building within a compound which is located to the north of the main access track. The substation compound as described in the ES measured

approximately 60 m x 45 m to allow Chirmorie wind farm and SPEN to construct their own separate infrastructure within the same area. The current proposals would relocate the substation to a location directly opposite the original location, to the south of the access track, and would extend the area of the compound to 80 m x 60 m. The increase in size is intended to provide for sufficient room to accommodate a further building to house high voltage (HV) equipment and meet SPEN's safety requirements. The relocation of the substation is required to ensure that the compound is outwith the toppling distance of the nearest turbine.

A temporary construction compound was also located to the east of the original substation location, measuring approximately 40 m x 40 m. It is now proposed to increase the size of this slightly, to measure approximately 75 m x 75 m, extending eastwards from the relocated substation compound footprint. As described in the CWF ES, this would be removed and restored following completion of the wind farm construction.

1.2.3 Construction and Operation of the Proposals

Construction and Maintenance

The new section of proposed access track, excavation of the borrow pit and construction of the substation compound and temporary construction compound will be constructed in accordance with the methodologies included in the CWF ES (see Appendix 3.1 of the CWF ES), which includes for detailed site investigation and track design prior to construction. Some small-scale felling of commercial forestry will be required to facilitate construction of the access track and the borrow pit.

Existing laydown and car parking areas near the access track entrance from the A714 would be used for the construction of the access and the wind farm. Creation of additional areas of laydown and car parking may be required. These would be located within the same area as the existing facilities and may require localised felling of coniferous woodland at the edge of existing forestry plantations.

When operational, the new section of track would be periodically inspected to identify any unacceptable deterioration of the surface requiring repair. Checks would also be made prior to any maintenance activities requiring use by abnormal HGV loads or other oversized vehicles.

The substation and temporary construction compound would be constructed in accordance with the methodology described in the CWF ES.

No demolition works are required for the construction or operation of the proposed access, the substation or temporary compound.

Operation

Construction traffic to CWF would utilise the same route assessed in the CWF ES until vehicles reach just south of Wheeb Bridge on the A714. From Wheeb Bridge, construction vehicles would follow the proposed access (see Section 1.2.2) to CWF, rather than continuing along the A714 to Barrhill. Information on the predicted traffic generation for the wind farm construction is presented in the CWF ES.

In total there are predicted to be around 7,150 HGV movements (3,575 of these vehicles making return trips) over the 12-month wind farm construction period, excluding abnormal loads. The busiest period for these movements would be during the construction of the turbine foundations. At the peak of construction, deliveries of materials to the site by HGV are likely to be spread

evenly during site hours, with around three HGVs per hour predicted on average throughout the day. The TMP required by Condition 18 of the CWF consent would set out specific requirements regarding delivery routes, timings, signage and communications between the contractor and any affected residents and road users to minimise the disruption effects of this traffic.

The CWF ES traffic assessment did not identify any significant effects as a result of traffic movements during construction of the Chirmorie Wind Farm. The only change to the anticipated traffic flows in the ES as a result of the access now proposed is the removal of wind farm construction traffic through Barrhill village. The diversion of this traffic onto an existing forestry track, and eliminating the requirement for public road improvement works, is likely to result in fewer adverse environmental effects arising from construction of the wind farm compared with those assessed in the CWF ES. The existing forestry access track has recently been upgraded to provide for abnormal loads delivering turbine components to Kilgallioch Wind Farm and the remainder of the existing access leading up to the spur road required for Chirmorie Wind Farm is generally fit for purpose.

Following completion of wind farm construction, the proposed access would be used for occasional traffic associated with maintenance of the wind farm.

The temporary construction compound would be restored upon completion of the wind farm construction. Operation of the substation would be as described in the CWF ES.

1.3 Potential for Significant Effects

The proposed access would require the excavation and disturbance of a small area of plateau moorland used for rough grazing and commercial forestry for the construction of a new section of access track of a size suitable for use by HGV and abnormal vehicle movements. The relocation and extension of the substation compound and temporary construction compound would be developed on an area of wet and acid grassland of limited nature conservation value. Figure 5A-4 in Annex A illustrates the environmental constraints in the area surrounding the proposals.

Table A5 1.1 presents an assessment of the predicted effects of the proposed access. The appraisal considers the potential for the proposed access to give rise to significant environmental effects, having regard to the selection criteria set out within Schedule 3 of the EIA Regulations which are (1) *Characteristics of Development*, the (2) *Location of Development* and (3) *Characteristics of the Potential Impact*.

All relevant committed mitigation measures set out in the 2015 Environmental Statement as part of the consented CWF application would be delivered as part of the proposals. The Construction Environment Management Plan (CEMP), which is required as a condition of consent for CWF would be expanded to include for the proposed access. Committed mitigation, and any additional mitigation specific to the proposals, which will be delivered is presented in Table A5 B1.1 in Annex B.

1.4 Summary of Findings

The key findings of the assessment are:

- The proposed access would route through commercial forestry and an area of moorland used for rough grazing. The proposed access would not have any significant effects on forestry or land management.

- The new section of the proposed access has been designed to avoid the most sensitive ecological habitats. Micrositing during construction would be used to ensure the track avoids any locally sensitive areas. No significant effects are predicted on habitats.
- The relocation and extension of the substation and temporary compound would be located within an area of wet and acid grassland of low nature conservation value. The temporary compound would be restored on completion of construction. No significant effects on this habitat type are predicted.
- Breeding bird and raptor surveys have identified that the area of the proposed access is considered to be of low sensitivity with regard to birds and no significant effects on them are predicted. No significant effects on any other protected species are predicted.
- No archaeological features have been identified along the route of the new section of access track or within the location of the substation and temporary compound. A watching brief would be implemented during construction. No significant effects on cultural heritage (direct or on their setting) are predicted for the proposed access.
- The proposed access passes through an area of commercial forestry with very few residential properties in the vicinity. The closest receptor to the access track is Burnside, located approximately 180 m from the existing section of the track. Taking account of predicted traffic movements along the proposed access, no significant effects on the amenity of this property are predicted from noise, local air quality, dust or visual impacts.
- The Traffic Management Plan required as a condition of the consent for the wind farm would include measures to ensure retained vehicular access to Burnside from the existing track and to mitigate any adverse effects from traffic conflicts associated with wind farm construction traffic.
- Peat survey work has shown that peat depths along the line of the proposed new access track ranges in depth from between 0 m and 2 m. Areas of deeper peat would be avoided as far as practicable or crossed using floating track designs to minimise effects on peat. No significant effects on soils or peat are predicted.
- The relocated substation and temporary compound are located in areas where peat is less than 0.5 m in depth. No significant effects on soils or peat are predicted.
- The new section of access track would require one new watercourse crossing to be constructed at a tributary of the Laggish Burn. The crossing will be constructed using a bridge arch culvert which avoids disturbance to the bed and banks of the burn. No significant effects on the water environment are predicted from the new works or from use of the existing track.
- The proposals are not predicted to have significant effects on the landscape resource, on or views or visual amenity of people living, working or travelling within the vicinity of the proposed access route.

No significant environmental effects are predicted from the construction and use of the proposed access track.

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
Biodiversity	<p>There are no ecologically designated sites within the site boundary, or within 3 km of the application redline boundary for the proposed access. The nearest designated sites are the River Bladnoch Special Area of Conservation (SAC) and the Kirkcowan Flow SAC, located approximately 3 km south of the proposed development; and Glen App and Galloway Moors Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI), which are located at distances of over 5 km west and south west of the proposed redline boundary.</p> <p>No habitat surveys were conducted for the extent of existing track. A walkover survey was carried out to review the silt management and drainage arrangements of the existing track. The findings of this is reported in the water and hydrology section of this table.</p> <p>For the extent of new access track, an ecological Phase 1 Habitat walkover survey and National Vegetation Classification Survey (NVC) have been undertaken. The findings are summarised below:</p> <p><i>Flora</i></p> <p>The habitat walkover survey recorded the main habitats in the open ground section of the proposed route in the location where the new section of access track would be constructed. Those habitats recorded were:</p> <ul style="list-style-type: none"> • Acid flush (NVC M6) – This is considered to be a Ground Water Dependent Terrestrial Ecosystem (GWDTE) habitat. There are some patchy strips of this habitat type near the C72 public road. All the M6 noted was M6c, which is the most common form of this vegetation community. • Acid grassland (NVC U4) – Knolls of higher ground in the survey area support unimproved acid grassland. This is a relatively common and widespread habitat type. • Marshy grassland (NVC M23) – the vast majority of the new section of access track and its immediate environs are on 	<p>Site work and desk study has identified that there is no hydrological connection between the proposed access and any SAC. The nature of the proposed access is not predicted to have any likely significant effects on the SPA.</p> <p>No widening of the existing track is required to facilitate construction of the wind farm. Works will be required to resurface degraded areas however this would not impact upon areas of existing habitat.</p> <p>Impacts arising from the construction and operation of the new section of access track are described and assessed below.</p> <p><i>Flora</i></p> <p>Overall, the new section of access track and the excavation of the onsite borrow-pit would result in the permanent loss of some 5.45 ha of habitat comprising 5 ha non-native coniferous woodland (felled), 0.25 ha marshy grassland, 0.12 ha acid grassland, 0.03 ha modified bog, 0.004 ha acid flush.</p> <p>The alignment of the new section of proposed track has been routed to avoid sensitive habitats. The track would be aligned to minimise the extent of the track within the M25 habitat which is considered to be the most sensitive area. The track would have a floated design in areas of deep peat to mitigate impacts on surrounding bog habitat (see mitigation measures AD-EC2 in Annex B).</p> <p>Additional mitigation in the form of additional cross-pipes to maintain a diffuse near-surface flow will be implemented should micro-siting of the track identify that acid flush habitats would be affected (see mitigation measure AD-EC1 in Annex B).</p> <p>Construction would be carefully planned to ensure that habitat loss was minimised to that required for safe construction of the works. Construction effects of the new section of track on the surveyed habitats are not predicted to be significant.</p>

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
	<p>marshy grassland and related habitats. Some areas include a mosaic with fragments of species-poor wet heath (NVC M15) and purple moor-grass mire (NVC M25). This is a common and widespread habitat type.</p> <ul style="list-style-type: none"> • Modified Bog (NVC M25) – The south-east edge of the survey area supports purple moor-grass mire (M25). This M25 is a relatively rich form of this vegetation type. • Coniferous Plantation Forestry – this is a common and widespread habitat of low ecological value. The route of the new spur passes through some recently felled and replanted areas. <p>The ecological survey identified that vegetation communities such as M25 and M6 are degraded bog systems and thus rain fed, and not ground water dependent. M6 is one of the most common GWDTE and is found in small areas along the water course. The conservation value of all habitats on site has been affected by man’s activities (including drainage and grazing) over many years.</p> <p><i>Fauna</i></p> <p>Surveys were carried out to identify signs of badger, water vole, otter and red squirrel within the site and immediate area.</p> <p>No signs of badger were noted during the surveys. Badger have been seen in the vicinity and are presumed to have setts in the adjacent forestry.</p> <p>No field signs of water vole were recorded in the area of the proposed access.</p> <p>Otter field signs were recorded during the site surveys. It is likely that the Laggish Burn is used by otters for foraging. Not holts or above-ground resting places were noted during the survey.</p> <p>No red squirrel dreys were noted in the course of the survey work.</p>	<p>The residual permanent effects on habitats would not be significant. This is in part because the design for the new extent of track has taken account of those areas of greatest interest and where practicable, these have been avoided.</p> <p><i>Fauna</i></p> <p>During construction of the access track and the wind farm, there would be a risk of alien species being brought to site by traffic etc during construction. This would be monitored as part of the regular environmental checks by the site ECoW and any invasive alien species dealt with immediately and in accordance with good practice.</p> <p>At the end of construction (of the wind farm), the contractor would be required to ensure that all areas of the site no longer required for the access or its maintenance were restored and that the site was left tidy with no materials left that could harm wildlife.</p> <p>The nature conservation effects during construction of the new section of track are short term and with the implementation of committed mitigation would not be predicted to be significant.</p> <p>Once constructed, the site would be open and available to animals with no particular barriers created or fragmentation of habitat or severance of ecological corridors between isolated habitats of ecological importance. A farm style gate will be constructed between land holdings to prevent sheep from entering into forestry however this would be designed so it would not deter wildlife from passing freely.</p> <p>A small area of tree felling is required along part of the new section of access track, across top of the hill (at the proposed borrow pit location) and extending slightly eastward towards the existing access track. If additional carparking and laydown areas are required (near the junction of the existing track with the A714) localised felling will also be required. All felling would affect mature commercial forestry. Prior to felling, all relevant ecological checks will be undertaken, including for</p>

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
		<p>red squirrel dreys, in the area where felling is proposed, and appropriate mitigation will be implemented as required.</p> <p>The Applicant would develop and implement a Habitat Management Plan and a Restoration Plan as part of the site CEMP to ensure that all wildlife interests were protected and effects on habitats and fauna reduced to the minimum necessary for the works.</p>
Ornithology	<p>Two breeding bird surveys¹ were carried out (April and May 2018) to identify bird activity in proximity to the new section of proposed access track, and the surrounding area.</p> <p>The survey findings are summarised as follows:</p> <ul style="list-style-type: none"> • Between two and three skylark territories were recorded; • A reed bunting and a range of other common species were noted in the forest edges and clear-fell areas; • Curlew are present in the vicinity of the new section of access track. A pair was observed overflying nearby forestry on the first survey visit however this is not suitable breeding habitat for this species. Curlew were heard but not observed off-site to the south during the second survey; • A single snipe was observed on the first survey visit. A single snipe was heard off-site on the second survey visit <p>A raptor walkover survey² was also conducted, targeted at recording any tree-nesting or ground nesting species. No raptors of conservation concern were observed during specific raptor watches or during any of the other ornithological surveys.</p>	<p>No birds of conservation concern have been identified during breeding bird surveys and raptor walkover surveys.</p> <p>The Applicant would develop and implement a Habitat Management Plan and a Restoration Plan as part of the site CEMP to ensure that all wildlife interests were protected and effects on habitats and fauna reduced to the minimum necessary for the works. An ECOW would be employed to oversee construction works. Works to construct the new section of access track would not take place during bird breeding season.</p> <p>No significant effects on birds are predicted.</p>
Landscape and Visual Amenity	The section of new access track is located on low-lying, gently undulating ground, comprised of recently felled forestry and roughly grazed moorland, with some small areas of mature coniferous forestry to the east. Large extents of coniferous forestry plantations	The proposed development would not have significant effects on the landscape fabric or landscape character, on or views or visual amenity of people living, working or participating in recreation within the vicinity

¹ The breeding bird surveys were carried out in line with the methodology devised by Brown and Shepherd (1993)

² The raptor walkover survey was conducted following the range -occupancy element of the methods described in Hardey et al (2009)

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
	<p>in the surrounding landscape provide screening over much of this area.</p> <p>The proposed access crosses through the Plateau Moorland with Forestry and Wind Farm Landscape Character Type (LCT) (LCT18C) as defined by the South Ayrshire Landscape Capacity Study³ (2018). This LCT has a simple landform comprised of broad rounded hills and flatter basins which form a low, even and generally indistinct backdrop to the smaller scale settled valleys and glens which surround the moorland edge. Land cover is dominated by coniferous forestry with small areas of open moorland and moss occurring on lower slopes at the edge of the LCT, with very small pockets of rolling farmland. Extensive operational wind farm development is accommodated within the two largest areas of this LCT. The proposed access will pass through one of these areas of extensive wind farm development.</p> <p>A section of the existing access track passes through the South Ayrshire Scenic Area. The section of new track is not located within a designated landscape.</p> <p>This landscape is very sparsely settled with few roads. One property, Burnside, is located approximately 180 m north of an existing section of the access route and has direct access from the existing forestry track. The nearest property to the section of new proposed track is located approximately 1.5 km to the north east (Laggish).</p> <p>The new section of proposed access track would connect with the C72 local road which passes to the west of the proposed access. This quiet rural road provides a link between Barrhill and New Luce.</p> <p>No core paths or long-distance footpaths are located within 2 km of the proposed access.</p>	<p>of the proposed access route. There would be no effects on any designated landscape.</p> <p>The majority of the proposed development would utilise existing access track. No significant effects on the landscape fabric or on visual amenity are expected as a result of the use of existing infrastructure. During construction of the wind farm, increases in traffic along the existing access track could impact upon the amenity of views from the residential property at Burnside. These effects would be temporary. It is not predicted that there would be significant visual effects for the property at Burnside due to its distance from the existing access track and the relatively short duration of increased traffic movements.</p> <p>The section of new track at the western end of the proposed access would disturb a small area of landscape used for commercial forestry operations, and a tract of moorland in rough grazing use. Excavation works for stone at a high point along the new track (to generate material to lay the track) would cause the most notable impacts upon the landscape resource. These effects would be localised within the immediate area, and when considered within the context of existing disturbance caused by ongoing forestry practices and the overall landscape sensitivity, landscape effects are not predicted to be significant.</p> <p>No properties would have views of the proposed new section of access due to screening provided by commercial forestry.</p> <p>Views of the new section of the proposed access would be limited to transient views by users of the minor C72 road which passes the site to the west. These views would extend across the moorland landscape backclothed by forestry through which the section of new access route would be constructed. Works are considered in-keeping with rural activities and would not adversely affect the character of the landscape in this area.</p>

³ Retrieved from <https://www.south-ayrshire.gov.uk/planning/documents/south%20ayrshire%20landscape%20wind%20capacity%20study%20-%20final%20august%202018.pdf>

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
		The proposed development would not materially change the character of the current view from this road. No other visual receptors would be affected by the proposed works.
Cultural Heritage	<p>There are no Scheduled Monuments or Canmore Sites located within the redline boundary. There are four Canmore sites in close proximity to the existing access track. These are:</p> <ul style="list-style-type: none"> • Cairnfield (period unassigned), Reference: 62479 • Sheepfold (period unassigned), Reference: 170471 • Farmstead (period unassigned), Reference: 332380; and • Building (period unassigned), Enclosure (period unassigned), Reference: 176737. <p>There are several prehistoric burial sites in the surrounding landscape, such as the scheduled Cairn Kenny (SM No. 1925) and Markdhu Cairn (SM No. 4861), however these are located over 3 km to the south-west of the development area, and the unscheduled cairns at Cairn Hill of the Moil and Cave Cairn Arecleoch (HER No. 11285 and 11283 respectively), approximately 4.4 km and 2.2 km to the south west and north west of the development area.</p> <p>Baseline studies indicate that the proposed access is not located within an area of particular archaeological sensitivity.</p>	<p>No designated heritage assets have been identified within or within close proximity to the site; therefore, there is no potential for significant direct effects on statutorily designated heritage assets.</p> <p>Visibility of the proposed development, which is minor in scale, would be limited by topography and forestry plantation. No significant effects on the settings of Scheduled Monuments or to other areas of archaeological interest within the wider area are predicted.</p> <p>As no work is proposed to the existing section of access track (with the exception of routine repairs) it is considered unlikely that there would be any significant effects on the identified Canmore sites in proximity to the existing track.</p> <p>Pre-construction surveys of the proposed new section of access track would be carried out prior to any ground-breaking works taking place. A watching brief would also be implemented during construction works to ensure the correct procedures are followed should any buried artefacts be found. No significant effects on non-designated heritage assets are predicted from the permanent development of the new section of access track.</p> <p>No significant effects on cultural heritage assets are predicted during use of the track for vehicle access to the wind farm for construction and maintenance.</p>
Geology and Soils	<p>The route of the access track is underlain by superficial Diamicton Till and Peat Superficial Deposits formed up to 3 million years ago in the Quaternary Period. At a scale of 1:625 000, BGS bedrock records show the site dominated by Wacke (Leadhills Supergroup and Tappins Group).</p>	<p>The site is not within an area which is designated for its geological interests and no locally important geological features or exposures would be directly affected by the construction activities.</p> <p>There would be disturbance to areas of solid geology through the excavation of borrow pits on site. At this stage, the quantify of stone required for the new section of access track will not be determined until</p>

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
	<p>Peat survey work carried out for the section of new access track to be formed at the northern extent of the wind farm access has identified the peat depths along the alignment range from 0 to 2 m, with some small areas of between 2-3 m. The areas of deeper peat (i.e. greater than 0.5 m) have been mapped as modified bog in the habitat mapping surveys, with some deeper peat in the areas of conifer plantation. The average depth of peat through this area of modified bog is approximately 1 m. The deeper peat is associated with low-lying, flatter ground around the tributary of the Laggish Burn.</p> <p>Outside of the modified bog area, the average peat depth is approximately 0.4 m.</p>	<p>the method of track construction has been determined, pre-construction. All material required is expected to be won from the new borrow pit within the boundary of the new section of track. No significant effects on geological resources are predicted.</p> <p>There would be disturbance to a small area of peat and soils by the new track section (up to approximately 5.5 ha). Approximately 275 m of the proposed new track would be located across peat which is greater than 0.5 m depth. Disturbance of soils and loss of peat would be reduced to the minimum necessary for the works and all good practice measures implemented to reduce impacts on peat and the quality of the remaining soils and peat. No agricultural soils would be adversely affected. The Peat Management Plan prepared for CFW includes good practice guidelines for the management, handling and storage of peat on site. This plan would be implemented during all access works.</p> <p>It is not possible to design out the requirement to excavate peat. However, where the access track would be located on areas of deeper peat, it would use a floating design to minimise compaction and damage to peat reserves. With the committed mitigation no significant effects on peat are predicted.</p> <p>No significant effects on geology and soils are predicted to arise from the routine operation of the access track during construction and maintenance of the wind farm.</p>
Water resources and flood risk	The proposed new section of access track would cross a minor unnamed tributary of the Laggish Burn. A preferred crossing point is shown on Figure 5A-1 and 5A-3, located around 450m east of the C72 public road and 500m north-west of Chirmorie Loch.	<p>The track design to cross the watercourse would use an open bottom culvert (classified as a minor bridge) in order to retain the bed, banks, soils and vegetation closest to the watercourse as undisturbed as practicably possible, in line with SEPA best practice.</p> <p>The culvert would have a minimum diameter of approximately 2.9 m⁴. A culvert with an open bottom will be constructed, with no construction</p>

⁴ Hydrological surveys undertaken for the proposed development recommended that a culvert with a minimum diameter of 2.4 m is required at this crossing (cross-sectional area of 4.52 m²). However, to install a culvert with an open bottom with no construction on the bed or banks, it is advisable that the cross-sectional area of the selected culvert (i.e. prefabricated arch culvert) be at least 20% larger. This is in order to account for any increased flow depth that may result from the increase in the roughness of the open bottom (natural bed with gravel and cobbles), adhering to SEPA's General Binding Rules (GBR) GBR 6 and GBR9 where relevant.

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
	<p>The unnamed watercourse rises to the south of the crossing point, and to the east of Chirmorrie Farm, within a marshy area in the vicinity of Chirmorie Loch.</p> <p>Site visits were undertaken in August 2018 and the following observations of the watercourse character were recorded:</p> <ul style="list-style-type: none"> • The watercourse top width is approximately 2 m with nearly vertical banks with the depth of the average channel depth to top of bank of approximately 0.65 m; • Average flow depth was approximately 0.5 m at time of the walkover survey; • Watercourse substrate is predominantly gravel with some cobbles, whilst the banks consist of peaty soils. <p>The contributing catchment of the watercourse, draining to a point a few metres downstream from the crossing point, is estimated to be approximately 0.6 km².</p> <p>The existing section of access track is drained by a network of drainage ditches adjacent to the track which discharge to local water courses at low points throughout the route. The existing track does not cross any significant water courses.</p> <p>A survey of the drainage has been undertaken to identify any areas where silt management measures could be upgraded to ensure that run off from the track does not adversely impact upon water quality.</p>	<p>works on the bed or banks of the watercourse (see mitigation measure AT-WD2 in Annex B).</p> <p>The crossing structure would be designed with adequate hydraulic capacity to convey a 1 in 200 year or 0.5% Annual Exceedance Probability (AEP) flood event without increasing flood risk to the surrounding area as required by SEPA.</p> <p>Mitigation measures during the construction phase would be implemented via the CEMP and would ensure that any potential impacts on the water environment as a result of the proposed access are appropriately managed (i.e silt management, peat management). No significant effects on the water environment are predicted during construction of the proposed access, or during construction of the wind farm (i.e the operation of the proposed access).</p> <p>No significant effects on water resources or flood risk are predicted to arise from the routine operation of the proposed access.</p> <p>Prior to construction commencing (both access track construction and construction of CWF), detailed survey will be undertaken to review the silt management control measures in place and upgrade as necessary to ensure effective mitigation is in place to protect water quality of the ditches which receive run-off from the access track. This will be included within the CEMP (see mitigation measure AT-WD1 in Annex B).</p> <p>No significant effects are predicted on the water environment from any upgrading of the existing track or from its use to provide a haul route for wind farm construction traffic.</p>
Noise	<p>The land in which the proposed development is located is rural in nature. Low levels of background noise exist within the area, associated with forestry and farming activities.</p> <p>There are no dwellings within 1.5 km of the proposed new section of access track.</p>	<p>Construction noise from formation of the new section of track would be short term and controlled through the implementation of appropriate measures within the CEMP for the wider Chirmorie Wind Farm development. The CEMP will include working hours agreed with South Ayrshire Council. As such, there would be no potential for significant noise effects on dwellings in the vicinity of the proposals and no</p>

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
	<p>Taking account of the full length of the proposed access, the closest noise sensitive receptor is located at Burnside (residential), approximately 180 m north of the existing access track.</p> <p>In the area of the proposed new works, the closest sensitive noise receptor is at Laggish (residential), located approximately 1.3 km north east of the area where the new track would be located.</p>	<p>detailed assessment of construction noise associated with plant noise or traffic is proposed.</p> <p>During the operational phase of the track (during the construction phase of Chirmorie Wind Farm) there would be an increase in vehicle movements along the proposed access. This is predicted to result in some increases in daytime noise for short periods of time. It is not predicted that there would be significant noise effects for the property at Burnside due to its distance from the existing access track and the relatively short duration of increased traffic movements.</p> <p>Once Chirmorie Wind Farm is constructed, traffic movements in relation to activity at CWF and maintenance of the proposed access would be minor and noise levels would not be predicted to be discernible above current forestry traffic levels.</p>
Air Quality	<p>The site at Chirmorie is rural in character and air quality in the area is good and typical of rural areas. Modelled data for 2015 indicates annual average background concentrations of the key local air pollutants of nitrogen dioxide (NO₂) of 2.7 microgrammes per cubic metre (µg m⁻³) and of particulate matter (PM₁₀) of 9.1 µg m⁻³ which are well below levels set in legislation for human health and the environment. There may be some minor local influences on air quality from road traffic emissions on roads in the area and from occasional forestry traffic associated with the commercial forest area to the north of the proposed site.</p> <p>There are no Air Quality Management Areas (AQMAs)⁵ in South Ayrshire or in Dumfries and Galloway.</p> <p>There are few residential property receptors in proximity to the site. The nearest property is the house at Burnside which is located within</p>	<p>Dust and particulate emissions typically settle within 350m of their source⁶. Effects on local air quality from dust generation from construction activities are not predicted to be significant because the ground conditions would be likely to be damp for much of the time and there is an absence of residential receptors close to the track.</p> <p>It is also not considered that localised incidences of wind-blown dust from site works would have a significant effect on habitats and species in adjacent watercourses such as the tributary of the Laggish Burn or on areas of higher quality blanket bog. Mitigation measures would be implemented if required to ensure these were short term and controlled (see Annex B). The contractor would be required to adopt a proactive approach to dust control as part of the CEMP to prevent localised nuisance from dust or any effects on sensitive areas of habitat.</p>

⁵ An area designated because it has not met air quality standards and objectives set out in the Air Quality Standards (Scotland) Regulations 2010

⁶ Institute of Air Quality Management (2014) IAQM Guidance on the assessment of dust from demolition and construction

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
	<p>approximately 180m of the redline boundary in the area where the existing track is located.</p> <p>There are no designated ecological sites adjacent to, or in the vicinity of the proposed development which would be sensitive to changes in air pollutants from construction of the proposals. Habitats on site are mainly modified bog on peat and thus sensitive to dust. The principal aquatic receptor of any sensitivity to the site is a tributary to the Laggish Burn which lies within the redline boundary and would be crossed by the new extent of track.</p>	<p>Disturbance of peat would be minimised to that essential for the works and peat would be handled and stored in accordance with good site practices and a Peat Management Plan.</p> <p>Emissions of local air pollutants from construction vehicles using the existing access track and the proposed new section of track (both during construction of the proposed access and for the CWF) are not predicted to result in significant air quality effects for sensitive receptors. This is because of the short-term nature of traffic increases using the tracks during construction of the proposed access track (some 8 weeks) and of the CWF (some 12 months) and the already low level of ambient air pollutant concentrations in this area.</p> <p>Following implementation of the mitigation measures in Annex B, significant dust effects on sensitive receptors from construction vehicle movements are not predicted.</p>
Land Use and Forestry	<p>Land use within 2 km of the proposed access primarily comprises agricultural uses and commercial forestry, including grazing and coniferous plantations.</p> <p>An extensive area of plantation woodland surrounds the proposed access. Arecleoch Forest is located to the west of the access track. Smaller and more fragmented forestry blocks are located in the north of the study area, near Barrhill.</p>	<p>Existing land uses will continue as current following construction. Similar and extensive grazing land exists in the surrounding area for the new section of track and no significant effects on land use are predicted.</p> <p>The proposed access would not require any felling of forestry. The proposed new section of track would route through an area which has already been felled as part of ongoing forestry operations. Forestry would be replanted outwith the proposed access track corridor.</p> <p>No significant effects on forestry operations are predicted.</p>
Major Accidents	<p>During the construction phase, the risk of accidents would be managed via implementation of the CEMP, which would include details of the construction methodology and would confirm the schedule of works, a traffic management plan, any potential pollutants and the protocols for managing potentially polluting practices such as re-fuelling of plant, wheel washing and materials storage.</p>	<p>Having regard to the particular substances and technologies used as part of the proposals, there are no likely significant effects identified as a result of the risk of accident. The nature of the proposed access is such that there is a very low risk of major accidents.</p> <p>All health and safety procedures set out for the construction of CWF would also be implemented for the construction of the proposed access. The design and construction of the proposed access track would follow</p>

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
		all legal requirements for health and safety in particular those from the Construction Design and Management (CDM) Regulations.
Climate Change	The requirement for consideration of climate change has been introduced in the EIA Regulations in 2017 and is interpreted to include how the proposed development could contribute to climate change and how the proposed development has considered climate change in design. The first of these will depend on the type of development and the second relates to how resilient the proposed development is to the effects of climate change.	<p>Due to the nature and size of the proposed access, it is considered that it is not of a type likely to result in significant emissions of greenhouse gases. The proposed access would support generation of renewable energy and thus has potential to displace other forms of energy generation which contribute to climate change.</p> <p>With regard to consideration of potential climate change impacts in the design, the potential for impacts from increased flood risk has been considered during the hydrological assessment which has been carried out for the proposed watercourse crossing, as detailed above.</p> <p>No significant effects on the proposed development from climate change are anticipated.</p>
Population and Human Health	<p>The area is relatively sparsely populated, with residential properties concentrated around Barrhill and isolated properties located along the minor road running from Barrhill southwards towards New Luce. There are a number of forest tracks within the Kilgallioch Forest, which may be informally used for walking, mountain biking, etc however this is an actively managed forest and large vehicles are common.</p> <p>The property at Burnside takes its access from the existing section of access track and is the only dwelling within 1km of the proposed access.</p>	<p>No major construction works would be required on the existing track aside from minor repairs. These works are consistent with existing activities within the wider commercial forest and for the use of the track as an existing maintenance access to wind farms at Killgallioch and Arecleoch.</p> <p>The TMP required by Condition 18 of the CWF consent would include measure to retain vehicular access for Burnside and ensure any traffic conflicts are mitigated (see mitigation measure AT-T1 in Annex B).</p> <p>A CEMP would be prepared and implemented to manage the construction of the proposed access and would address the following issues related to human health:</p> <ul style="list-style-type: none"> • Public safety; • Amenity and site security; • Noise and vibration controls; and • Air and dust management.

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
		It is not predicted that the proposed access would have significant effects on population and human health.
Cumulation with other development	<p>Projects which would have similar infrastructure at application stage identified within the vicinity of the proposed development are:</p> <ul style="list-style-type: none"> • The consented 21-turbine Chirmorie Wind Farm located directly adjacent to the western edge of the site boundary; • the proposed 20-turbine Stranoch 2 Wind Farm which is located approximately 4.5 km southwest of the proposed development; • the proposed 8-turbine Altercannoch Wind Farm which would be located approximately 2 km south east of Barrhill; and • the proposed Stranoch Wind Farm Grid connection which is a 132-kV overhead line running from the existing Mark Hill substation to the consented Stranoch Wind Farm site. 	<p>Due to the small scale of the proposed development (much of which comprises an existing forest track), any additional cumulative effect of the proposed development in combination with other confirmed or potential development proposals would be limited and is not likely to be significant.</p> <p>None of these development proposals is considered to have the potential for significant environmental effects in combination with the proposed development.</p>
Material Assets and Natural Resource Use	<p>The proposed development is located mainly on land which is currently used for rough grazing and commercial forestry. Part of the new section of the track would require excavation through a minor high point in the local landform. The proposed development would not result in any significant natural resource use during construction.</p> <p>The operational track would not require any significant natural resource use.</p>	
Waste	<p>All waste arising during the construction phase would be managed in accordance with waste regulations. A Site Waste Management Plan (SWMP) would be used to manage the construction waste arising, and would establish responsibilities for waste management, monitor waste generation, manage waste segregation into recyclable waste streams and set targets for the diversion of waste from landfill. Operational wastes would be limited to low volumes of wastes produced as a result of routine maintenance activities. No significant effects would be likely to arise as a result of waste generation during construction or operation.</p>	
Pollution and Nuisance	<p>A Construction Environmental Management Plan (CEMP) will be developed and implemented, which will ensure pollution prevention measures are in place to protect existing drainage channels, site hydrology and soils.</p> <p>Liaison with landowners and local residents has, and will continue to be, carried out to ensure that minimum disruption occurs throughout all stages of the development and construction of the project.</p>	

Table A5 1.1: Review of Proposed Access against Environmental Sensitivities as identified within Schedule 3 of the Regulations		
Environmental Topic	Baseline Description (Environmental Sensitivity)	Appraisal and Potential for Significant Environmental Effects
	There would be no likely significant effects as a result of pollution, nuisance, lighting, heat or radiation during construction or operational phase of the development.	

APPENDIX 5

**ANNEX A
FIGURES**



Key:

- Met Mast
- Development Area
- Wind Turbine
- Wind Farm Access Track
- Existing Forestry Track
- Watercourse Crossing
- Crane pad/ Hardstanding
- Substation
- Construction Compound
- Borrow Pit and Site Compound
- Borrow Pit

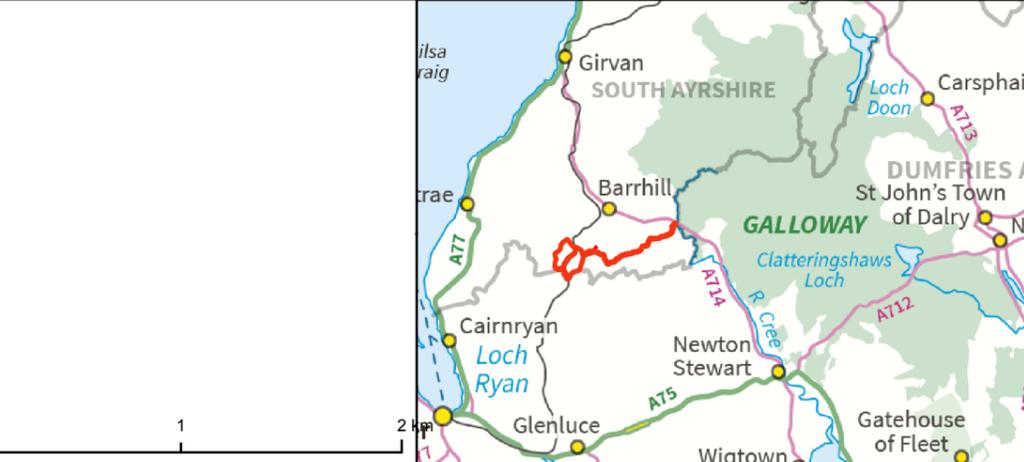


Figure Title
Appendix 5A - Site Layout Plan

Project Name
Chirmorie Wind Farm S36C Application

Project Number	R1700002445	Figure No.	5A-1
Date	May 2019	Prepared By	AG
Scale	1:32,000 @ A3	Issue	1
Client	Chirmorie Wind Farm Limited		



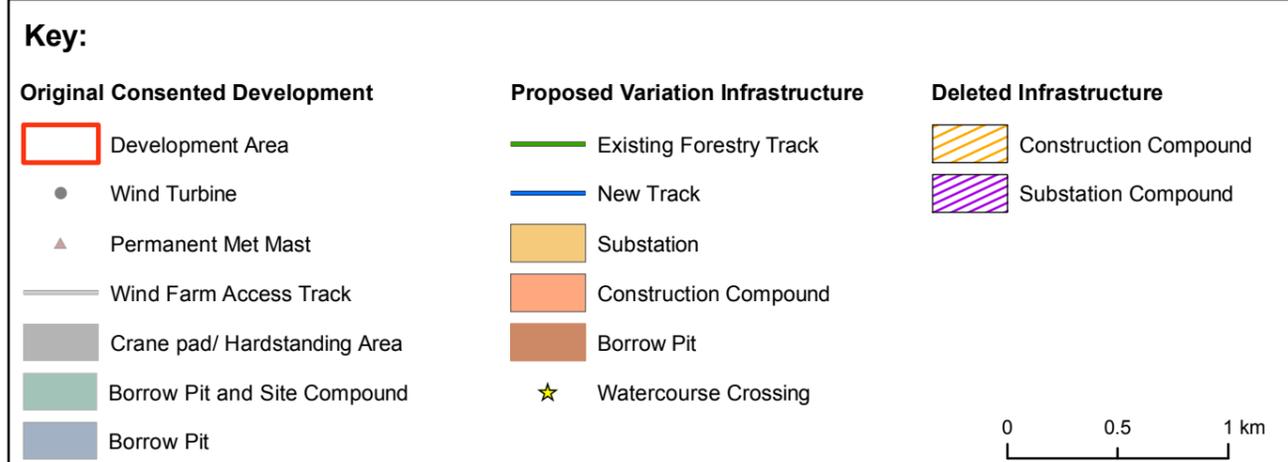
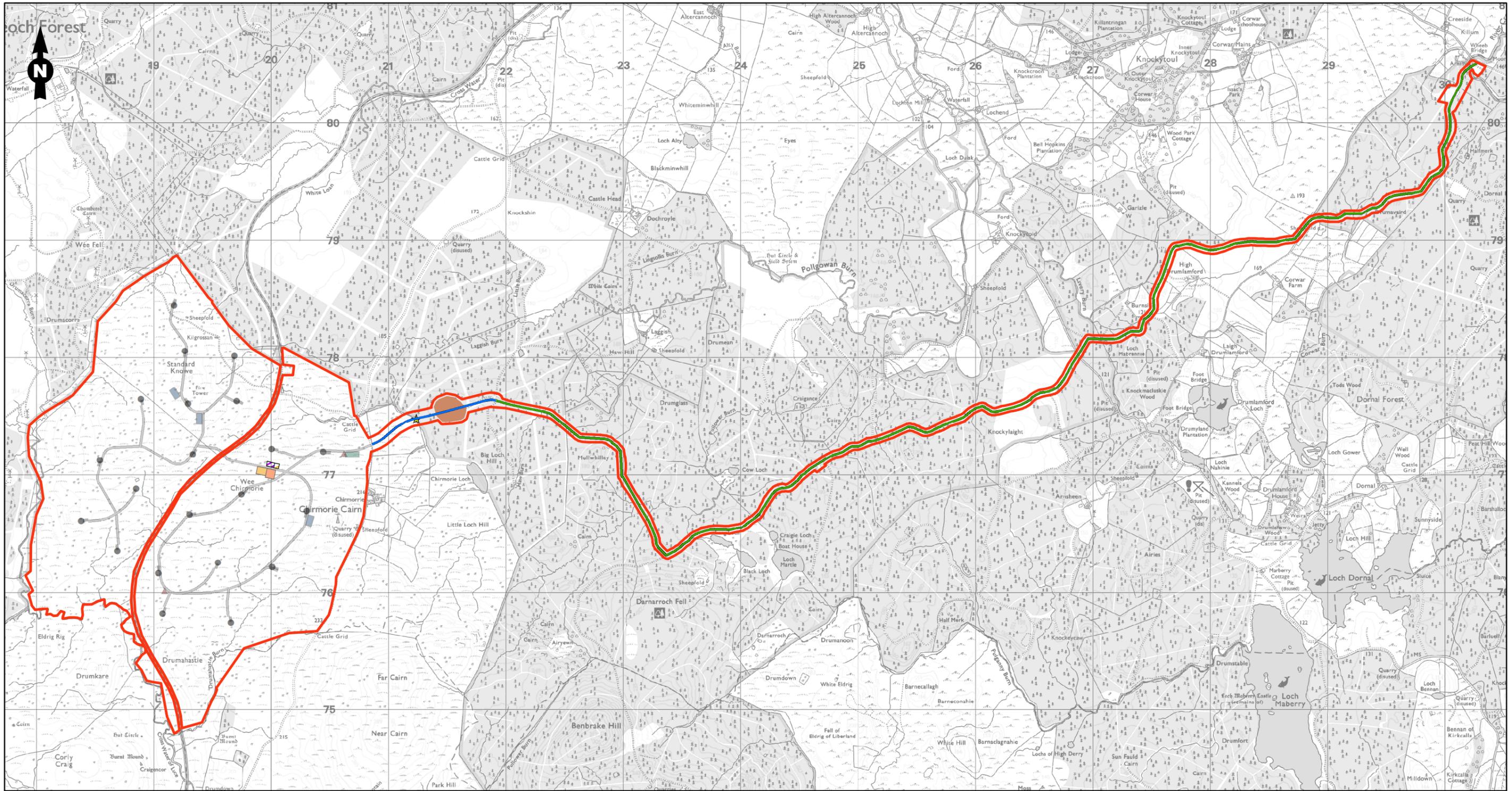
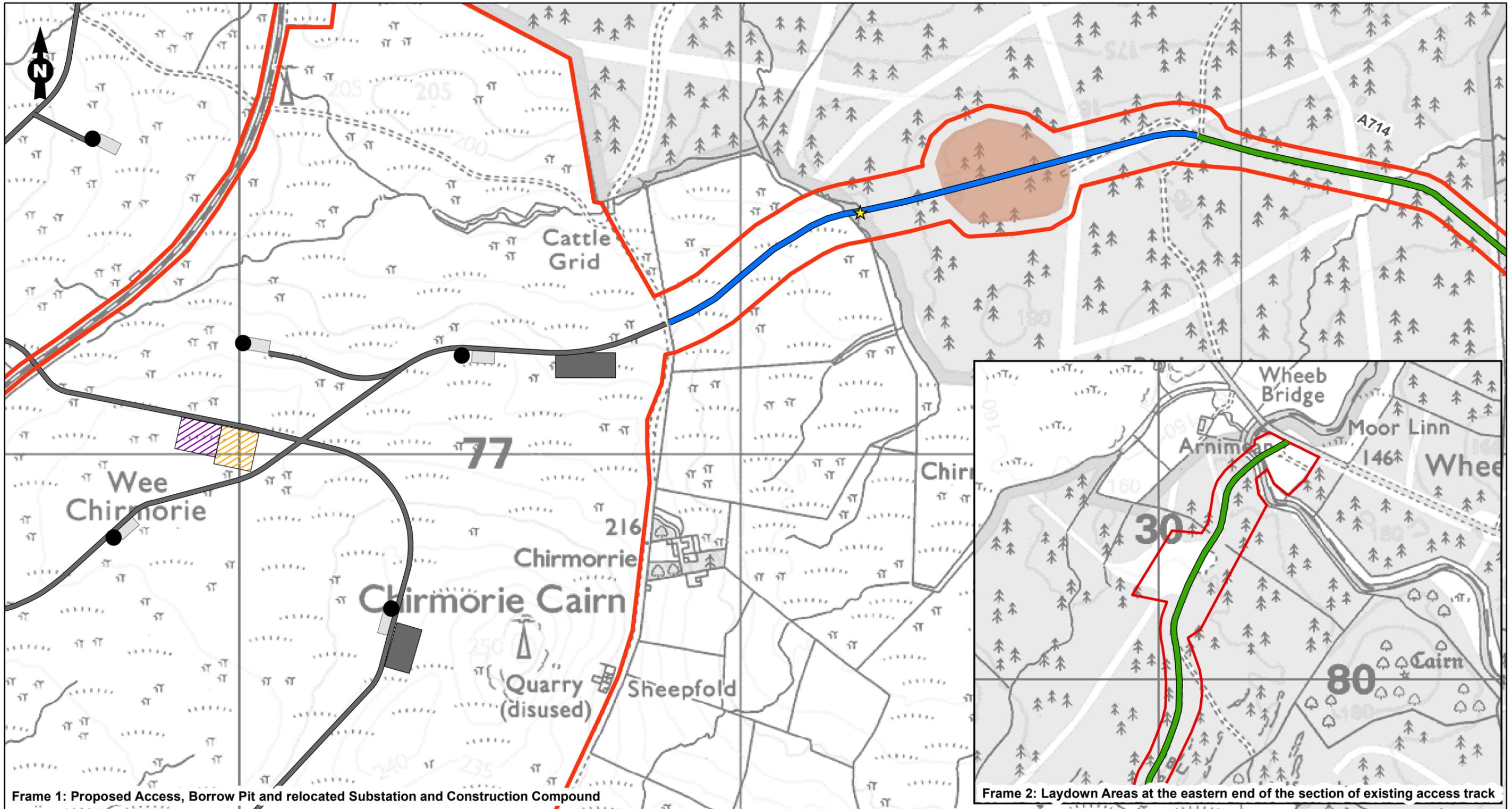


Figure Title
**Appendix 5A - Site Layout Plan
 Proposed Variation Elements**

Project Name
**Chirmorie Wind Farm S36C
 Application**

Project Number	R1700002445	Figure No.	5A-2
Date	May 2019	Prepared By	AG
Scale	1:32,000 @ A3	Issue	1
Client	Chirmorie Wind Farm Limited		





Frame 1: Proposed Access, Borrow Pit and relocated Substation and Construction Compound

Frame 2: Laydown Areas at the eastern end of the section of existing access track

Key:

Original Consented Development	Proposed Variation Infrastructure
Development Boundary (part of)	Substation
CWF Turbine	Construction Compound
CWF Access Track	Proposed Access - Existing Track
CWF Crane Hardstanding	Proposed Access - New Track
CWF Borrow Pit	Borrow Pit
	Watercourse Crossing

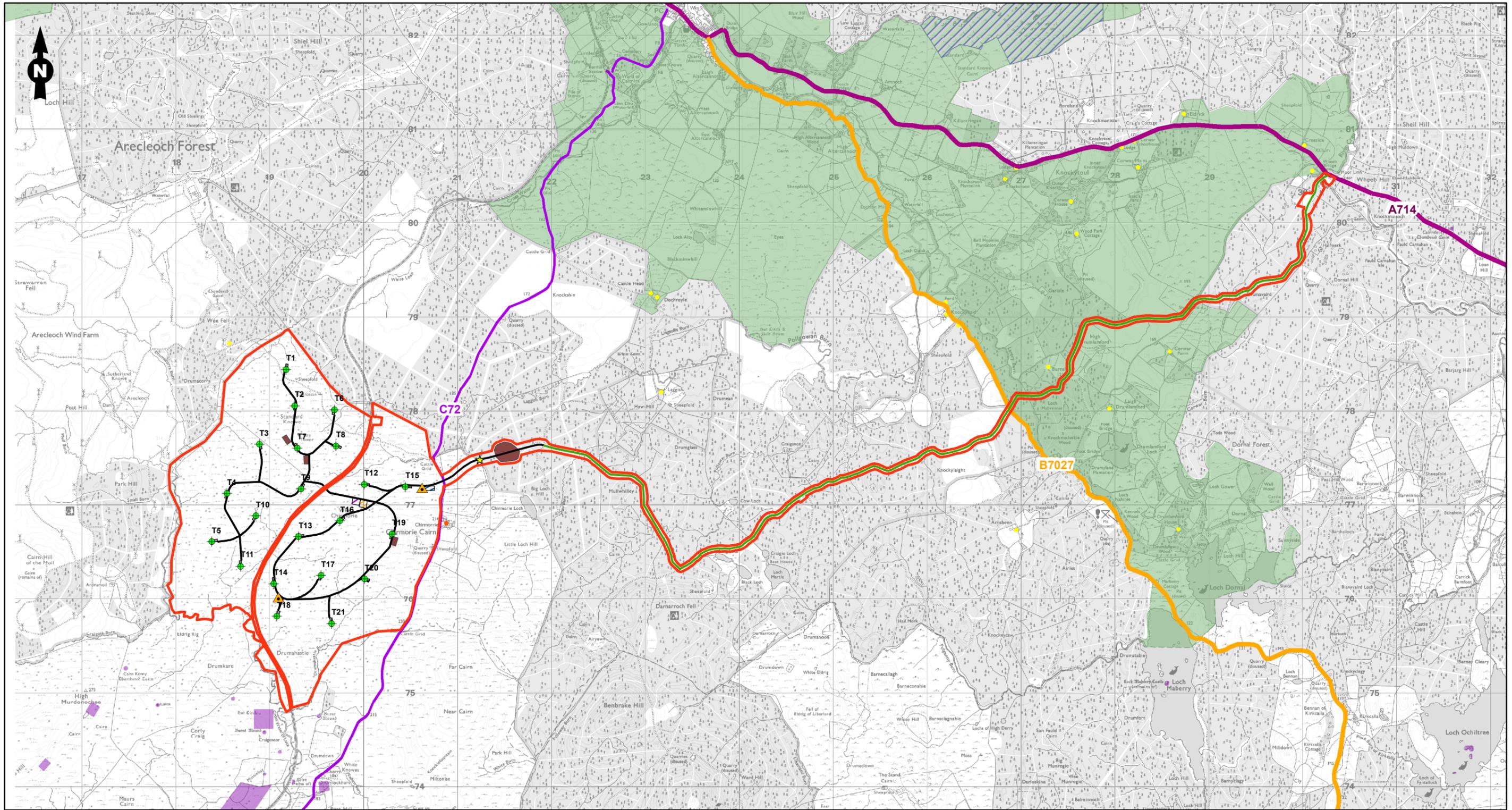


Figure Title
Appendix 5A - Detail of Proposed Variation Elements

Project Name
Chirmorie Wind Farm Variation Application

Project Number R1700002445	Figure No. 5A-3
Date May 2019	Prepared By AG
Scale 1:7,500 @ A3	Issue 1
Client Chirmorie Wind Farm Limited	





Key:

- Development Area
- ◆ Wind Turbine
- Wind Farm Access Track
- Substation
- Construction Compound
- Borrow Pit
- Crane pad/ Hardstanding
- ▲ Met Mast
- ★ Watercourse Crossing
- Existing Forestry Track
- Site of Special Scientific Importance (SSSI)
- South Ayrshire Scenic Area
- Scheduled Monument
- A Road
- B Road
- Unclassified Road
- Uninhabited Property
- Inhabited Property

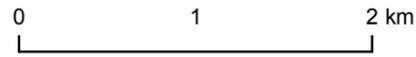
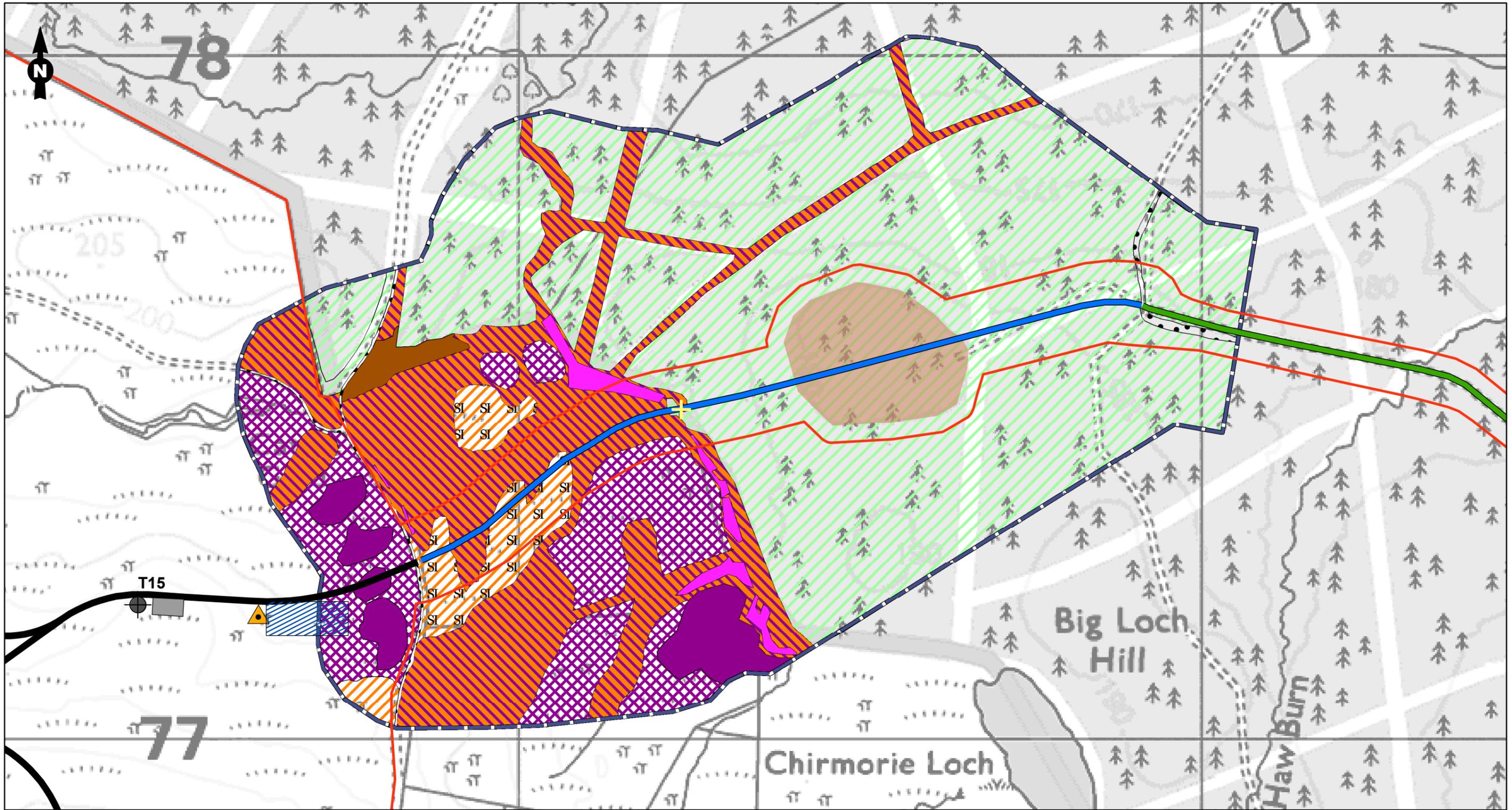


Figure Title
Constrains Plan

Project Name
Chirmorie Wind Farm Variation Application

Project Number R1700002445	Figure No. 5A-4
Date March 2019	Prepared By AG
Scale 1:40,000 @ A3	Issue 1
Client Chirmorie Wind Farm Limited	





Key:

- Development Area
- Wind Turbine
- Met Mast
- Crane pad/ Hardstanding
- Borrow Pit and Site Compound
- Borrow Pit
- Chirmorie Wind Farm Access
- Proposed Access - New Track
- Proposed Access - Existing Track
- Water Crossing Point

Phase 1 Habitat Survey

- PH1 Habitat Survey Boundary
- A1.2.2 - Coniferous Woodland - Plantation
- B1.1 - Acid Grassland - unimproved
- B1.2 - Acid Grassland - semi-improved
- B5 - Marsh/ Marshy Grassland
- C1.1 - Bracken - Continuous
- E.1.6.1 - Blanket sphagnum bog
- E1.7 - Wet modified bog
- E2.1 - Flush and Spring - acid/ neutral flush
- J4 - Bare Ground

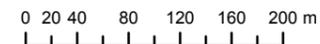


Figure Title		Project Number	Figure No.
Phase 1 Habitat Survey (for Proposed Access only)		R1700002445	5A-5
Project Name		Date	Prepared By
Chirmorie Wind Farm Variation Application		March 2019	AG
		Scale	Issue
		1:5,000 @A3	1
		Client	
		Chirmorie Wind Farm Limited	



APPENDIX 5

**ANNEX B
COMMITTED MITIGATION**

Annex B: Committed Mitigation

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
General Mitigation Measures			
GEN2	As part of the contract, the contractor will be required to implement all committed mitigation measures set out in this ES.	AT-GEN1	The contractor will be required to implement all committed mitigation measures set out in this planning application and within the Chirmorie Wind Farm Environmental Statement.
GEN3	The contractor will be required to produce and implement a Construction Environmental Management Plan (CEMP) which will include a suite of plans for peat management, water protection, waste management, traffic management, noise management, public road improvements and site restoration. All plans will be agreed with the consenting authority.	AT-GEN2	The CEMP produced for the Chirmorie Wind Farm will also be used during the construction of the proposed access.
GEN4	The Applicant will develop a long-term Habitat Management Plan for the life of the wind farm. Relevant measures will be included in the CEMP and delivered by the contractor.	AT-GEN4	The Habitat Management Plan will also include measures for proposed access to be delivered by the contractor during construction
GEN6	Compliance with the CEMP and successful implementation of mitigation will be audited at regular intervals on site by an independent Environmental Clerk of Works (ECoW) and protection measures will be revised if required.		
GEN7	Limits of deviation (LODs) of 50m in any direction will be adopted to facilitate micro-siting of infrastructure. A change control process will be agreed with the consenting authority to demonstrate that such a proposed move would result in no environmental effects significantly greater than those set out in this ES.		
GEN9	The contractor will be required to obtain all necessary permissions and consents for use of any land outwith the land made available for the contract in the project consent.		
GEN12	The junction access to the site and other working areas will be lit as required during construction to aid safe construction.		
GEN13	The contractor will fence the site in accordance with an assessment of health and safety in advance of construction to protect public safety and stock and ensure that there is no unauthorised access to the site during construction.		
GEN14	Any stock fencing that is affected by construction will be replaced/made good in agreement with the landowner.		
GEN15	The contractor will be required to develop detailed drainage proposals for construction and for the permanent development and to agree the proposed measures with SEPA.		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
GEN16	During construction access into the site will be limited for health and safety reasons to persons inducted by the principal contractor. Access to the wind farm site will be open to the public after construction.		
GEN17	Access to all properties will be maintained during construction and when the wind farm is in operation.		
GEN18	The contractor will be required to manage traffic on roads in proximity to the site safely and efficiently throughout the works to ensure the risk of delay and inconvenience to the public is reduced to the minimum necessary for the works.		
GEN19	Working hours will be agreed with the consenting authority and set out in the contract. At present they are assumed to be 07.00 to 19.00 Monday to Saturday. Any night time and Sunday working will be agreed in advance with the consenting authority.		
GEN22	The design of all access tracks will take account of recognised good practice including Scottish Renewables, Forestry Commission and CIRIA guidance and based on experience from other wind farms. All access tracks will be left in a tidy state at the end of construction and their edges restored.		
GEN 23	The drainage measures for the proposals will include appropriate sustainable drainage system measures and other protection measures to safeguard the water environment.		
GEN 24	Weekly weather forecasts will be obtained during construction by the contractor and the works will be scheduled and modified to ensure that appropriate works are carried out in the best weather conditions. In periods of particularly heavy and sustained rainfall, excavation works will be minimised to minimise the possibility of sediment release.		
GEN 25	New culverts will be designed to safeguard nature conservation interests.		
GEN 27	Use of visible gabion baskets in the works will not be permitted.		
GEN 28	All fuels will be stored in accordance with legislative requirements and best practice, and spillage kits will be provided on site in case of spillage of lubricant or oils to land or water.		
GEN 29	The contractor will be required to retain any top turfs removed from the peat during construction to use in restoration of the site.		
GEN 31	The contractor will be required to re-use as much extracted peat as possible in the earthworks and landscaping for the scheme to avoid loss of peat to off-site disposal.		
GEN 32	If peat requires to be taken off site the contractor will be required to identify off site locations for re-use where practical.		
GEN33	The contractor will be required to maintain effective liaison with local communities close to the construction area. This will include provision of information about ongoing activities and a contact telephone number for use by the local community to contact the construction site manager for information. A log of all complaints and actions taken will be kept and made available for inspection.		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
GEN 34	An Access Liaison Group will be set up by the Applicant pre construction to keep local residents and businesses in proximity to the works informed about the details of the wind farm proposals and the construction timetable.		
GEN 35	The general method statement for decommissioning will be agreed in advance with the consenting authority in advance of decommissioning works beginning.		
Land Use, Property and Agriculture			
L1	The farm manager and his family at Chirmorie Farm will be provided with alternative and suitable nearby residential accommodation by the landowner.		
L2	The land take for the proposals will be kept to that required for safe construction of the works.		
L3	Borrow pits used to supply stone for construction purposes will be restored on completion of construction in accordance with the Restoration Plan in the CEMP which will be agreed with the consenting authority.		
L4	The contractor will be required to maintain effective liaison with local communities close to the construction area. This will include provision of information about ongoing activities and a contact telephone number for use by the local community to contact the construction site manager for information. A log of all complaints and actions taken will be kept and made available for inspection.		
L5	An Access Liaison Group will be set up by the Applicant pre construction to keep local residents and businesses in proximity to the works informed about the details of the wind farm proposals and the construction timetable.		
L6	Access to all properties and businesses will be safeguarded during construction and after construction has finished. Access arrangements including for any required public road improvements will be agreed in advance of construction with the relevant local authorities and the necessary property owners and occupiers.		
L9	A full search for all utilities will be undertaken prior to construction to ensure that the location of any buried supplies are identified.		
L10	All utilities which could potentially be affected by construction will be protected to ensure that the supplies of water, electricity, telephone etc to properties will be maintained. If any short interruptions are required to join in new connections to the site the affected parties will be notified in advance.		
L11	Any existing drainage grips/channels not affected by the works will be maintained except in areas identified for blocking in the Habitat Management Plan. Those impacted by the works would be diverted around construction areas.		
L12	All reasonable precautions will be taken during construction to avoid, as far as is possible, the spreading of soil borne pests and diseases, and animal diseases. Precautions as recommended by the Scottish Environment and Rural Services ¹ will be observed.		

¹ Available: <http://www.sears.scotland.gov.uk/>

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
L13	The junction access to the site and other working areas will be lit as required during construction to aid safe construction.		
L14	Construction works will be fenced on a phased basis to safely exclude stock from working areas and to allow sufficient alternative areas of grazing through the construction stage to maintain farm activities during the works.		
L15	The site will be restored making sure that land, access roads and informal paths are restored to a condition equivalent to that before the commencement of any works.		
Geology and Soils			
G1	The Contractor will be required to implement good site practice measures to ensure disturbance to local geology, peat and soils was reduced to the minimum necessary for safe implementation of the works (in accordance with the Peat Management Plan in Appendix 6.1 of the ES).		
G2	SEPA will be consulted on the regulatory requirements where required for all materials removed for construction to be reused or removed from site.		
G3	The mitigation measures set out in the Peat Slide Risk Assessment (see Appendix 6.2 of the ES) will be implemented.		
G4	Existing watercourses will be bridged or culverted under access tracks wherever possible without modification of the watercourses and drainage measures will be designed to avoid significant disturbance of local drainage patterns and reduce any contributory factors that may potentially elevate the risk of peat slide.		
G5	Peat excavation will be undertaken following good practice guidance to avoid destabilising adjacent areas of peat.		
G6	The excavation and re-use of peat on site will be in accordance with good practice and the Peat Management Plan which will be finalised and agreed with the consenting authority prior to construction.		
G7	Surface and ground water flows will be channelled beneath access tracks and other works areas and dispersed back to the local area via cross pipes/culverts located at regular centres and wherever possible to coincide with the position of existing drainage channels.		
G9	Construction and permanent drainage discharges will be directed to avoid any areas of exposed peat, construction working areas or peat slopes.		
G10	Where peat deposits are to be excavated, measures such as pumping of inflowing groundwater to attenuation ponds will be implemented if required.		
G11	The contractor will be required to produce a method statement identifying how good site practice will be implemented to ensure soils and peat were safeguarded and committed mitigation measures delivered.		
G12	All fuel and other chemicals will be stored within the site compounds in accordance with good site management practice and to meet the requirements of Oil Storage Regulations. All oil and fuel storage facilities and small static plant will be well managed to minimise the risks of leaks to soil and groundwater.		
G13	All earth bunds and soil storage areas will be well managed to minimise run-off and erosion.		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
G14	Construction vehicles will where possible avoid crossing bodies of peat and will follow the routes of the proposed access tracks, to avoid damage to the integrity of the vegetation or underlying peat.		
G15	Intrusive site investigation work and laboratory testing of rock formations will be undertaken prior to commencing construction to optimise layout design and also optimise use of borrow pits on site.		
G16	If any contaminated ground was encountered during construction this will be dealt with in accordance with good industry practice and contained or disposed of in accordance with regulatory requirements to a suitably licensed disposal facility.		
Water Quality and Drainage			
WD1	All requirements of the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR Regulations) will be met. The contractor will be required to ensure all appropriate licences or notifications are in place for the appropriate water crossings and works to ditches and drains prior to construction.	AT-WD1	Prior to construction commencing (both access track construction and construction of CWF), a survey will be undertaken to review the silt management control measures in place and upgrade as necessary to ensure effective mitigation is delivered. This will be included within the CEMP.
WD2	All construction works and permanent development will be undertaken outwith a buffer zone of 50m from surface watercourses on site wherever possible except where watercourses are crossed by access tracks.		
WD3	All good practice for pollution prevention and control during construction will be followed including compliance with SEPA's appropriate Pollution Prevention and Control Guidance ² .		
WD4	A Water Protection Plan will be prepared as part of the Construction Environmental Management Plan (CEMP) to ensure protection of the aquatic environment during construction and setting out all proposals for pollution prevention and water quality monitoring prior to, during and after construction. This plan will be agreed with SEPA and implemented.		
WD5	The contractor will be required to implement measures to minimise the risk of pollution during construction through the Water Protection Plan. The ECoW will audit the implementation of the plan on a regular basis during construction to ensure measures are effective.		
WD6	The ECoW will advise on any required seasonal requirements which would affect the timing of works affecting watercourses.		
WD7	All new watercourse access track crossings will be designed and constructed in accordance with good practice guidance and will adopt a bridging arch culvert design to minimise impacts on the bed of watercourses.	AT-WD2	A culvert with an open bottom will be constructed where the new section of a access track bridges the minor tributary to the Laggish Burn.
WD8	Prior to construction of a access track crossings, watercourses will be surveyed for the presence of salmonids and if required an electrofishing fish rescue operation will be undertaken immediately prior to installation of the crossing structure.		

² <https://www.sepa.org.uk/regulations/water/guidance/>

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
WD9	Clean run-off from the area around the site will be kept separate from runoff from construction areas wherever possible by measures incorporated in the detailed drainage design.		
WD10	Construction and permanent drainage discharges will be directed to avoid any areas of exposed peat, construction working areas or peat slopes. Drainage from construction working areas such as turbine foundations and borrow pits (including pumped waters) will be directed through settlement ponds and/or swales and other appropriate measures such as silt fences to remove suspended solids and returned to the immediate area		
WD11	The contractor will be required to detail the permanent drainage measures to ensure that run-off is adequately controlled and similar to the greenfield run-off rates and that increased flood risk is avoided.		
WD12	Surface and ground water flows will be channelled beneath access tracks and other works areas and dispersed back to the local area via cross pipes/culverts located at regular centres and wherever possible to coincide with the position of existing drainage channels.		
WD13	A layer of permeable material will be incorporated within the structure of excavated tracks with v-drains to allow water to flow through the track structure.		
WD14	Works within watercourses will be avoided where possible and, if not, restricted to the minimum required for safe construction and in accordance with the CAR Regulations.		
WD15	Drainage ditches will be designed to reduce erosion risk and to keep water within its own catchment area to reduce impacts on habitats on the downside of the works.		
WD16	The banks and bed of any watercourse or drainage ditch disturbed by construction will be reinstated to a condition as close as possible to that existing before construction.		
WD18	The contractor will be required to plan the works to reduce unnecessary access outwith the access tracks and turbine bases to reduce the risk of compaction of peat and soils and maintain existing hydrological character.		
WD19	All fuels, oils and other chemicals will be stored in accordance with current SEPA pollution prevention guidance. All oil and fuel storage facilities will be protected and bunded and small static plant will be well managed to minimise the risks of leaks to soil and groundwater. Equipment, materials and chemicals will not be stored within or near site drainage ditches or watercourses.		
WD20	All discharges of sewage from welfare facilities on the site during construction will be contained in tanks on site and periodically removed by appropriately licensed waste carrier.		
WD21	Appropriate measures will be implemented by the contractor to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction.		
WD22	No washing water from concrete plant or pipes will be discharged directly to the site drainage or where there could be risk of it entering watercourses to prevent the risk		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
	of pollution from alkaline run-off. The contractor will be required to agree any washing out facilities with SEPA in advance of use.		
WD23	Drip trays will be placed under standing machinery. All solid and waste materials will be disposed of in accordance with good practice to licensed facilities.		
WD24	The contractor will develop an emergency response plan with effective spill response procedures (including provision of spill kits) that will be part of the Water Protection Plan and this will be actively managed and updated.		
Landscape and Visual			
LV1	A 50m LOD for micro siting of turbines and other infrastructure will be allowed (subject to the agreed change control procedures) so that if sensitive peat areas or other environmental constraints, including landscape features, are identified during construction, these can be avoided.		
LV2	The land take for the proposals will be kept to that required for safe construction of the works.		
LV3	Vegetation removal and land cover disturbance will be minimised as far as possible.		
LV4	Valued features, such as peatland, GWDTE, historic features and field boundaries will be protected and fencing will be used to keep contractors out of areas where damage could result.		
LV5	After dark construction lighting will be controlled so that it does not impinge into sensitive views, for example from residential windows.		
LV6	Working compounds will be maintained in a tidy and contained condition, mud etc upon local roads would be controlled.		
LV7	The design of all access tracks will take account of recognised good practice including Scottish Renewables, Forestry Commission and CIRIA guidance and based on experience from other wind farms. All access tracks will be left in a tidy state at the end of construction and their edges restored.		
LV8	The surfaces of crane hardstandings, and locations where tracks have been widened, will be restored or covered so that they are less visible during the operational life of the scheme.		
LV9	A Restoration Plan will form part of the CEMP. It will be implemented to restore landscape earthworks, soils, peat and surface vegetation including alongside tracks, around turbine bases, borrow pits, along cable routes and along the buried grid connection once the construction phase was complete. Disturbed areas and mounds of peat and topsoil will be regraded to blend with the surrounding land form. They will be encouraged to regenerate with native species. All borrow pits will be restored post construction.		
LV10	Materials and machinery will be stored tidily during the excavation and extraction works. Tall machinery will not be left in place for longer than required, in order to minimise its impact in views.		
LV11	The Restoration Plan will provide details for restoration of the development area including for decommissioning of the scheme.		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
LV12	Peat turves, topsoil and the seed bank will be carefully stripped from all areas of the new borrow pits. Turves will be stored in areas where they will not be disturbed or tracked upon, in low vegetated mounds. Any topsoil will be stripped and stored in accordance with BS 3882:2007. The bunds will be positioned to help screen views where appropriate. This topsoil and peat will be used for the progressive restoration of the borrow pits, and spread on newly graded slopes prior to natural colonisation of vegetation.		
LV13	Excavation, breaking up of rocks and other works will be undertaken at the borrow pits and materials will be transferred to the required location as finished materials.		
LV14	Operations will be designed so that progressive restoration of finished areas could occur as soon as possible after sections of work are complete, and so that stored turves could be replaced on graded areas as these are finished.		
LV15	A naturalistic and sympathetically designed landscape profile will be created once the borrow pit works were complete.		
LV16	The final form of the borrow pits will be designed to reduce the extent of unnatural engineered profiles. Irregular concave and convex slopes mimicking natural contours, which match with the scale of the slopes and rocky outcrops within the existing site, will be created, using techniques such as restorative blasting and by backfilling with soft material excavated as part of the works.		
LV17	Rock faces and embankment slopes will be graded to tie in with existing natural slopes, and sharp edges will be avoided, except where rock faces are part of the existing character of the area, and where they would provide opportunities to enhance landscape and habitat diversity.		
LV18	The edges of the borrow pits will be treated so that scarred and eroded tie-ins are graded out and can be soiled and vegetated.		
LV19	Remaining boulders and rocks will be distributed in a naturalistic way.		
LV20	Man-made rock slope reinforcement such as gabions, concrete, geotextiles and mesh will not be used where they would be visible: the finished gradients will be designed and engineered so that such measures are not required wherever practical.		
LV21	Disturbed areas and mounds of peat, topsoil or subsoil will be regraded to blend with the surrounding land form.		
LV22	Peat and topsoil (if any) will be replaced (using turves and topsoil removed and stored during the construction period), evenly spread and encouraged to regenerate. Areas of disturbed earth will be cultivated and encouraged to regenerate naturally.		
LV24	All defunct machinery, clutter, fencing and other debris will be removed after work is completed.		
LV25	Compliance with the CEMP and successful implementation of mitigation including requirements relating to the landscape and visual environment will be audited at regular intervals on site by an independent ECoW.		
Ecology and Nature Conservation			
EC1	A Habitat Management Plan, and the Restoration Plan included in the CEMP will help safeguard and where practical enhance biodiversity interests.	AT-EC1	If following micro-siting of the line of new section of access track will affect acid flush habitats (NVC M6 habitat),

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
			cross-pipes will be implemented in the track design to maintain a diffuse near-surface flow.
EC2	The Plans will include measures to ensure that habitats are protected and restored and will guide work in areas of peat. Measures to protect breeding birds throughout the construction period will also be included.	AT-EC2	The new track would be aligned to minimise the extent of the track within the M25 habitat. The track would be floated in areas of deep peat.
EC3	Measures will be put in place to ensure all legal obligations with regard to breeding birds are met. Appropriate mitigation will be agreed if required with SNH and implemented. Pre-construction ornithological surveys will determine the need for any mitigation and where appropriate, timing of construction will be determined by the presence of sensitive breeding species.		
EC4	An ECoW will monitor activities during construction to ensure that ecological impacts are avoided or minimised wherever possible. The ECoW will be responsible for evaluating the potential of narrowing the working area width during construction near sensitive habitats. The ECoW will check the implementation of mitigation measures and if necessary adapt these to provide better protection of the environment (see also GEN4). The ECoW will monitor all construction works undertaken during the bird breeding season to ensure that disturbance to breeding birds is minimised by the implementation of specific mitigation measures such as the creation of temporary 'no-go' areas to protect any nesting birds within the construction area. The ECoW will identify measures to control and remove any alien invasive species brought to site.		
EC5	Habitat loss will be restricted to that required for safe construction of the works.		
EC6	The site will be checked for the presence of mammal, reptile and amphibian protected species in particular water vole, prior to construction work beginning and appropriate mitigation measures will be discussed and agreed with SNH and implemented if any new activity was identified before or during construction.		
EC7	All known colonies of water vole in proximity to the works identified by the ECoW as at risk of damage from construction will be fenced off and checked regularly during the construction period to ensure the protection measures are adequate. Fencing will be retained (with landowner agreement) to encourage permanent improvement of water vole habitat in key areas.		
EC8	Any required protected species licences will be applied for from SNH.		
EC9	Further regular checks will be made by the ECoW for protected species on site during construction and appropriate mitigation identified and implemented if any new interests were identified.		
EC10	Any new settlement lagoons found to be required as part of the site drainage will be designed as far as practicable to benefit nature conservation		
EC11	Any required culverts will be designed to be adequately sized and orientated in the correct direction for wildlife in accordance with good practice.		
EC12	Adequate silt and pollution protection measures will be installed into watercourses draining into the Cross Water of Luce and at crossing structures to maintain quality of these habitats.		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
EC14	If any temporary realignment of watercourses is required, it will be completed following good practice guidance and will follow sound ecological principles to maximise the potential fish population. A Method Statement will be drawn up by the Contractor which will be agreed with SNH and the SEPA in advance of any works.		
EC15	A fish rescue will be undertaken prior to any temporary watercourse realignment required during watercourse crossing construction and in any watercourse where it is deemed by the ECoW as appropriate. This will be done in consultation with SEPA and other relevant bodies including the Galloway Fisheries Trust (GFT) and Ayrshire Rivers Trust (ART).		
EC16	The ECoW will advise on any required seasonal requirements which would affect the timing of works affecting watercourses.		
EC17	A Water Protection Plan will be prepared as part of the CEMP to ensure protection of the aquatic environment during construction and setting out all proposals for pollution prevention and water quality monitoring prior to, during and after construction. This plan will be agreed with SEPA and implemented.		
EC18	All culverts will be checked periodically when the wind farm is operational to ensure that there are no blockages.		
EC19	Surface and ground water flows will be channelled beneath access tracks and other works areas and dispersed back to the local area via cross pipes/culverts located at regular centres and wherever possible to coincide with the position of existing drainage channels.		
EC20	In locations near to groundwater dependent terrestrial ecosystems, a layer of permeable substrate material will be incorporated within the structure of excavated tracks with pipes and v-drains to maintain surface and ground water flow through the track structure. The design principles for maintaining ground and surface water flows through access tracks and foundations will be agreed with SEPA prior to construction.		
EC21	Any blasting required for the works will be planned to reduce impacts on wildlife by timing or detailing other mitigation in the CEMP to reduce disturbance.		
EC22	Any land degraded by construction will be restored after construction is completed.		
EC23	Turfes from the site will be recovered and re-used in the restoration of the site, where practical.		
EC24	Good site management practices including detailed contingency plans will be developed by the contractor and implemented to minimise the risk of intrusion into adjacent habitats and the risk of pollution incidents which could affect neighbouring habitats.		
EC25	Wooden ramps (or similar) will be placed in any excavations during construction with potential to trap animals to allow easy escape. Open trenches will be checked regularly for entrapments.		
EC26	New habitats created as part of the landscaping works for the scheme will be designed to enhance the biodiversity of the local area. New tree and shrub planting		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
	will be with native species typical of the local area, obtained from local provenance wherever possible.		
EC27	Good practice measures will be implemented during maintenance and at decommissioning to ensure that ecological interests are safeguarded.		
EC28	As part of the environmental tool box talks given to site construction staff the importance of adhering to speed restrictions and watching out for wildlife and grazing farm stock will be highlighted.		
Archaeology and Cultural Heritage			
CH6	A general watching brief condition will be applied to the project to cover the archaeological monitoring of all topsoil removal and groundbreaking works in order to allow the identification and proper recording of any hitherto undiscovered buried archaeological remains or deposits. Where necessary, adequate time will be given to excavate and record any identified remains to an appropriate standard relative to the archaeological significance of the remains found. The purpose of all archaeological recording will be to provide a permanent archive record of any surviving remains in sufficient detail to record the date, function and character.		
CH7	If important discoveries are made during watching briefs and subsequent evaluations or excavations provision will be made for an appropriate level of post-excavation analyses and the publication of the results of archaeological investigations and post excavation works in a suitable archaeological forum.		
Traffic and Access			
T1	<p>A Traffic Management Plan (TMP) will be prepared and agreed with Ayrshire Roads Alliance (ARA), Dumfries and Galloway Council (DGC), Transport Scotland and Police Scotland after consent and before construction. This plan will promote the efficient and safe transportation of components and materials to the wind farm site and set out all measures to minimise congestion and disruption. The TMP will include such measures as:</p> <ul style="list-style-type: none"> • details of proposed public roads and access routes to be used for construction traffic; • a statement of which sections of routes are to be avoided at particular times; • the timings and frequencies of vehicle movements, which will be managed to minimise local disruption; • measures to ensure delivery vehicles do not stack on the public road network whilst waiting to deliver at site; • staff and HGV drivers making journeys to the construction site will be required to comply with the TMP, with breaches resulting in disciplinary action being taken against drivers; • a commitment to monitor and ensure roads are maintained in a suitable condition throughout the construction period and ensure essential repairs are carried out as soon as practicable when required; • temporary signage to be erected during construction; 	AT-T1	The TMP will include measures to ensure access to Burnside is retained from the existing forest track and to mitigate potential traffic conflicts during construction of the wind farm.

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
	<ul style="list-style-type: none"> • timings for the road transport of abnormal loads; • the requirement for abnormal loads to retract trailers to maintain trailer lengths commensurate with standard HGV trailer lengths when not being used to transport turbine components; • permit requirements to be obtained to facilitate the transportation of abnormal loads and the temporary removal of street furniture and signage; • emergency procedures required to be in place during transportation of abnormal loads; and • communication methods to be used to ensure local residents, businesses and road users are kept informed of construction activities affecting the public road use (see also mitigation measure T5). 		
T3	Any temporary road closures of the A714 and C72 will be kept to a minimum and access arrangements and any diversion routes agreed with the roads authorities. People living on the route will be advised of the timing of these works and careful consideration will be given to the timing of school journeys in particular.		
T4	Wheel washing and wheel cleaning facilities will be provided at the site entrance to minimise mud being brought from the site onto the public road. The effectiveness of this facility will be monitored by the site personnel.		
T5	Effective liaison will be undertaken with local communities during construction. Prior to construction the Applicant will seek to form an Access Liaison Group with the community councils and local residents. This will provide a forum for circulation of information about scheduled and ongoing activities which may affect road users and roadside communities and a contact telephone number for use by the local community to contact the construction site manager for information.		
T6	Car pooling and sharing by contractor's staff will be encouraged to reduce the increase in traffic movements.		
T8	All HGVs making deliveries to the site will affix a 'tag' bearing a unique number to the vehicle. This will allow road users affected by inconsiderate driving to report this to the site manager.		
T10	Structural assessments will be carried out at all structures being traversed by abnormal loads and strengthening works undertaken to provide adequate capacity for these vehicles.		
T11	Where traffic signs are taken down, temporary signs will be erected immediately after the abnormal loads have passed and permanent signs reinstated following completion of all abnormal load movements.		
Noise and Vibration			
NV1	Any compressors brought on to site will be silenced or sound reduced models fitted with acoustics enclosures.		
NV2	All pneumatic tools will be fitted with silencers or mufflers.		
NV3	The majority of deliveries will be programmed to arrive during normal working hours only. For general construction traffic, arrivals and departures will be timed such that they will be during the working daytime and not at night (also see T9).		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
NV4	Care will be taken when unloading vehicles to minimised noise. Delivery vehicles will be routed so as to minimise disturbance to local residents.		
NV5	Delivery vehicles will be prohibited from waiting within or in the vicinity of the site with their engines running.		
NV6	All plant items will be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise.		
NV7	All plant will be sited so that the noise impact at nearby noise-sensitive receptors is minimised.		
NV8	Local hoarding, screens or barriers will be erected as necessary to shield particularly noisy activities.		
NV9	Normal working hours will be between 07:00 and 19:00 Monday-Saturday, with no work being undertaken on Sunday or during the night-time without prior consent being sought from the local authority.		
NV10	Construction traffic will be prohibited from unnecessary idling within the site boundary or at the site access points.		
NV11	The contractor will be required to produce and implement a Noise Management Plan. The plan will be taken forward by the Applicant for post construction stages of the project. The plan will be agreed with the consenting authority		
NV12	Prior to undertaking any blasting works, consideration will be given to the need for a monitoring scheme for such works. Where necessary, a method statement for such a monitoring scheme will be submitted to South Ayrshire Council and Dumfries and Galloway Council for approval. It will include details of proposed mitigation measures such as liaison with local residents, specific blast design details, approach to the development of faces, use of appropriate burden, charge levels, approach to stemming, use of decking charges and in hole delays, and avoidance of blasting works in adverse weather conditions. No works will be undertaken before receipt of written approval of the submitted documents.		
NV13	The monitoring scheme will identify the need for any such works, and where required, will include provision of monitoring locations, type of monitoring equipment to be used, frequency of monitoring and the proposed monitoring methodology.		
NV14	Blasting works will only take place between 10:00 and 12:00 hours and 14:00 to 16:00 hours Mondays to Fridays and 10:00 to 12:00 hours on Saturdays.		
Air Quality			
AQ1	Good management practices will be implemented on site to control dust during construction of the wind farm and any public road improvements. Measures will be further developed in plans in the Construction Environmental Management Plan (CEMP).		
AQ2	Exposed earth will be damped down during periods of dry and/or windy weather to reduce airborne dust and the risk of nuisance. Surface areas of stockpiles will be minimised to reduce the area exposed to wind pick-up.		
AQ3	Restoration of completed earthworks will be undertaken as soon as is practicable and revegetation promoted.		

Table A5 B1.1: Committed Mitigation			
Mitigation adopted from the Chirmorie Wind Farm Environmental Statement		Additional Mitigation for the Proposed Access	
AQ4	Vehicles used during construction will be kept clean and will be sheeted where there is a risk of dust nuisance (such as vehicles carrying loose aggregate and any workings from the site) when following public roads.		
AQ5	All access routes to the site for construction traffic will be agreed in advance with South Ayrshire Council / Ayrshire Roads Alliance as part of the Traffic Management Plan (TMP).		
AQ6	All public roads used for access will be regularly inspected during construction and, if necessary, cleaned. A vehicle wheel wash will be deployed at the site entrance during construction and decommissioning.		
AQ7	All construction plant and equipment will be maintained in good working order and not left running when not in use.		
AQ8	Dust suppressed tools will be used for all relevant operations which have the potential to generate significant dust emissions.		
AQ9	There will be no unauthorised burning of any material anywhere on-site.		
AQ10	Design controls for construction equipment and vehicles will be implemented and appropriately designed vehicles for materials handling will be used.		
Socio-Economic Effects			
SE1	During construction the site will be managed under a comprehensive safety management system and kept in a tidy and well maintained condition.		
SE2	The contractor will be required to maintain effective liaison with local communities close to the construction area. This will include a contact telephone number for use by the local community to contact the site manager for information. A log of all complaints and actions taken will be kept and made available for inspection.		
SE3	Once operational Chirmorie Wind Farm will be accessible to walkers and cyclists who may use the upgraded site tracks for recreation. Safety of potential visitors to the site would also be a key consideration for the operator.		
SE4	Chirmorie Wind Farm Limited will encourage the main contractors during construction and decommissioning where possible to use local labour, sub-contractors, suppliers and other services supplied by local businesses.		

APPENDIX 5

**ANNEX C
ECOLOGY SURVEY REPORT**

Coriolis Energy Ltd

Ecology Assessment for Chirmorie Windfarm Access Route
near Barrhill, South Ayrshire

March 2019

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Figure 1 – Study Area: Chirmorie Access Route

Figure 2 - Phase 1 Habitat Survey and NVC results

Figure 3 – Peat Depth Survey Results

Figure 4 – Breeding Bird Survey Results

Figure 5 – Habitat Sensitivity Map

APPENDIX 1 – Species List and Target Notes

APPENDIX 2 – Peat Depth Survey Results

APPENDIX 3 - Breeding Bird Survey Results and Details

1 Introduction

Cameron Ecology Ltd was commissioned by Coriolis Energy Ltd to undertake an ecological assessment of the proposed access route for the Chirmorie Windfarm near Barrhill in South Ayrshire. This includes a spur of new access track between the existing forest road and the public road at Chirmorie, and some minor changes including increased dimensions for the substation area and a new temporary construction compound.

This work had two main objectives:

1. Identify the ecological constraints and opportunities associated with the proposal, including the management of surface run-off from the existing forest road between Wheeb Bridge and the new spur;
2. Provide an assessment of the potential ecological effects of the proposal, including potential effects associated with the construction of the new spur road section.

This report sets out the findings of this work.

2 Description of Proposals

The proposed access route is shown in Figure 1.

Access for construction traffic, including materials and component deliveries is proposed using the existing forestry track network, leaving the public road at Wheeb Bridge. This would involve the creation of a new access track spur from the forest road across to the public road at Chirmorie. A new borrow pit is also proposed on-line with the route of the new spur road within the forestry. The dimensions of the substation are proposed to increase (now 80m x 60m), and a new temporary construction compound has been added (75m x 75m).

This report considers the potential ecological effects of the proposal for the access track in two sections: section 1 (the existing Forestry Commission access tracks), and section 2 (the new spur to link through).

3 Methods

This section of the report sets out the methods used in the ecological assessment process. The first stage in the ecological assessment process is determining the baseline ecological conditions. Two main methods have been used in this: desk study and field survey. These are described in more detail below.

3.1 Desk Study

The desk study included a search of the Scottish Natural Heritage (SNH) datasets on designations in the vicinity of the proposed works.

The Native Woodland Survey of Scotland (NWSS)¹ was also consulted as a desk study source, together with a range of other online sources.

Also available to inform the desk study were the ES and related documentation from the construction phase of Arecleoch and Kilgallioch Windfarms. These recent construction projects used this same forest road network.

3.2 Field Survey

In addition to the desk study undertaken described above, field survey was also undertaken. Work undertaken in relation to the new spur of access track (section 2) includes:

- A walkover Phase 1 habitat survey² and National Vegetation Classification (NVC)³ survey of semi-natural habitats present (30 May 2018);
- A series of peat probes along the line of the access route and at selected locations off-line from the route (also on 30 May 2018);
- A 2-visit breeding bird survey following a Brown and Shepherd (1993)⁴ methodology (26 April 2018 and 30 May 2018);
- A raptor walkover, targeted at recording any tree-nesting or ground nesting species, following the generalised range-occupancy element of the methods described in Hardey *et al* (2009)⁵ (26 April 2018 and 30 May 2018);
- Search for field signs of badger on 30 May 2018 and 13 February 2019. Field signs of badger are described in the following references: Neal and Cheeseman (1996)⁶, Bang and Dahlstrøm (2001)⁷, SNH (2001)⁸ and Sargent and Morris (2003)⁹;
- Search for field signs of water vole and otter on 30 May 2018 and 13 February 2019. Areas surveyed included spot checks on all watercourses within the habitat

1 Native Woodland Survey of Scotland – viewed online at http://maps.forestry.gov.uk/imf/imf.jsp?site=fcscotland_ext& on 15 January 2019.

2 Nature Conservancy Council 1990 Handbook for Phase 1 habitat survey – a technique for environmental audit Joint Nature Conservancy Council, Peterborough

3 Rodwell, J.S. (ed), 1991 *et seq* British Plant Communities Vols 1-5 Cambridge University Press, Cambridge

4 Brown, A.F. and Shepherd, K.B. (1993). "A method for censusing upland breeding waders". *Bird Study* 40: 189-195.]

5 Hardey, J., Crick, H., Wernham, C., Riley, H. & Thompson, D. (2009): *Raptors: a field guide to survey and monitoring*. 2nd Edition Edinburgh: The Stationery Office.

6 Neal, E. and Cheeseman, C. (1996). *Badgers*. Christopher Helm, London

7 Bang, P. and Dahlstrøm, P. (2001). *Animal Tracks and Signs*. Oxford University Press, Oxford

8 Scottish Natural Heritage (2001). *Scotlands Wildlife: Badgers and Development*, Scottish Natural Heritage, Battleby

9 Sargent, G. and Morris, P. (2003). *How to find & Identify Mammals*. The Mammal Society, London

survey area. Survey methods are described in more detail in Strachan & Moorhouse (2006)¹⁰ and Chanin (2003)¹¹; and

- A watching brief for other protected or otherwise notable species.

Field survey undertaken in relation to the remainder of the access track (section 1) includes:

- A walkover of the access route shown in Figure 1, searching for field signs of protected species (undertaken on 13 February 2019); and
- A review of current drainage and silt control measures in place along this route (also on 13 February 2019).

Field survey in relation to the increased size of the substation and new temporary compound included:

- A walkover of these areas including a minimum 50m buffer on 14 March 2019. This walkover included checking the habitats in this area in more detail, searching for field signs of protected species including badger, otter and water vole, reviewing the drainage in this area and informally sampling peat depth with a hand-held Hagloff corer.

3.2.1 Limitations

The first BBS and raptor walkover had been scheduled for 19 April 2018, but this visit was abandoned due to adverse weather, with dense fog limiting the visibility on that occasion.

Dense vegetation and steep/wet ground around watercourses can reduce the detectability of otter and water vole evidence. For this reason, search effort was concentrated in more likely spots such as confluences and other notable features. As with all such surveys there remains a possibility that field signs could be overlooked.

The effectiveness of a review of site drainage measures would be enhanced if undertaken during a period of prolonged heavy rain.

3.3 Assessment Methods

Once the baseline has been described (following the methods outlined above) the ecology assessment involves three main stages:

- Evaluation of features of ecological importance;
- Characterisation of potential effects; and
- Determination of significance.

These stages are described in more detail below.

3.4 Evaluation of Features of Ecological Importance

This process involves assigning a value to "Features of Ecological Importance" (FEIs). FEIs are the designated sites, habitats and species of highest ecological value present on the site.

Designated receptors are usually straightforward to assign a value to as most designations have an intrinsic value level associated with them. For example, a Site of

¹⁰ Strachan, R. and Moorhouse, T. (2006). Water vole conservation handbook 2nd ed. Wildlife Conservation Research Unit, University of Oxford, Oxford

¹¹ Chanin P (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough

Special Scientific Interest is a national level designation and so is of “national” value. Non-designated receptors are assigned a value using these same principles, relying on suitable guidance where this exists. The table given below is intended to illustrate the approach to valuing ecological features.

Table 1 Approach to Valuing Ecological Features

Level of Value	Examples
International	An internationally designated site (e.g. SAC), or site meeting criteria for international designations.
	Species present in internationally important numbers (>1% of biogeographic populations).
National	A nationally designated site (Site of Special Scientific Interest, SSSI, or a National Nature Reserve, NNR), or sites meeting the criteria for national designation.
	Species present in nationally important numbers (>1% UK population).
	Large areas of priority habitat listed on Annex I of the EC Habitats Directive and smaller areas of such habitat that are essential to maintain the viability of that ecological resource.
Regional (Natural Heritage Zone or Local Authority Area)	Species present in regionally important numbers (>1% West Central Belt Natural Heritage Zone population).
	Sites falling slightly below criteria for selection as a SSSI.
	Site of Importance for Nature Conservation, Scottish Wildlife Trust Reserves, Local Nature Reserves, or areas meeting criteria for these designations.
Local	Areas of semi-natural ancient woodland smaller than 0.25 ha.
	Areas of habitat or species considered to appreciably enrich the ecological resource within the local context, e.g. species-rich flushes or hedgerows.
Negligible	Usually widespread and common habitats and species. Receptors falling below local value are not normally considered in detail in the assessment process.

3.4.1 Characterisation of Effects

The assessment seeks to systematically describe potential effects on ecological features in relation to set criteria such as magnitude, extent, duration, frequency, reversibility and probability of occurrence.

3.4.2 Significance Criteria

The primary purpose of the assessment process is to determine whether an effect is ecologically significant. The approach taken in this assessment is to make a judgement as to whether there will be an effect on the integrity of a defined ecological feature.

4 Baseline Survey Results

4.1 Desk Study Results

The desk study identified the following designated sites in the vicinity of the development:

Glen App and Galloway Moors SPA (approximately 5km to the west). This designation is notified for its breeding hen harrier interest. Being more than 3km away, no part of the development area would be within the core part of the range of any breeding pair of hen harriers from within the SPA.

River Bladnoch SAC (just over 3km to the south). This designation is notified for its Atlantic salmon interest. However, no part of the access route drains to this catchment – all of the access route being considered in this assessment drains to the Duisk catchment. There is therefore no potential connectivity between the development and this designation.

Kirkcowan Flow SAC (also just over 3km to the south) – this designation is notified for its peatland habitat interest. The separation distance, intervening habitats and fact that it is in a different catchment mean that no potential connectivity has been identified between the development and this designation.

Consultation responses in relation to the Chirmorie Windfarm ES highlighted the importance of the Cross Water of Luce and its tributaries as an important habitat for salmon. The proposed access track infrastructure lies within this catchment.

Study of the ancient woodland inventory and the Native Woodland Survey of Scotland revealed that there is very little native woodland in this area. A few very small fragments of native woodland have been mapped in the general vicinity.

Review of information from the assessment and construction phases of nearby windfarms such as Arecleoch and Kilgalioch highlighted amongst other things the presence of low densities of red squirrel dreys in conifer plantations in the vicinity.

4.2 Habitat Survey Results

The habitat survey recorded four main habitats in section 2 of the route (the new spur). A species list is provided in Annex 1, together with some target notes. The habitats recorded are:

- Acid flush (NVC M6) – This is considered to be a GWDTE habitat. There are some patchy strips of this habitat type near the public road. If the detail of the route can not avoid these areas, some mitigation in the form of additional cross-pipes to maintain a diffuse near-surface flow may be required. All the M6 noted was M6c, which is the most common form of this vegetation community.
- Acid grassland (NVC U4) – Knolls of higher ground in the survey area supported unimproved acid grassland. This is a relatively common and widespread habitat type.
- Marshy grassland (NVC M23) – the vast majority of the route and its immediate environs are on marshy grassland and related habitats. One large polygon has been sketched described as this type but including a mosaic with fragments of

species-poor wet heath (NVC M15) and purple moor-grass mire (NVC M25). This is a common and widespread habitat type.

- Modified Bog (NVC M25) – The south-east edge of the survey area supports purple moor-grass mire (M25). This M25 is a relatively rich form of this vegetation type.
- Coniferous Plantation Forestry – this is a common and widespread habitat of low ecological value. The route of the new spur passes through some recently felled and replanted areas, together with some areas of standing conifer crop. The proposed borrow pit is also in this area.
- Existing Borrow pits – a number of existing borrow pits are present along the route. In the main these have been used in the very recent past and have bare rock.

The habitat survey shows reasonably good agreement with a previous Phase 1 survey of the wider area undertaken in relation to the windfarm. Inevitably there are some differences and these relate to the different scales at which the mapping was undertaken – the habitat map presented in Figure 2 is specifically targeted at the access route and has more detail for this area.

4.3 Peat Depth Survey Results

Peat depths recorded are provided in Appendix 2, and on Figure 3. The initial proposed route included a proposed track section of around 275m where the peat depth was greater than 0.5m. This was in an area that was mapped as modified bog in the habitat mapping (and also some deeper peat under conifer plantation), with an average depth of 1.04m. The deeper peat in this area is associated with low-lying flatter ground around the watercourse. A number of options have been considered in relation to this, primarily driven by the design objectives of crossing the tributary of the Laggish Burn at an appropriate point whilst minimising the total length of new track, particularly new track over open ground habitats. A revised alignment is now proposed; this route avoids the modified bog habitat and average peat depth on this route is predicted to be shallower. There may still be some localised areas where peat depth exceeds 0.5m.

Outside of the above mentioned section, the average peat depth is 0.42m.

These results are consistent with SNH's national level peatland dataset. The Peatland data from SNH classes most of the survey area as being of class '5' – being plantation forestry. Most of the open ground is class '3', where the dominant vegetation is not peat-forming. There are two lenses of class '1' peatland (predicted in the SNH dataset to be high conservation value peatland habitat). The revised route clips the top of one of these areas, (with less than 50m of track proposed in this polygon). As discussed above, based on the habitat data this is predicted to be an area with relatively shallower peat.

4.4 Breeding Bird Survey Results

Bird surveys have found that the area is of low sensitivity with regard to birds. Bird survey results are shown in Figure 4.

Between two and three skylark territories were recorded. A reed bunting and a range of other common species were noted in the forest edges and clearfell areas.

Curlew are present in the vicinity, a pair was noted overflying the forestry on the first visit (this is not suitable breeding habitat for this species) and were heard but not seen off-site to the south on the second visit. A single snipe was noted on the first visit, and one was heard off-site on the second visit.

4.5 Raptor Survey Results

No raptors of conservation concern were noted in the course of the raptor watches or any of the other surveys. This result is consistent with the desk study information from the surrounding area.

4.6 Protected Species Survey Results

No field signs of badger were noted during the surveys. Badger have been seen in the vicinity and are presumed to have setts in the adjacent forestry. This is consistent with the results of protected species surveys for Kilgaliach for example, where low densities of badger were recorded in various locations in the forestry in this area.

No field signs of water vole were recorded, although suitable habitat exists in a number of places, most notably the upper reaches of the Laggish Burn.

Otter field signs were recorded at the points noted in the target notes. The Laggish Burn is likely to be used by otters for foraging. Not holts or above-ground resting places were noted in the course of the survey.

No red squirrel dreys were noted in the course of the survey work.

No ponds suitable for great crested newt were recorded within the vicinity of the access route. There are no desk study records of great crested newt in the immediate vicinity, with the nearest confirmed records being over 10km to the south¹².

4.7 Silt Management Review Comments

A review of silt management and drainage arrangements from Wheeb Bridge to the access spur was undertaken on 13 February 2019.

At the time of the walkover the road surface was showing some signs of deterioration. Potholes were developing throughout the route, and fine material was accumulating and forming a slurry on the surface in various places. This was interpreted to be a result of the volume of traffic using the route, most notably timber exports. Work was ongoing at the time of the visit in relation to the maintenance of the route, in particular improvements to the surface were being implemented around the turn-off to Burnside.

As with any route of this length, it will almost always be the case that there will be hotspots where silt management is more challenging due to a combination of factors such as topography, route selection, construction materials and techniques, and the proximity of sensitive receptors.

¹² https://records.nbnatlas.org/occurrences/search?q=lsid:NHMSYS0000080156#tab_mapView, accessed 26 February 2019

At some of these 'hotspots' there may be a benefit in re-designing drainage and silt control measures at the start of a construction process where there will be regular volumes of traffic and thus an ongoing maintenance requirement for these elements. There are a couple of locations near Burnside where the route runs parallel to tributaries of the Lavery Burn, and these are examples of areas where a detailed review would be of benefit.

4.8 Walkover of the Substation and Compound Area Results

No protected species issues were recorded in the vicinity of the substation and proposed new temporary compound.

Informal verification of the peat depth in this area was consistent with the results shown in the ES, with no peat over 50cm encountered. In most cases there was no true peat, but between 20 and 40cm of peaty gleys, sometimes directly onto rock, and in other places over a shallow clay deposit.

No particularly sensitive habitats were recorded in this area. The ES reported the whole of this area as being modified bog, with this area being part of a very extensive polygon supporting the M17 (mire) vegetation community. Looking in more detail at the specific area where the substation and temporary compound are proposed, the habitats here are influenced by a ridge of higher ground with some outcropping rock. Peat is shallow or absent in the vicinity of this ridge and it is possible that with finer scale mapping, this area would be coded as a mosaic of wet and acid grassland vegetation types, including the NVC communities M25 and U4. These are less sensitive habitats than the M17 vegetation community.

The area where the substation and compound is proposed has been subject to drainage in the past, with a network of drains running at various angles and crossing through the site in some places at approximately 10m spacings. As with elsewhere in the site there will be a requirement to take these drains into account during construction, using cut-off drains as appropriate to minimise surface water entering the working area.

5 Ecological Constraints and Opportunities

This section of the report makes use of the baseline information to identify constraints and opportunities associated with the proposed access route. Areas discussed in this section are shown on Figure 5.

5.1 Constraints

The primary constraint identified in this assessment is the presence of peatland-related habitats in relation to the access route spur that crosses over open habitats. These habitats are not considered to be re-creatable in timescales that are meaningful in the context of Ecological Impact Assessment. Areas of peatland and related habitats are shown in Figure 2, and a simplified sensitivity map is shown in Figure 5.

5.2 Opportunities

Opportunities identified as part of this assessment relate to the restoration of the borrow pit. As part of the restoration process there is an opportunity to create wetland habitat and raptor ledges. These features will enhance the wildlife value of the retained habitats.

6 Ecological Assessment

6.1 *Important Ecological Features*

The following Important Ecological Features have been identified through this assessment-

Protected Sites: No designated sites have been identified as being potentially affected by the access route proposals.

Habitats: Within the open ground area that the access route crosses (the western end of section 2), there are some areas of purple moor-grass mire on deep peat. These are the most valuable areas of habitat within the survey area. In the wider context of South Ayrshire, this is a relatively abundant form of modified bog habitat. In a UK context these are part of an internationally important peatland resource.

Protected Species: Within the vicinity of the access route as a whole, there are two protected species issues. Within the plantation conifer woodland there is a population of red squirrel. These animals are part of a population of regional importance for the conservation of red squirrels, because they are relatively isolated from other grey squirrel populations.

In addition, otters make use of the aquatic habitats within the site.

Downstream sections of the Cross Water of Luce support important salmon populations.

All other potential receptors are assessed as being of less than local importance for nature conservation.

6.2 *Potential Effects*

Three potential effects have been identified as requiring assessment in this section:

- Peatland and related habitats are predicted to be directly lost as a result of track construction in section 2;
- Peatland and related habitats are predicted to experience some degree of indirect effect as a result of drainage and other disturbance associated with track construction, again in section 2;
- The potential for direct effects on red squirrel dreys from felling; and
- There is a risk of pollution affecting downstream receptors including the salmon population in the Cross Water of Luce (the development as a whole).

A related issue is that some of the habitats affected are listed as having some degree of dependence on groundwater.

A number of other issues such as the risk of disturbance to protected species such as red squirrel, otter and badger are considered to have such a low risk of being significant that they are not considered further in this assessment. The risk of disturbance to breeding birds is likewise not considered further in this assessment due

to the low sensitivity of the breeding bird assemblage. However, for a number of these potential receptors, mitigation measures are still included below in order to demonstrate compliance with legal requirements for protected species.

Direct Habitat Loss

Following mitigation (revision of the proposed route) the link is not predicted to result in any direct loss of modified bog or acid flush habitat, based on the results of the habitat mapping. (The initial approximate route would have resulted in an estimated 0.116 hectares of loss of modified bog habitat, and approximately 70m² of acid flush habitat, assuming a running width of 8m). Habitat mapping inevitably involves a simplification of a more complex reality; there is a transition zone between the modified bog and marshy grassland in this case. For this reason the true direct loss of modified bog is unlikely to be zero, but is predicted to be a small area, below the minimum mappable unit for this survey, which in this case is probably around 0.05 hectares.

There will also be a very marginal increase in the loss of shallow peat habitats as a result of the new temporary compound and increased size of the substation. These increases are not considered to significantly alter the findings of the ES in relation to habitat loss.

Indirect Habitat Loss

The extent of indirect habitat losses has been the subject of debate in recent years¹³. The literature in relation to this point is open to a degree of subjective interpretation; there may also be some lag between published studies and "grey literature"/personal observations. Another confounding factor may be the difficulty in distinguishing between genuinely unavoidable impacts and poor construction practice in this area. Finally, climate may be a factor; the geographical distribution of blanket bog in the UK is limited by climate. Evidence linking large scale impacts of erosion to hydrological disruption from drainage often appears to be from northern England, which is the south-eastern (i.e. driest) edge of the range of this habitat type in the UK. Long-established peat tracks and floating roads in climatically wetter areas can often be found with blanket bog vegetation effectively adjacent to their edges (personal observations).

The assumption often made (and adopted in this assessment) is that the impact of floating roads will be similar to the impact of a drain. The published literature on the distances from drains at which there are detectable impacts on the position of the water table includes a large range of values (see for example references quoted in Nayak (2008)¹⁴. When values from blanket peats are considered in isolation, there are

¹³ A detailed discussion of these issues is provided in Lindsay, R. & Freeman, J. 2008 Lewis Wind Power Environmental Impact Statements 2004 and 2006 – a critical review" RSBP report available at http://www.rspb.org.uk/Images/Lewis_Full_Report_tcm9-189537.pdf, and Dargie, T. 2007 "Lewis Wind Farm: Rebuttal of the 2005 and 2007 Lindsay Observations on Habitats and Ecological Assessment" http://www.boreasecology.com/docs/lewis_rebuttal_dargie.pdf, accessed 4 May 2019

¹⁴ Nayak, D.R., Miller, D., Nolan, A., Smith, P. and Smith, J. (2008). Calculating Carbon Savings from Windfarms on Scottish Blanket mires – a new approach. Scottish Government funded research report, published online at www.scotland.gov.uk also see <http://www.scotland.gov.uk/Publications/2008/06/25114657/8>, accessed 4 March 2019

none greater than five metres. This is in general agreement with Dargie (2007)¹⁵ who found no serious impacts within ten metres and most impacts within five metres at most. For the purposes of this assessment it is considered that it would be precautionary to assume that there is a detectable impact on the position of the water table for ten metres either side of the track. This would lead to a degradation in habitat quality for modified bog habitats in this zone. As can be seen from the above paragraphs, there is a degree of uncertainty in relation to these impacts. Even with a precautionary value of 10m either side of infrastructure it is considered unlikely that the total area affected by indirect effects would exceed 0.1 hectares.

Taken together, direct and indirect losses would result in a maximum of around 0.15 hectares of loss or degradation of modified bog habitat. Given that these losses would occur in marginal areas beyond the edges of mapped modified bog habitat, losses of this scale in this context are not considered to be significant.

Effects on Red Squirrel

No red squirrel dreys were noted in the borrow pit area and line of the new access track (section 2). However more detailed checks will require to be undertaken prior to felling. If present, appropriate mitigation will need to be agreed with SNH, most likely involving the retention of trees with a suitable buffer in the event that an active drey is recorded.

Pollution Risk

The assessment of pollution risk in the absence of specific mitigation measures presents some challenges because different ecologists may adopt different assumptions about how pollution risk would otherwise be managed. Given that the sensitive salmon populations are some distance downstream from the proposed access track, the overall risk of significant effects on the population is assessed as low in this case.

Groundwater Dependant Terrestrial Ecosystems

SEPA have produced a list of NVC communities that may be groundwater dependant¹⁶. In the context of this site, vegetation communities such as M25 are interpreted to be degraded bog systems and thus rain fed (ombrogenous) and not groundwater dependant. M6 is perhaps the most common groundwater dependant terrestrial ecosystem, with M6c and M6d being the most common sub-communities in the uplands. The site contains a number of small areas of M6 acid flush, mostly associated with the margins of watercourses or other minor water features. Prior to mitigation (revision of the route) a loss of around 70m² of this habitat type was predicted. This has now been avoided through mitigation.

6.3 Mitigation

Although the area is assessed as being of low sensitivity for breeding birds, standard mitigation should still be implemented to demonstrate legal compliance for this species group. Thus, if construction of the access track spur occurs between March and July,

¹⁵ Dargie, T. 2007 "Predicting the impact of windfarm developments upon blanket bog habitat: approach and professional standards in the case of the controversial proposed Lewis Windfarm" International Mire Conservation Group Newsletter Issue 207/4 <http://www.imcg.net/media/newsletter/nl0704.pdf>, accessed 4 March 2019

¹⁶ SEPA Land Use Planning System Guidance Note 31, available from sepa.org.uk, accessed 4 March 2019

checks for the presence of ground nesting birds should be undertaken before works in this area proceed.

Where there is a requirement for felling checks should be undertaken for red squirrel dreys in and around the area where felling is proposed. These checks should be undertaken by a person competent in identifying squirrel dreys, and who is familiar with and able to advise on the implementation of protected species legislation for this species group.

Checks for the presence of other protected species groups are already included in the responsibilities of the Ecological Clerk of Works for the main windfarm. The area covered by these checks will be extended to include the access route, and mitigation measures agreed in relation to the windfarm will also apply to this route.

Further micro-siting may be beneficial to further reduce impacts on habitats and/or protected species.

6.4 Residual Effects

With mitigation, it is possible to avoid the losses of the most sensitive peatland habitats, and avoid direct losses of acid flush vegetation communities.

With mitigation including micro-siting the alignment of the road, this assessment considers that there will be no significant ecological effects associated with the use of this access route.

No significant effects are predicted in relation to red squirrel.

A number of residual effects are not significant. Checks for protected species including checks for ground nesting birds should be undertaken pre-construction.

7 Conclusions and Recommendations

From an ecological point of view, there are few issues in relation to the use of the existing forest road network as part of the access track. As this has been used previously for windfarm access during the construction phase, no major re-alignment or other works are anticipated. No significant increase in disturbance risk for protected species is predicted. Potential impacts associated with the use of this route will relate to the ongoing maintenance requirements and the control of run-off from the track surface, especially during extended periods of wet weather, including after winter weather events. Ongoing review of the performance of the drainage network will be required, and interventions in relation to the design of measures in place may be required in a number of places.

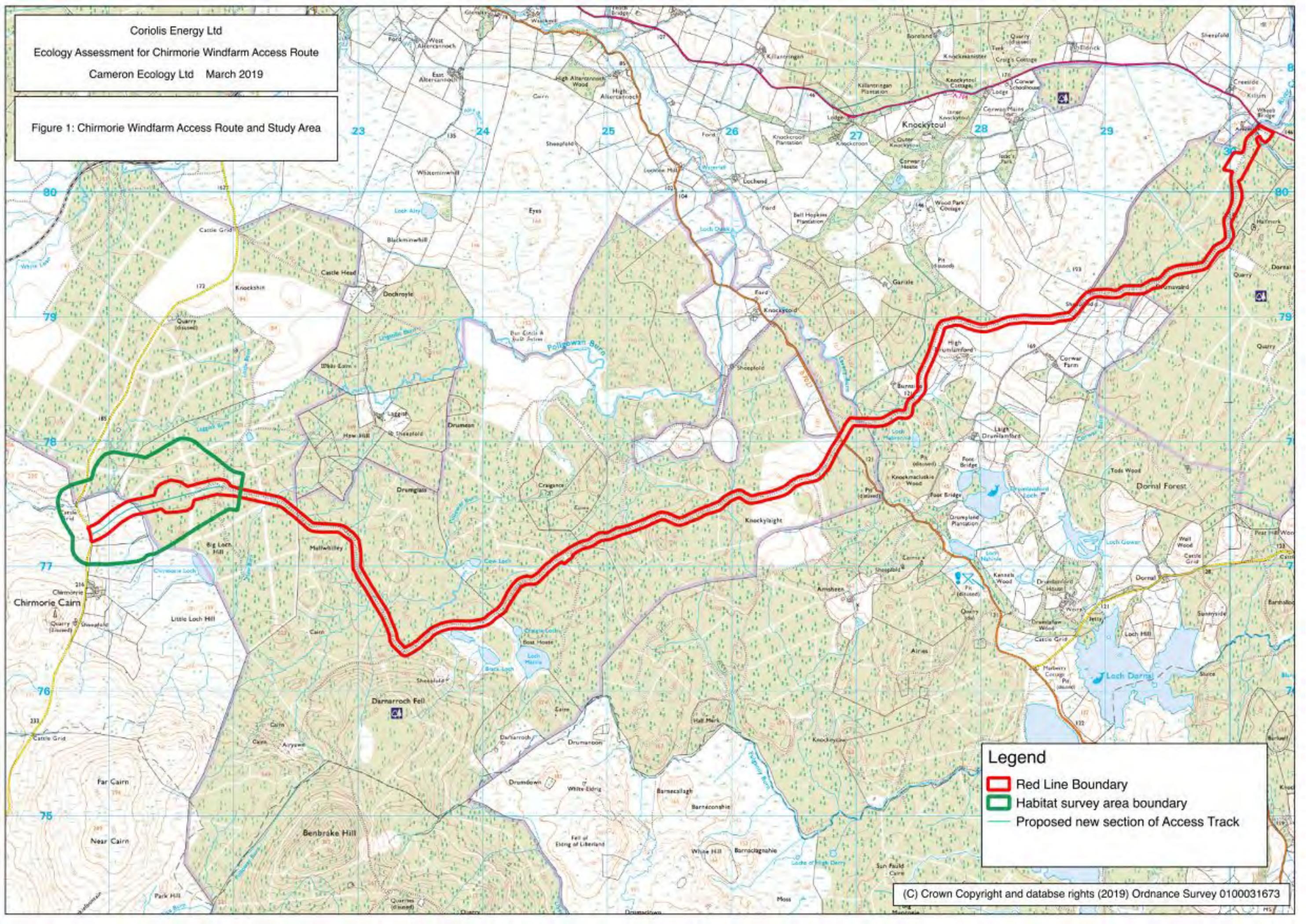
The main ecological effects will be associated with the new spur of access track and borrow pit to be constructed between the existing forest track and the public road at

Chirmorie. Bird surveys undertaken in this area reveal that the area is of low sensitivity in relation to breeding birds.

Peatland habitats occur in this area. Micrositing of the route has ensured the spur will be constructed with minimal loss of peatland habitats.

Peatland habitats affected by the increased size of the substation and new temporary compound have been found on more detailed investigation to be less sensitive than the ES habitat mapping suggested. No significant effects are predicted as a result of these changes.

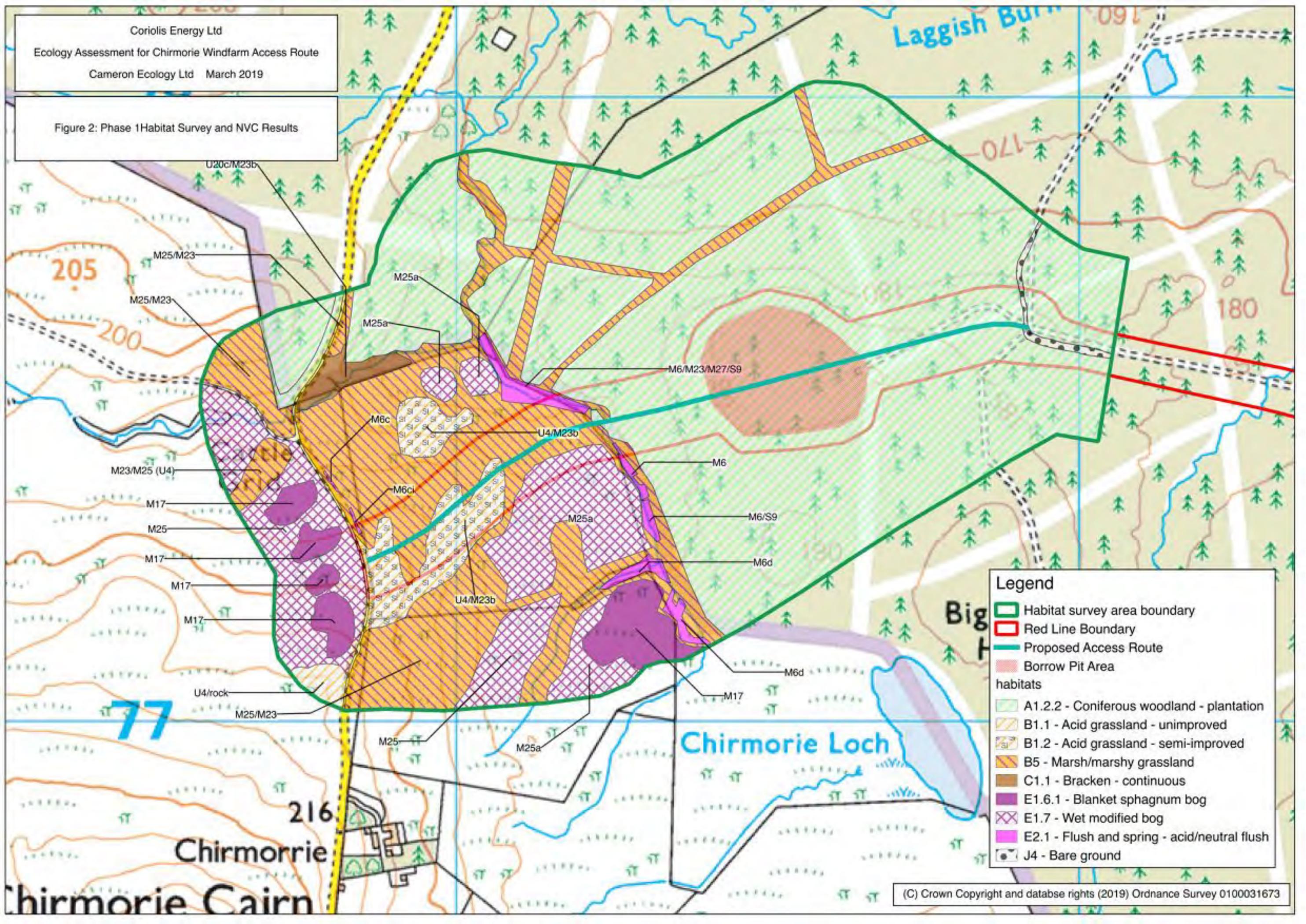
Figure 1: Chirmorie Windfarm Access Route and Study Area



Legend

- ▭ Red Line Boundary
- ▭ Habitat survey area boundary
- - - Proposed new section of Access Track

Figure 2: Phase 1 Habitat Survey and NVC Results



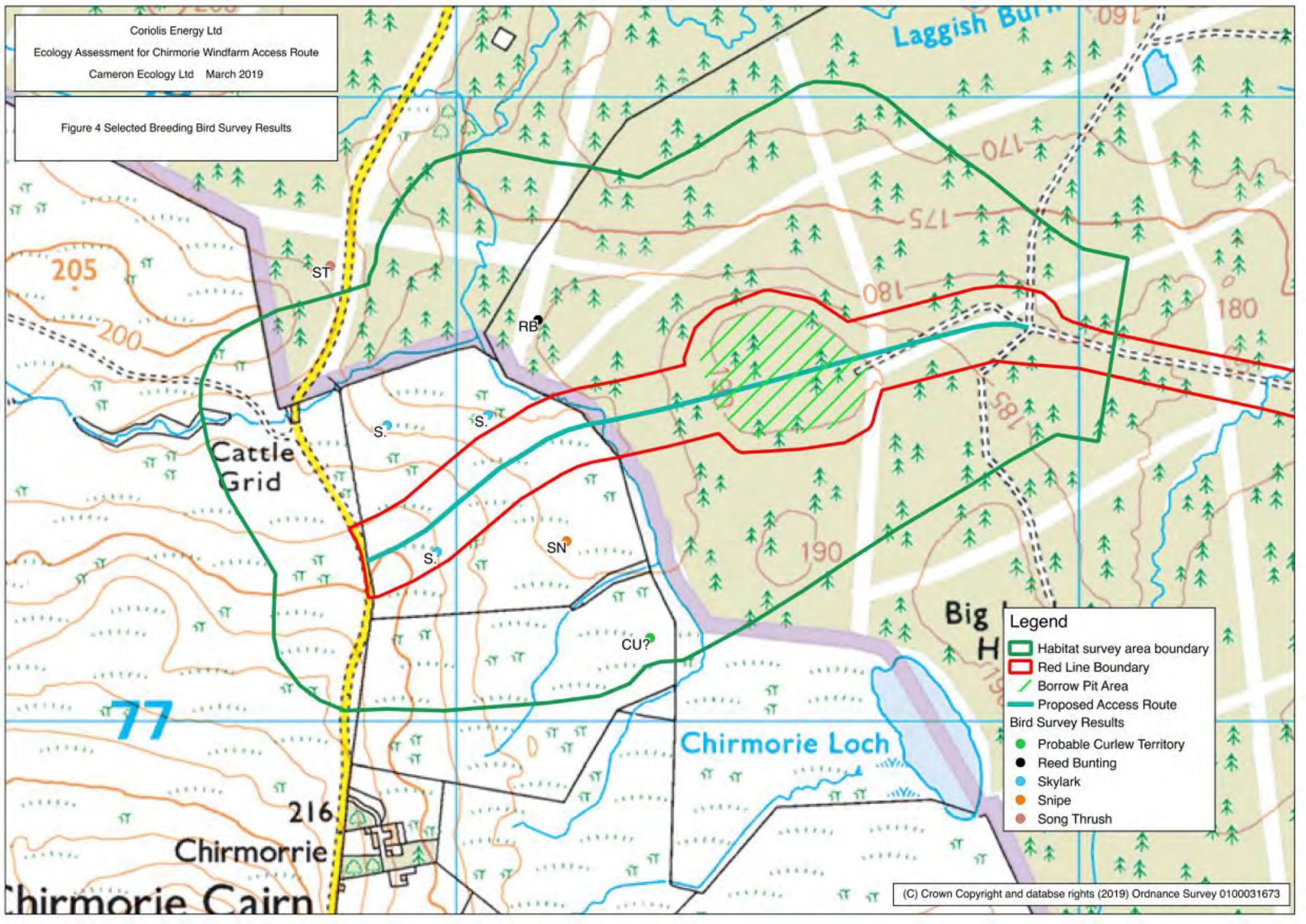
Legend

- Habitat survey area boundary
- Red Line Boundary
- Proposed Access Route
- Borrow Pit Area

habitats

- A1.2.2 - Coniferous woodland - plantation
- B1.1 - Acid grassland - unimproved
- B1.2 - Acid grassland - semi-improved
- B5 - Marsh/marshy grassland
- C1.1 - Bracken - continuous
- E1.6.1 - Blanket sphagnum bog
- E1.7 - Wet modified bog
- E2.1 - Flush and spring - acid/neutral flush
- J4 - Bare ground

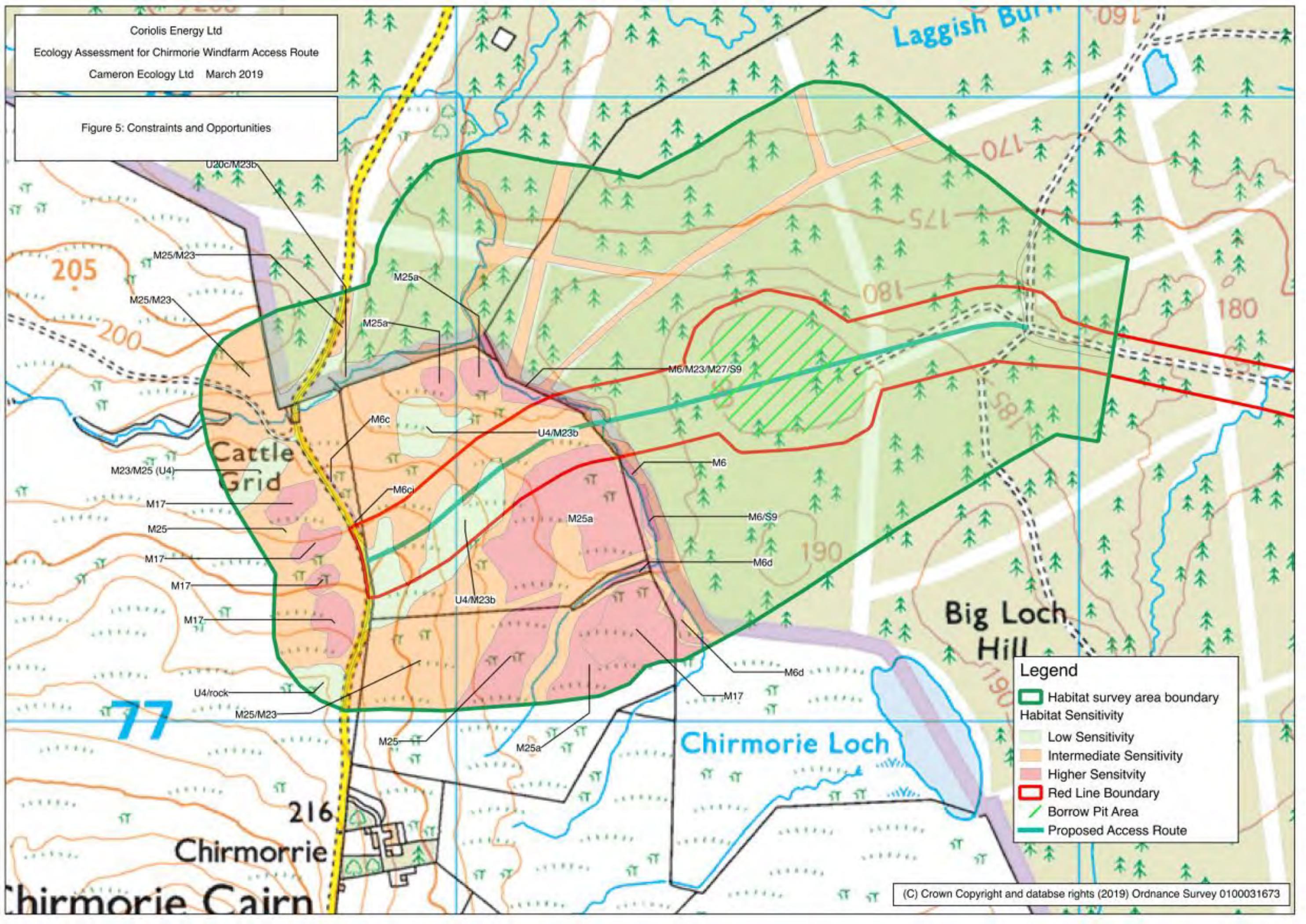
Figure 4 Selected Breeding Bird Survey Results



Legend

- Habitat survey area boundary
- Red Line Boundary
- Borrow Pit Area
- Proposed Access Route
- Bird Survey Results**
- Probable Curlew Territory
- Reed Bunting
- Skylark
- Snipe
- Song Thrush

Figure 5: Constraints and Opportunities



Legend

- Habitat survey area boundary
- Habitat Sensitivity
 - Low Sensitivity
 - Intermediate Sensitivity
 - Higher Sensitivity
- Red Line Boundary
- Borrow Pit Area
- Proposed Access Route

APPENDIX 1: Species List and Target Notes

Vascular Plants and Bryophytes

Species	English Name
<i>Achillea millefolium</i>	Yarrow
<i>Agrostis capillaris</i>	Common bent
<i>Ajuga reptans</i>	Bugle
<i>Anemone nemorosa</i>	Wood anemone
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass
<i>Bellis perennis</i>	Daisy
<i>Callitriche stagnalis</i>	Common water-starwort
<i>Caltha palustris</i>	Marsh marigold
<i>Calluna vulgaris</i>	Heather
<i>Cardamine pratensis</i>	Cuckooflower
<i>Carex flacca</i>	Glaucous sedge
<i>Carex nigra</i>	Common sedge
<i>Carex panicea</i>	Carnation sedge
<i>Carex rostrata</i>	Bottle Sedge
<i>Cirsium arvense</i>	Field thistle
<i>Comarum palustre</i>	Marsh thistle
<i>Conopodium majus</i>	Pignut
<i>Deschampsia flexuosa</i>	Wavy hair-grass
<i>Digitalis purpurea</i>	Foxglove
<i>Drosera rotundifolia</i>	Round-leaved sundew
<i>Dryopteris sp</i>	Male fern
<i>Equisetum fluviatile</i>	Water horsetail
<i>Erica tetralix</i>	Cross-leaved heath
<i>Eriophorum angustifolium</i>	Common cotton-grass
<i>Eriophorum vaginatum</i>	Hare's tail cotton-grass
<i>Festuca ovina</i>	Sheep's fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Glyceria declinata</i>	Sweet-grass
<i>Holcus lanatus</i>	Yorkshire fog
<i>Hyacinthoides non-scripta</i>	Bluebell
<i>Hylocomium splendens</i>	A moss
<i>Juncus articulatus</i>	Jointed rush
<i>Juncus effusus</i>	Soft rush
<i>Juncus squarrosus</i>	Heath rush
<i>Luzula campestris</i>	Field woodrush
<i>Luzula multiflora</i>	Heath woodrush
<i>Molinia caerulea</i>	Purple moor-grass
<i>Myosotis arvensis</i>	Field forget-me-not

Species	English Name
<i>Myrica gale</i>	Bog myrtle
<i>Nardus stricta</i>	Mat-grass
<i>Pedicularis sylvatica</i>	Lousewort
<i>Picea sitchensis</i>	Sitka spruce
<i>Plantago lanceolata</i>	Ribwort plantain
<i>Poa annua</i>	Annual meadow-grass
<i>Polygala serpyllifolia</i>	Heath milkwort
<i>Polytrichum commune</i>	A moss
<i>Potamogeton sp</i>	A pondweed
<i>Potentilla erecta</i>	Tormentil
<i>Pteridium aquilinum</i>	Bracken
<i>Quercus robur</i>	Pedunculate oak
<i>Ranunculus flammula</i>	Spearwort
<i>Ranunculus repens</i>	Creeping buttercup
<i>Rhytidiadelphus squarrosus</i>	A moss
<i>Rumex acetosa</i>	Sorrel
<i>Salix caprea</i>	Goat willow
<i>Salix repens</i>	Creeping willow
<i>Sparganium erectum</i>	Branched bur-reed
<i>Sphagnum capillaris</i>	A bog-moss
<i>Sphagnum palustre</i>	A bog-moss
<i>Stachys palustris</i>	Marsh woundwort
<i>Stellaria alsine</i>	Stitchwort
<i>Trichophorum germanicum</i>	Deergrass
<i>Urtica dioica</i>	Stinging nettle
<i>Vaccinium myrtillus</i>	Blaeberry
<i>Viola palustris</i>	Marsh violet

Target Notes

GRID REF	EASTING	NORTHING	
NX 20989 77544	220989	577544	Some M15 in the M25 w <i>Salix repens</i>
NX 21010 77535	221010	577535	<i>Viola palustris</i> in M23a
NX21271 77404	221271	577404	probable Otter spraint
NX 21303 77358	221303	577358	Old watercourse channel evident as a wet depression with M27
NX 21094 77533	221094	577533	downstream limit of protected species survey on watercourse

APPENDIX 2: PEAT DEPTHS

Eastings	Northing	Depth	NVC	Notes
220840	577335	1.5	M6	
220856	577339	0.8	M25	
220887	577350	0.2		
220885	577350	0.4		
220898	577352	0.4	M25	
220917	577356	0.4	M15	
220971	577365	0	M23b	
221005	577369	0.5	M23 (M6)	
221042	577379	0.3	M25	
221102	577388	0.8	M25	
221131	577392	1.5	M25	
221168	577402	1.9	M25	
221201	577411	1	M25	
221230	577419	1	M25	
221253	577427	0.7	M25	
221262	577433	0.5	M6	
221261	577437	0	WATER	Centre of stream crossing
221265	577443	0.5	M4	tiny fragment of sedge swamp
221276	577445	1	M23	soft, wet in drainage feature
221285	577447	1.5	Plantation	into clay
221307	577454	1.5	Plantation	
221342	577471	1.6	Plantation	
221383	577482	0.3	Plantation	no more peat west of this point
221475	577520	0		standing dead tree - visual marker for road line
221553	577500	0.2		
221328	577400	2.7	M25	
221299	577388	0.5	M27	peat in-stream, sluggish section
221242	577414	2.8	M25	
221136	577359	2.5	M25	stiff peat
221014	577335	0	U4	acid grass
220880	577344	0.3	M25	
220996	577355	0	U4/M23	

APPENDIX 3: BREEDING BIRD SURVEY DETAILS AND RESULTS

	Visit 1	Visit 2
Date	26/4/18	30/5/18
Observer	P Carroll	C MacIver
Start Time	08:30	08:45
Finish Time	10:30	10:45
Max wind Speed ¹⁷	3	2
Wind Direction	SW	S
Rain?	None	None
Cloud Cover (eighths)	7	1
Cloud Height	>500	>500
Visibility ¹⁸	>2km	>2km
Frost?	None	None
Snow?	None	None

Raptor Surveys

	Raptor Visit 1	Raptor Visit 2
Date	26/4/18	30/5/18
Observer	P Carroll	C MacIver
Start Time	11:00	15:00
Finish Time	14:00	16:25
Max wind Speed ¹⁹	3	2
Wind Direction	SW	S
Rain?	None	None
Cloud Cover (eighths)	6	3
Cloud Height	>500	>500
Visibility ²⁰	>2km	>2km
Frost?	None	None
Snow?	None	None

¹⁷ Beaufort scale

¹⁸ Poor = <1km, Moderate = 1-2km, Good >2km

¹⁹ Beaufort scale

²⁰ Poor = <1km, Moderate = 1-2km, Good >2km

Bird Species List

Species	Status ²¹	Approx. no. of territories	Comment
Buzzard	Green	1	Will breed in nearby forestry
Chaffinch	Green	3	Woodland edge, scrub
Common crossbill	Green	Not breeding	Overflying
Cuckoo	Red	2	Up to two birds calling
Curlew	Red	1?	On first visit seen flying over felled forestry near proposed track route. On second visit heard only, from wet ground near Chirmorie Loch.
Dunnock	Amber	1	Woodland edge
Great spotted woodpecker	Green	1?	Woodland
Lesser redpoll	Red	Not breeding	Seen in April only
Meadow pipit	Amber	6	Open habitats
Pied wagtail	Green	1	Disturbed ground amongst forestry
Raven	Green	1?	Overflying, will breed nearby
Reed Bunting	Red	1	In <i>Juncus</i> rushes amongst felled forestry.
Sedge Warbler	Green	1	Associated with scrubby woodland by watercourse
Skylark	Red	3	Open habitats
Snipe	Amber	1	Wet areas
Song Thrush	Red	1	In woodland
Swallow	Green	Not breeding	Buildings/structures, possibly walls
Willow Warbler	Amber	6	In woodland/woodland edge
Woodpigeon	Green	Not Breeding	Overflying only, will breed in nearby woodland
Wren	Green	18	Various habitats

²¹ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4 the population status of birds in the United Kingdom, Channel Islands and the Isle of Man *British Birds* 108: 708-746

APPENDIX 5

**ANNEX D
BORROW PIT REPORT**

Report

Borrow Pit Assessment Report

Chirmorie Wind Farm – Additional Access Track

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25/04/2019

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Prepared For: Coriolis Energy Limited

Status / Revisions

Rev.	Date	Reason for issue	Prepared	Reviewed	Approved
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P01	15.04.19	External issue for Client review	EP 15.04.19	ML 15.04.19	SJR 15.04.19
P02	25.04.19	Final issue incorporating Client comments	EP 25.04.19	ML 25.04.19	SJR 25.04.19

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Appendices

Appendix A Site Location Plan

Appendix B Geological Plan

Appendix C Peat Depth Overview Maps

Appendix D Borrow Pit Drawing

Appendix E Wind Farm Access Track Cross Sections

Appendix F Borrow Pit Calculations

Appendix G Reconnaissance Survey Photographs

1 Introduction

1.1 Project Summary

Sweco UK Limited (Sweco) was commissioned by Coriolis Energy Limited on behalf of Chirmorie Wind Farm Limited to undertake a borrow pit study within the area for a section of proposed additional access track connecting an existing track with the site of the proposed Chirmorie Wind Farm.

A Borrow Pit Report was previously produced by Donaldson Associates Limited in November 2015 to support the original planning application. The report presented a conceptual design for the borrow pits associated with the proposed Chirmorie Wind Farm development, comprising 22 turbines with an anticipated combined output in excess of 60 MW.

The wind farm scheme was granted section 36 consent in March 2018 and as part of a variation to this consent it is now proposed to incorporate an additional section of access track and proposed borrow pit into the design.

This report presents a conceptual design for an additional borrow pit required to source materials for the additional section of access track.

The location and site boundary of the proposed new track, in relation to the existing access track, is shown on Drawing R1700002445 in **Appendix A**.

1.2 Objective

The objective of this report is to identify the suitability of the identified borrow pit location for the supply of aggregate for an approximate 1.1km length of track to access the wind farm site. A conceptual design is presented, including the anticipated borrow pit profile and indicative volume of stone achievable. However, it should be noted that this is a conceptual design. Confirmation of actual rock quality and amendment to the borrow pit profile, to achieve the desired rock volume should be re-assessed following further detailed topographic and ground investigation surveys.

The amount of crushed stone required for the construction of the access track is estimated in order to size the borrow pit, such that the required stone volume can be extracted from the borrow pit without the need to import stone from off-site sources, thus reducing construction traffic volume.

The crushed stone requirement calculated / estimated is based on a conceptual floating access track design provided by the Client, see drawing **Figure 1 – Access Track (Example Sections) “Track Type A”** in **Appendix E**. The track design may be subject to change following detailed site investigation prior to construction. Any revision to the track layout will follow planning conditions which already form part of the permission. The design has been undertaken without benefit of detailed topographical survey or ground investigation and is therefore approximate. A floating road is adopted for concept design as this is assumed to be the most onerous and conservative solution, in terms of the volume of material required for construction.

1.3 Sources of Information

The following sources of information were used in assessing the site and borrow pit proposals:

- British Geological Survey (BGS) website – Geology of Britain viewer (1:50,000 scale)
<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>;
- Scottish Environment Protection Agency (SEPA) website – Flood risk interactive map
<http://map.sepa.org.uk/floodmap/map.htm>
- National Library of Scotland website – Interactive map:
<https://maps.nls.uk/geo/find/#zoom=13&lat=55.0639&lon=-4.8364&layers=102&b=1&point=55.0609,-4.7852>;
- BGS Solid Geology Map 1:50,000- Sheet 7 Girvan 1988;
- BGS Drift Geology Map 1:50,000- Sheet 7 Girvan 1981;
- BGS Solid Geology Map 1:50,000- Sheet 8 Carrick 1995;
- BGS Drift Geology Map 1:50,000- Sheet 8 Carrick 1981;
- Ordnance Survey Map: Wigtownshire Sheet 1 1846-7;
- Ordnance Survey Map: Ayrshire Sheet LXXI 1855;
- Ordnance Survey Map: Ayrshire Sheet LXXI NW 1894;
- Ordnance Survey Map: Ayrshire Sheet LXXI NW 1907;
- Ordnance Survey Map: Sheet 26/60 SW c.a. 1940-1943;
- Ordnance Survey Map: Sheet NX27 1951; and
- Ordnance Survey Map: Sheet NX27 NW -A 1977
- Chirmorie Wind Farm Borrow Pit Report by Donaldson Associates Ltd, November 2015

2 Development Area Location and Description

2.1 Site location and Setting

The proposed access track development is located southwest of the village of Barrhill (South Ayrshire), at approximate Ordnance Survey (OS) Grid Reference NX 21385 77434. The track initiates from the existing Forestry Commission track, extending approximately 1.1km to the west where it connects with the proposed entrance to Chirmorie wind farm.

The development location and its limits are shown on Drawing R1700002445 in **Appendix A**

Land use across the development area comprises predominantly commercial forestry to the east with rough grazing pasture across the western extents. The proposed development area is situated on a mound. Topography ranges from approximately 170m AOD at the base of the mound, rising to a maximum height of approximately 190m AOD.

A small northwest to southeast trending unnamed watercourse is located at the base of the mound towards the western extents of the development area.

2.2 Reconnaissance Survey

A reconnaissance survey was undertaken by a Sweco Geotechnical Engineer accompanied by the Client's representative on the 20th of March 2019. The purpose of this visit was to identify the main landforms and features and to characterise ground conditions across the development area, particularly the peat coverage. The findings of the survey are discussed in Section 3 and a selection of photographs taken is included in **Appendix G**.

3 Ground Conditions

3.1 Drift Geology

The 1981 BGS 1:50,000 scale Drift Geology Map of Girvan (Sheet 7), 1981 BGS 1:50,000 scale Drift Geology Map of Carrick (Sheet 8) and the BGS drift geology interactive map, indicates that the entire development area is underlain at shallow depth by peat blanket. This is characterised by BGS as 'brushwood' (freshwater) peat and 'phragmites' (brackish water) peat. This may be an organic-rich clay; humic deposits or accumulation of wet, dark brown, partially decomposed vegetation.

A peat probe survey was undertaken across the development area by EnviroCentre on the 9th of November 2018 on behalf of Coriolis Energy. The survey recorded peat depths ranging between 0.1m and 3m across the whole of the development area. The results generally concluded that peat coverage was generally deepest at the western extents of the development area at the base of the mound. Peat thickness was generally less than 0.5m towards the centre of the development area (at the proposed borrow pit area) and the remainder of the proposed track to the east.

Peat deposits were encountered on the west facing side of the mound during the reconnaissance survey. The peat was observed from the base of the mound to approximately mid-slope. The observations broadly conform with the findings of the peat survey. The thickness of peat could not be ascertained visually during the walkover.

Glacial Till deposits were noted towards higher ground on the mound during the reconnaissance survey, with large boulders of mixed lithology observed. Where encountered, the Till was generally blue/grey in colour and contained a high proportion of cobbles and boulders of weathered greywacke. The observations were indicative of probable shallow bedrock.

3.2 Solid Geology

The 1988 BGS 1:50,000 scale Solid Geology Map of Girvan (Sheet 7), 1995 BGS 1:50,000 scale Solid Geology Map of Carrick (Sheet 8) and BGS solid geology interactive map were reviewed. The published map records indicate the whole site to be underlain by thin to medium bedded greywacke, siltstone and shale of the Lochryan Formation of the Kirkcolm Group and belonging to the Leadhills Supergroup. The Kirkcolm Formation is characterised by sequences of laminated siltstone and sandstones.

The presence of weathered greywacke cobbles and boulders within soils identified during the walkover was indicative of shallow bedrock broadly conforming with the published mapping.

3.3 Structural Geology

The 1995 BGS 1:50,000 scale Solid Geology Map of Carrick (Sheet 8) shows an axial plane of anticline to the north of the site perpendicular to the proposed track. At the western extents of the proposed development area, bedrock is indicated to dip approximately 40° towards the southeast. Dipping inclination increases to 75 and 80° further east along the site of the proposed track, generally dipping in a southeast direction.

No faulting is indicated on the geological mapping within the site boundary of immediate site area.

3.4 Extraction History

The National Library of Scotland was consulted for available historic mapping of the area for the period from 1846 to 1977. No known records of any significant or large-scale quarrying or mining within the development area or its immediate vicinity were recorded.

However, evidence of small-scale quarrying immediately east of the site was identified during the reconnaissance survey. The material excavated from the quarry appeared to be greywacke bedrock.

4 Conceptual Borrow Pit Design

4.1 Overview

The geology of the site indicates that the proposed borrow pit will suffice for the supply of aggregate for the construction of the proposed access track. This is subject to confirmation of the detailed design of the track and following an intrusive ground investigation.

4.2 Methodology

Borrow pit plans and volume calculations have been prepared for the proposed borrow pit location and are included in **Appendix D** and **Appendix F**, respectively. The estimated calculations for the rock volume required for the construction of the proposed floating access track and were determined using similar track dimensions as those presented in **Figure 1 – Access Track (Example Sections) “Track Type A”** by Energised Environments (**Appendix E**) and the Borrow Pit Volume Calculations (**Appendix D**).

The rock volume required to be extracted from the borrow pit for the track construction is calculated as 7,410m³. However, a greater conservative volume of 11,115m³ (+50%) is adopted for the borrow pit design at conceptual design stage, in order to account for the preliminary nature of the track design, poor borrow pit recovery, dilution, increased superficial cover and areas of unsuitable/poor strata. The volume of required aggregate supply is rounded up to 11,500 m³.

The difference between the density of placed and compacted crushed stone (20kN/m³) and in situ rock density (approximately 25kN/m³) indicates that there will be 25% bulking between original rock and placed volume, this would theoretically reduce the borrow volume to approximately 9,260m³ (i.e. 9,260m³ of solid rock creates 11,500m³ of crushed and compacted stone). Due to the conceptual nature of the design and the size of the development it is considered that a more conservative approach is adopted and therefore, it is assumed that the 11,500m³ is required.

An assumed 0.5m thickness of superficial cover was included in the borrow pit design, based on the reconnaissance survey observations and the peat probing results. The exact volume and quality of rock available cannot be confirmed until a topographic survey and an intrusive ground investigation has taken place.

The borrow pit site area will be larger than the borrow pit excavation area to facilitate working spaces and storage of overburden until it can be used in subsequent borrow pit reinstatement.

4.3 Borrow Pit Description

The proposed borrow pit is located adjacent to the northeast boundary of the proposed Chirmorie Wind Farm development. The location intersects the proposed access track and is easily accessible from existing track networks immediately north and south.

4.4 Peat/ Superficial Cover

The results of the peat probing survey in the area of the proposed borrow pit indicates that the peat and superficial cover in this location appears to be generally less than 0.5m in

thickness across the majority of the site. A small pocket of peat approximately 0.6m thickness was identified to the eastern extents of the proposed borrow pit area. Considering the above, an assumed overall superficial material cover and likely zone of weathered bedrock near the surface of 0.50m thickness in total has been adopted in the borrow pit design and volume calculations. Peat coverage across the area is illustrated in Drawings 171754-002 – 007 and 171754-002 - 001b produced by EnviroCentre and included in **Appendix C**.

4.4.1 Solid Geology

The solid geology underlying the proposed borrow pit comprises sedimentary sequences of the Kirkcolm Formation. A plan summarising the solid geology is included as drawing number 121738-SWECO-EAC-000-DR-GE-00001 in **Appendix B**.

4.4.2 Hydrology

The proposed access track would cross a small tributary of the Laggish Burn approximately 300m east from the western extents of the access track development area. According to the SEPA flood risk map, there is a high risk of surface water flooding isolated to this section of the track. High risk corresponds to a flood event which is likely to occur on average once in every ten years (1:10). Or a 10% chance of happening in any one year.

4.4.3 Topography

The proposed borrow pit location is situated on top of the highest point of the development area at 190m AOD, also covering part of its south facing slope.

4.5 Summary

The location has been assessed from available information as being suitable for the formation of a borrow pit which should produce in excess of 11,500m³ of rock; this could be achieved by a 40m x 85m excavation (and an additional area 40m x 40m to account for an area of overburden disposal) with a typical excavation depth of 6.5m (depth includes a 0.5m overburden layer).

Effects on residential properties would be negligible due to separation distance and natural topographic cover. The formation of the borrow pit would be integrated into the development of the main access track. Overburden stripped from the area of the borrow pit excavation will be temporarily stored adjacent to the borrow pit or at a designated temporary storage area before being used in reinstatement of the borrow pit.

5 Conclusions and Recommendations

5.1 Conclusions

A review of the available desk-based sources of information and the findings of the reconnaissance survey indicates that peat coverage across the development area is generally less than 0.5m in thickness, with the deepest accumulations of peat occurring towards the west facing base of the mound. A thin coverage of Glacial Till is anticipated beneath the peat at the interface with bedrock. The underlying solid strata is anticipated to comprise thin to medium bedded greywacke, siltstone and shale of the Lochryan Formation of the Kirkcolm Group and belonging to the Leadhills Supergroup

It is anticipated that the greywacke may be interbedded with less suitable material, such as siltstone and shales. Furthermore, there may be significant banding of the more favoured medium and thick greywacke with thinner bands or bands of unsuitable finer grained mudstone. This has been considered in the estimation of the required volume to be excavated by allowing for surplus of 50% of material to be drawn that will potentially not be used in the development. This is calculated to be 11,500m³ of rock to be extracted from the borrow pit location, which corresponds to a surface area of 40m by 125m. This allows for the disposal of approximately 1,700m³ of overburden material that comprises peat and weathered surface rock.

5.2 Recommendations

It is recommended that an intrusive ground investigation is undertaken prior to windfarm construction to estimate the nature and thickness of overburden materials, confirm the expected bedrock depth and provide information on its strength and weathering state. A regime of aggregate testing is recommended to be undertaken to confirm suitability of rock for track construction.

A detailed topographic survey will be required to inform the detailed design of the borrow pit. This will be done by acquiring a better assessment of the cut and fill, which will then provide the actual stone volumes generated and needed for the development of the track.

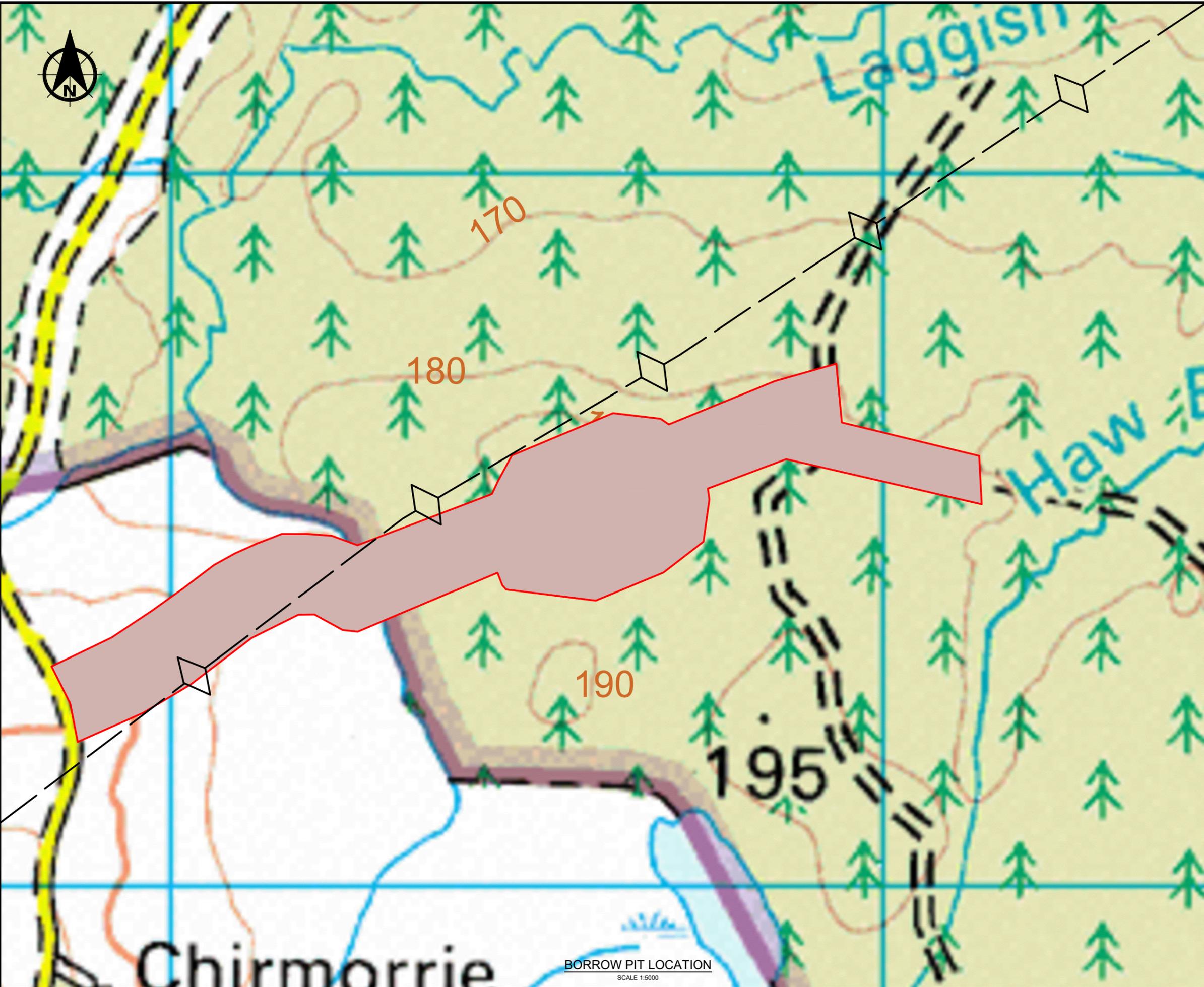
Steeply dipping bedrock strata of 75 degrees is anticipated in the area of the proposed borrow pit. This should be confirmed by ground investigation and consideration of suitable excavation slope angles given at the detailed design stage and during construction to avoid planar or sliding rock failure due to the removal of retaining rock during excavation.

During their excavation, measures could also be implemented to reduce the effect of noise and dust by way of optimising the extraction methods e.g. mechanical ripping instead of blasting, the use of silenced vehicles and processing equipment and construction of earth bunds and/or debris/dust fences.

Borrow pits will be reinstated with surplus excavated material to provide a more aesthetic appearance and prevent any unstable and steep rock faces. SEPA guidelines state that complete infilling of borrow pits should not be undertaken as loose or unstable infill can pose a risk to walkers and animal life. Borrow pit filling will be controlled and engineered to minimise the risk of future excessive settlement or instability of the fill.

Appendix A Site Location Plan

Appendix B Geological Plan



NOTES

NOTES:
 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH SWECO BORROW PIT REPORT 121738-SWECO-EAC-000-RP-GE-00001

KEY:

- PLANNING BOUNDARY
- KIRKCOLM FORMATION-WACKE(MEDIUM TO THICK WACKE AND THICK LAMINATED SILT)
- AXIAL PLANE TRACE OF ANTICLINE

P02	25/04/19	FINAL ISSUE	EP	ML	SJR
Rev.	Date	Amendment Details	Drawn	Chk'd	App'd

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Client

Drawing Status
FINAL ISSUE

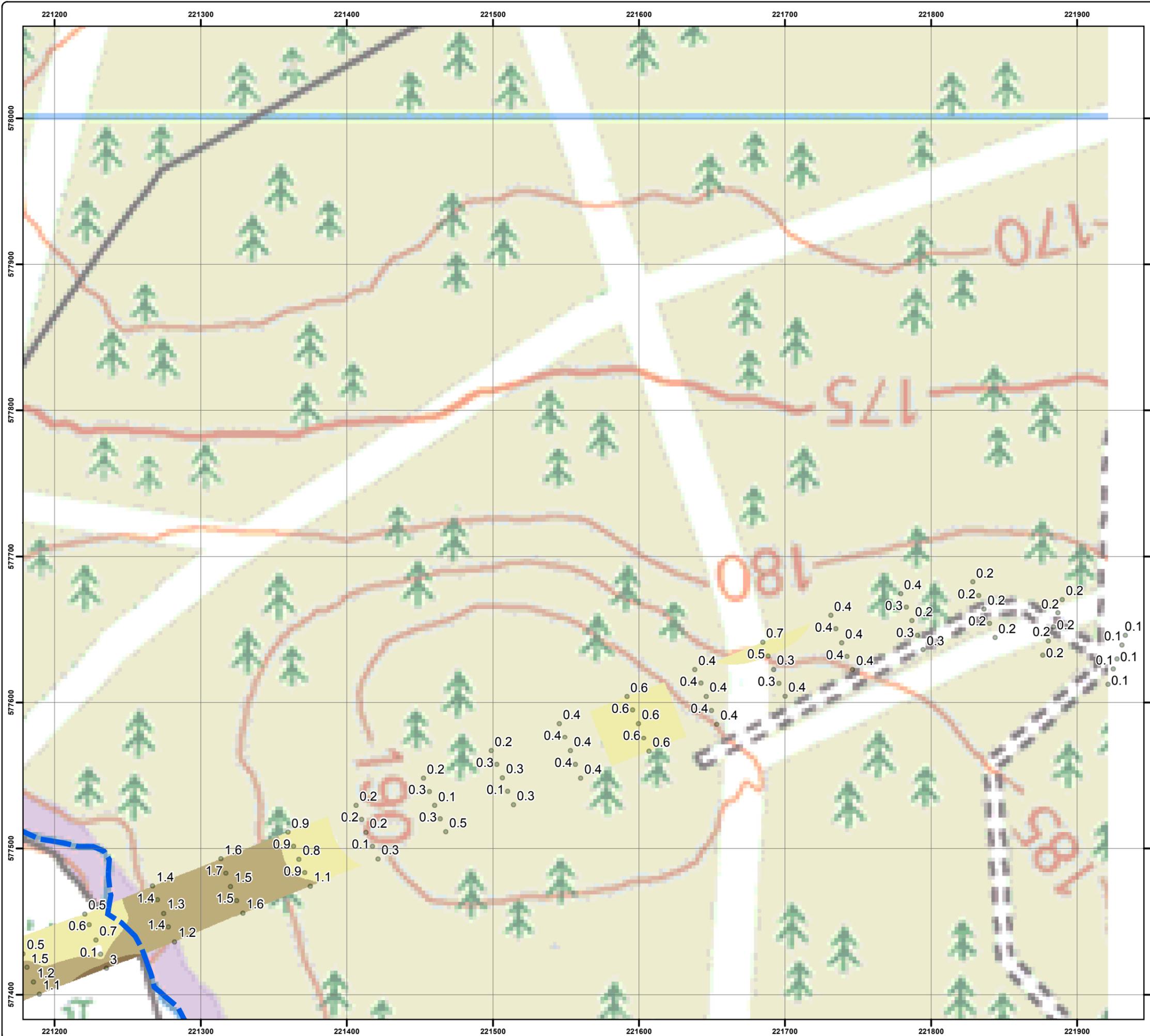
Project Title
CHIRMORIE WIND FARM - ADDITIONAL ACCESS TRACK

Drawing Title
GEOLOGICAL PLAN

Scale	1:5,000	Designed	EP	Drawn	EP	Checked	ML	Approved	SJR	
Original Size	A3	Date	25/04/19	Date	25/04/19	Date	25/04/2019	Date	25/04/2019	
Drawing Number	121738-SWECO-EAC-000-DR-GE-00001								Revision	P02

BORROW PIT LOCATION
 SCALE 1:5000

Appendix C Peat Depth Overview Maps



Legend

- Indicative Route
- Water Crossings
- Probed Locations (m)

Peat Depth (m)

- 0.5 - 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 5.0

Do not scale this map

Client
Coriolis Energy

Project
Stranoch Chirmorie Link

Title
**Peat Depth
Map 6 of 6**

Status
FINAL

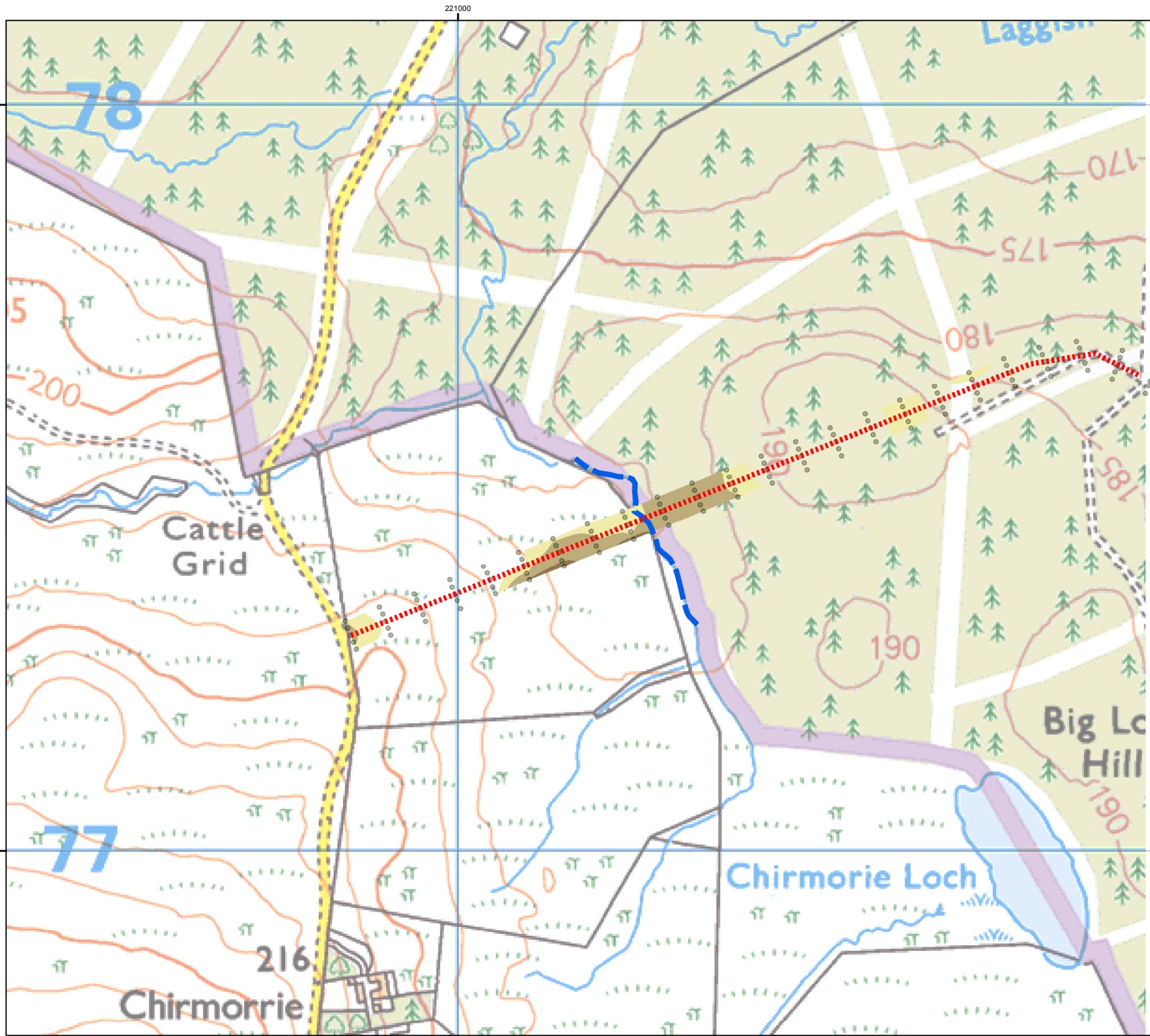
Drawing No. 171754-002 - 007	Revision
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Scale 1:2,500	A3	Date 9 Nov 2018
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Drawn SMC	Checked MB	Approved MB
--------------	---------------	----------------



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Tel: 0141 341 5040
Fax: 0141 341 5045



Legend

- Indicative Route
- Water Crossings
- Probed Locations (m)

Peat Depth (m)

- 0.5 - 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 5.0

Do not scale this map

Client
Coriolis Energy

Project
Stranoch Chirmorie Link

Title
Peat Depth
Overview Map (North)

Status
FINAL

Drawing No. 171754-002 - 001b	Revision
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Scale 1:5,000	A3	Date 13 Nov 2018
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Drawn SMC	Checked MB	Approved MB
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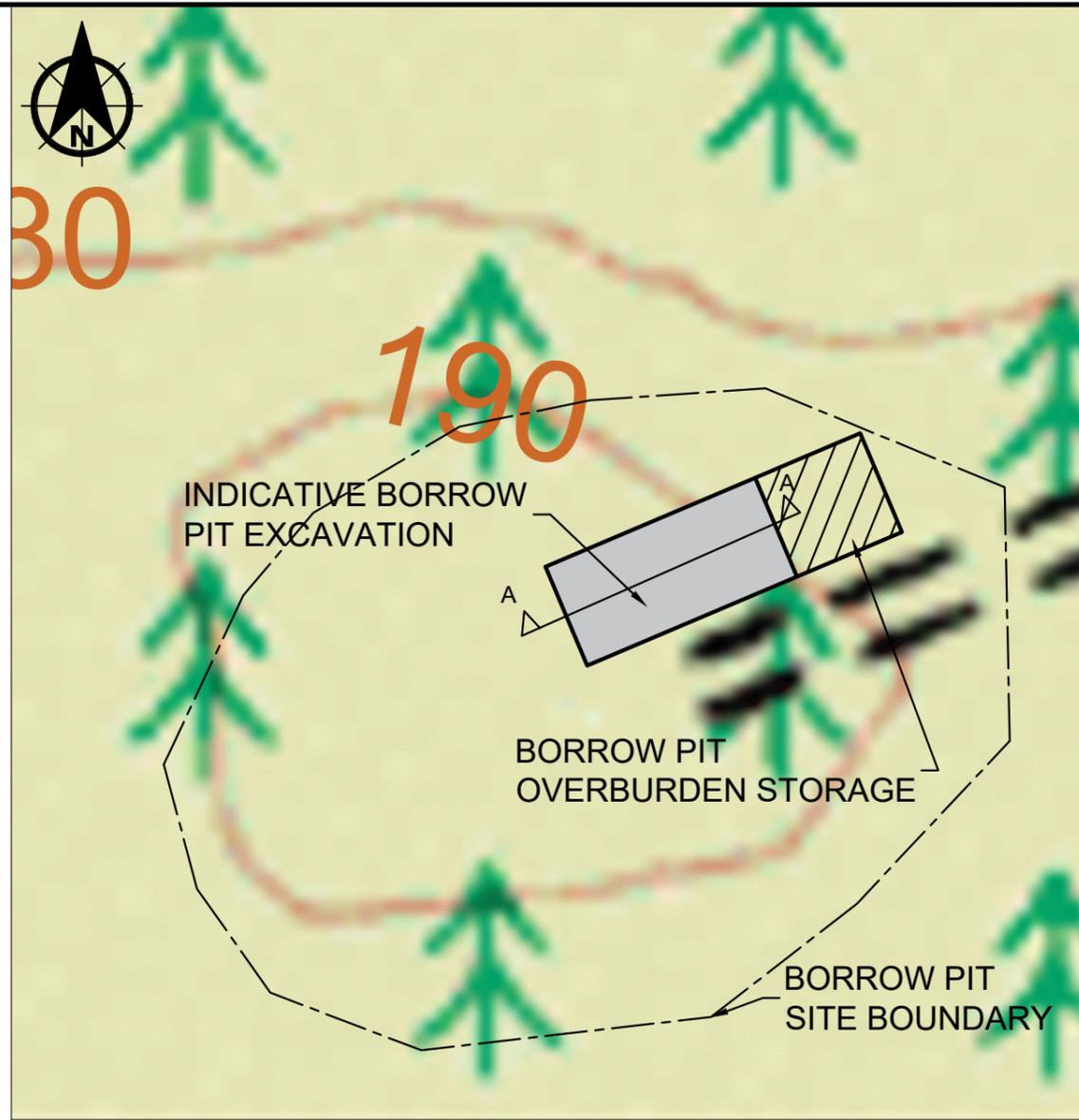


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Appendix D Borrow Pit Drawing



BORROW PIT LOCATION
SCALE 1:10000



BORROW PIT PLAN
SCALE 1:2500

NOTES

- NOTES:**
1. ALL DIMENSIONS ARE IN METRES AOD UNLESS OTHERWISE STATED
 2. CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2019 ORDNANCE SURVEY
 3. ACCURACY OF MAP IMAGE NOT GUARANTEED DUE TO REPRODUCTION METHODS
 4. EXTRACTION VOLUMES BASED ON AVAILABLE SOURCES. PRESENCE OF ROCK TO BE CONFIRMED ON SITE BY GROUND INVESTIGATION WORKS
 5. OVERBURDEN DEPTH ASSUMED TO BE 0.5M TO ALLOW TOTAL EXTRACTION VOLUME TO BE CALCULATED. ACTUAL OVERBURDEN DEPTH TO BE CONFORMED ON SITE
 6. REINSTATEMENT TO CONSIST OF PLACED SUBSOIL AND PEAT TO AN APPROXIMATE DEPTH OF 0.5M

- KEY:**
- BORROW PIT SITE EXCAVATION
 - BORROW PIT SITE BOUNDARY
 - BORROW PIT OVERBURDEN STORAGE
 - SECTION & VIEW DIRECTION MARKER

P02	25/04/19	FINAL ISSUE	JP	ML	SJR
Rev.	Date	Amendment Details	Drawn	Chk'd	App'd

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Client

Drawing Status
FINAL ISSUE

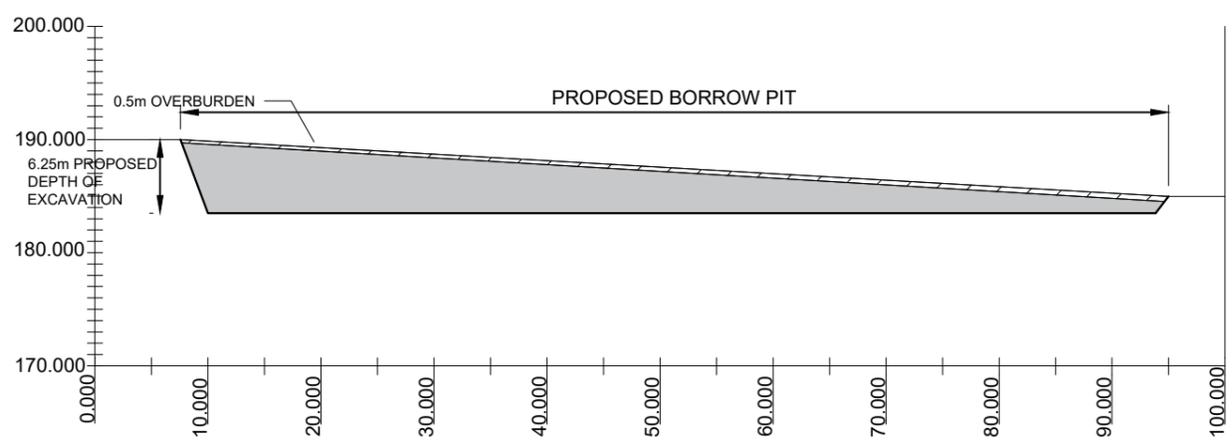
Project Title
CHIRMORIE WIND FARM - ADDITIONAL ACCESS TRACK

Drawing Title
BORROW PIT LOCATION & LAYOUT PLAN

Scale	AS SHOWN	Designed	EP	Drawn	JP	Checked	ML	Approved	SJR	
Original Size	A3	Date	25/04/19	Date	25/04/19	Date	25/04/2019	Date	25/04/2019	
Drawing Number	121738-SWECO-EAC-000-DR-GE-00002								Revision	P02

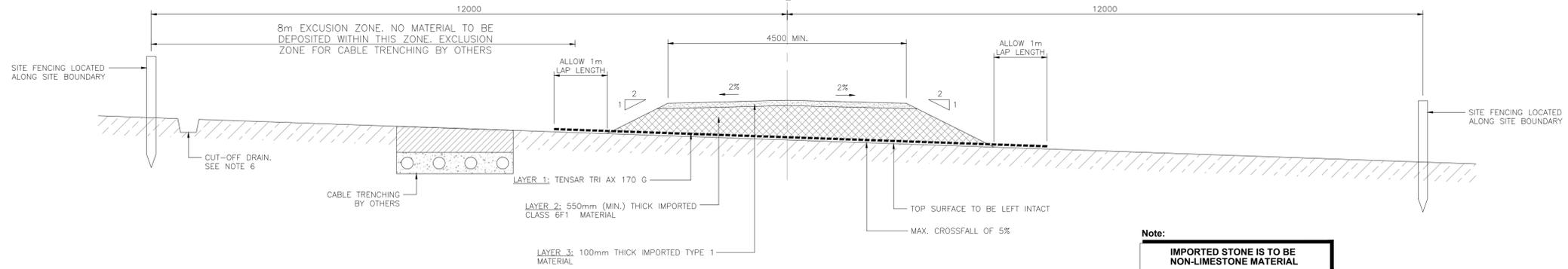


ROCK VOLUMES AND QUALITY SUBJECT TO SITE INVESTIGATION			
BORROW PIT DIMENSIONS MAX. INCLUDING DISPOSAL AREA (m)	TOTAL EXTRACTION VOLUME (m ³)	OVERBURDEN VOLUME (m ³)	NET ROCK VOLUME (m ³)
40 X 125	11500	1000	10500

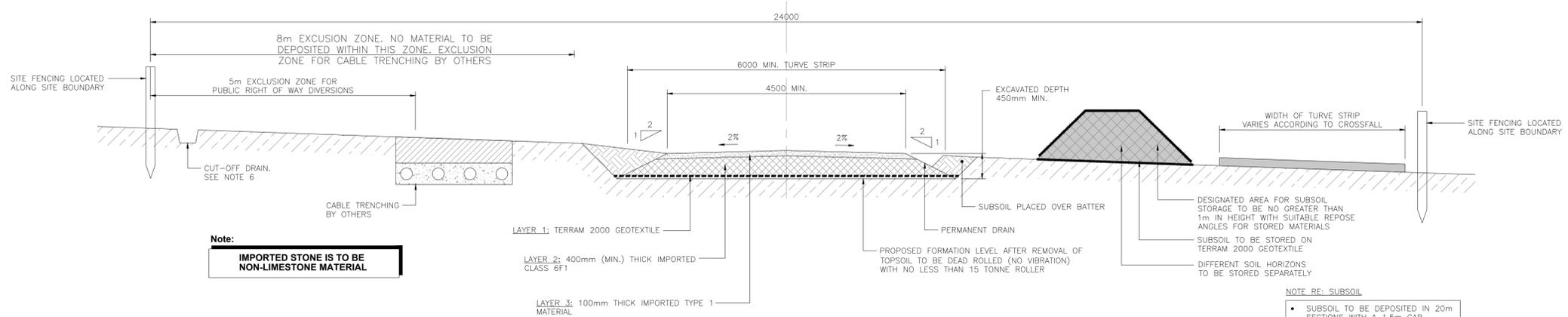


SECTION A-A
SCALE 1:500

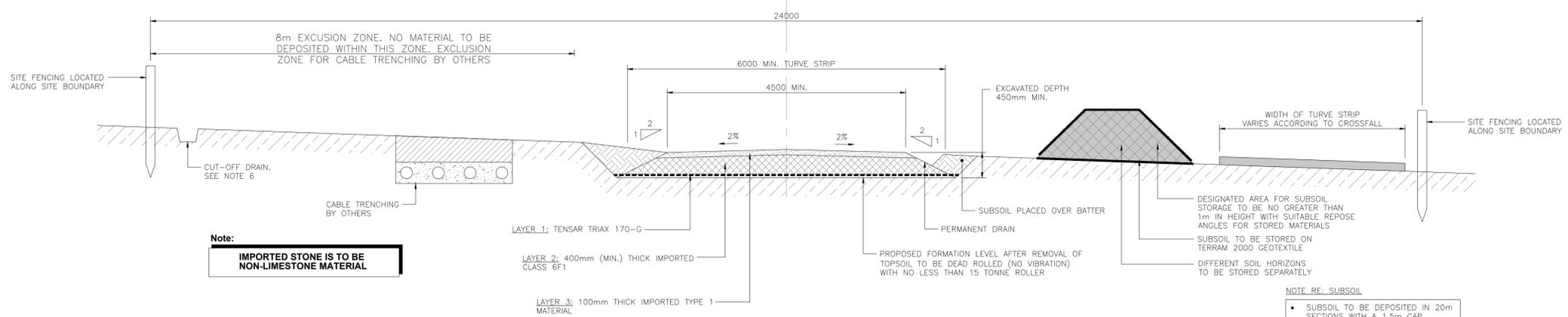
Appendix E Wind Farm Access Track Cross Sections



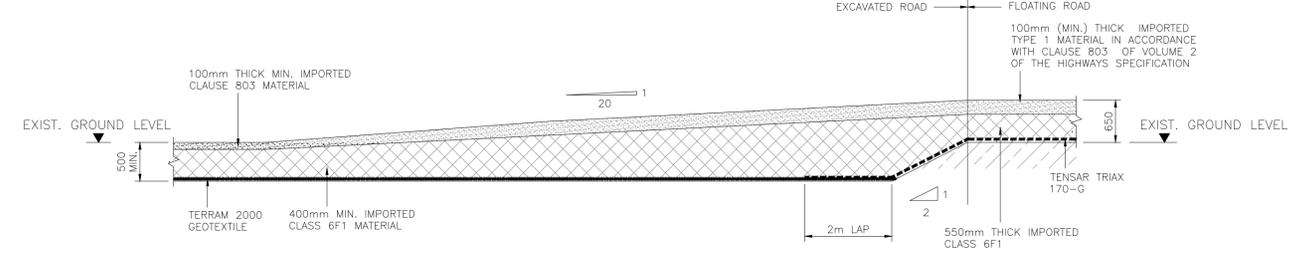
TYPICAL SECTION THROUGH FLOATING ACCESS TRACK
SCALE 1:50
['TRACK TYPE A']



TYPICAL SECTION THROUGH EXCAVATED ACCESS TRACK IN HEATHLAND HABITATS
SCALE 1:50
['TRACK TYPE B']



TYPICAL SECTION THROUGH STRENGTHENED EXCAVATED ACCESS TRACK IN HEATHLAND HABITATS
SCALE 1:50
['TRACK TYPE C']



TRANSITION DETAIL (EXCAVATED TO FLOATED TRACK)
SCALE 1:50

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS & RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING ADDITIONAL HAZARDS AND RISKS:

DESIGNER'S RISK ASSESSMENT REFERENCE DOCUMENT:
To Be Added

RISK REFERENCE:
GRR Reference TBA

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE TO AN APPROVED METHOD STATEMENT.

- GENERAL NOTES:**
- ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL ENGINEER'S DRAWINGS. ANY DISCREPANCIES ARE TO BE NOTED IN WRITING TO THIS OFFICE IMMEDIATELY PRIOR TO COMMENCING THE WORK.
 - THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE STRUCTURAL PLANS AND DETAILS PRIOR TO COMMENCING THE WORK.
 - ALL DIMENSIONS ARE IN mm. NO DIMENSIONS SHALL BE SCALED FROM THE STRUCTURAL DRAWINGS. ALL DIMENSIONS SHALL BE CHECKED ON SITE.
 - ANY TEMPORARY WORKS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
 - SUITABILITY OF FORMATION LEVEL TO BE ASSESSED AND AGREED ON SITE.
 - WHERE THERE IS A LEVEL DIFFERENCE OF GREATER THAN 1m AT THE SIDE OF THE ACCESS TRACK A SUITABLE BERM SHALL BE CONSTRUCTED.

- TURVING NOTES:**
- TURVES NOT TO BE REMOVED USING STANDARD EXCAVATOR BUCKET. SUITABLE CUTTING TOOL TO BE USED TO ENSURE THAT TURVES ARE CUT WITH CLEAN SIDES AND FLAT BOTTOM.
 - TURVES TO BE MONITORED REGULARLY DURING CONSTRUCTION. APPROPRIATE WATERING OF TURVES TO BE CARRIED OUT BASED ON INSPECTED MOISTURE CONTENT.
 - TURVES ARE NOT TO BE STACKED HIGHER THAN 1.5m.



Chirmorie Wind Farm Environmental Statement Appendix 3.1

Drawn:	Revision:	Checked:	Date:
PM	00	HC	25.09.15

Figure 1 - Access Track (Example Sections)



Appendix F Borrow Pit Calculations

Introduction

Objectives

The purpose of these calculations is to determine the required volume of stone required to facilitate construction of approximately 1.14km length of additional access track that will connect to the proposed Chirmorie Wind Farm site.

An area approximately 150m x 200m was identified as the borrow pit site boundary (refer to Drawing 121738-SWECO-EAC-000DR-GE-00002) and is currently presented as a regular shape but may be designed at a later stage to better suit the topography whilst maintaining the output volume.

The borrow pit will then be sized to provide the required stone volume whilst remaining within the proposed borrow pit area, allowing for an overburden storage area within the confines of the borrow pit site boundary.

Base Data Used

Borrow Pit Location & Layout Plans – 121738-SWECO-EAC-000-DR-GE-00002

Design Codes and Standards Used

None

References

None

Design Philosophy

Construction material volumes were calculated by Sweco, assuming a floating track layout detailed below. The borrow pit was sized to provide the required stone volume as stipulated by the construction material volumes calculations, based on the estimated length of the proposed floating access track and drawing **Figure 1 – Access Track (Example Sections) “Track Type A”** in **Appendix E**.

Borrow Pit Volume

The requirements for volume of extracted aggregate from the proposed borrow pit are based on the initial conceptual design of the track as floating.

The section of additional track is approximately 1.14km in length comprising an upfill layer of 1m height, 4.5m width and 1 vertical:2 horizontal side slopes.

Using the above track dimensions, the required volume of aggregate material is calculated as approximately 7.410m³. A 50% increase is adopted to account for poor recovery,

dilution, increased superficial cover and areas of unsuitable/poor strata as well as cut/fill inaccuracies and the conceptual status of design. This increases the required volume to 11.115m³, rounded up to 11,500m³.

The area of the borrow pit site boundary that has been agreed with the Client is approximately 150m x 200m= 30,000m². This area will be divided between an area for the borrow pit excavation and an area for the storage of overburden.

To ensure sufficient depth to extract greater quality bedrock, the typical dimensions of the borrow pit are assumed to be 40m x 50m.

Therefore, the average depth of rock excavation required = rock required / area of borrow pit

$$= 11,500\text{m}^3 / 2,000\text{m}^2$$

$$= 5.75\text{m}$$

The typical excavation depth of 5.75m will not be kept constant across the whole borrow pit area, this depth will rather be maintained along the crest of the slope. Material will be excavated from the crest of the slope towards its toe, shaping an excavation cross section that approximates a triangle, as shown in **Drawing 121738-SWECO-EAC-000-DR-GE-00002** in **Appendix C**. Based on this, the area of the borrow pit will need expansion for one of its dimensions compared to the prior estimation, thus an area of excavation of 40m x 85m is now estimated.

A soil / overburden thickness of 500mm is assumed across the borrow pit site. The 40m by 85m excavation area will generate an overburden volume is measured by overburden volume = area of borrow pit x depth of overburden

$$= 3400\text{m}^2 \times 0.500\text{m}$$

$$= 1700\text{m}^3$$

This overburden will then be placed adjacent to the designated area of excavation. We assume a disposal area of 40m by 40m. Therefore, the depth of the overburden mound = overburden volume / area of overburden storage

$$= 1700\text{m}^3 / (40 \times 40\text{m})$$

$$\approx 1.00\text{m}$$

Since the upper 0.5m of surface cover to the borrow pit is considered overburden, the excavation will be 6.25m, to include the 0.5m overburden.

Conclusion

The borrow pit has been sized to provide the required 11,500m³ of rock from an excavation within the agreed borrow pit area, allowing for suitable overburden storage. The volume of rock required includes a 50% increase in material volume to allow for production losses and variable ground conditions.

The actual amount of borrow required will be confirmed following detailed design of the site layout post planning consent, which will include a detailed earthwork (cut / fill) assessment. The borrow pits will then be designed in detail following detailed topographic survey and ground investigation confirming the material properties of the bedrock and suitability for use.

Appendix G Reconnaissance Survey Photographs



Figure 1 – looking east towards the proposed borrow pit area



Figure 2 – small watercourse at the base of the borrow pit mound



Figure 3 – typical peat coverage towards base of borrow pit area



Figure 4 – existing access track east of the proposed borrow pit area



Figure 5 – bedrock exposed at neighbouring quarry to the east of the development area

APPENDIX 6: COPY OF APPLICANTS REQUEST FOR EIA SCREENING LETTER AND THE RESPONSE FROM THE SCOTTISH MINISTERS

Energy and Climate Change Directorate
Energy Consents Unit
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

Attn: Alan Brogan

Dear Mr Brogan,

**VARIATION APPLICATION FOR CHIRMORIE WIND FARM –
ENVIRONMENTAL IMPACT ASSESSMENT SCREENING (ECDU
REFERENCE: EC00002071)**

Chirmorie Wind Farm Ltd (the applicant) intends to submit an application for variation of consent under section 36C of the Electricity Act 1989 for the consented Chirmorie Wind Farm, located approximately 5 km south west of the village of Barrhill, in South Ayrshire. As part of the variation to the consent, the applicant intends to:

- extend the generating lifetime of the wind farm from 25 years to 30 years;
- increase the footprint of the Chirmorie Wind Farm substation from approximately 60 m x 45 m, to approximately 80 m x 60 m;
- extend a temporary construction compound, located to the east of the substation, from approximately 50 m x 50 m to approximately 75 m x 75 m; and
- construct a section of new access track to connect to the wind farm in order to discharge Condition 18 of the existing consent.

The location of the proposals is identified on Figure 1 in Appendix 1.

This letter is submitted pursuant to *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 as amended by The Electricity Works (Environmental Impact Assessment) Amendment Regulations 2017* (the EIA Regulations) which provide that a developer may request the Scottish Ministers to adopt a screening opinion.

An environmental assessment, which describes and provides an assessment of the predicted environmental effects arising from the development of the proposed access between the A714 and the C72, is presented in Appendix 2 to this letter. In accordance with the Regulations the following information is provided as part of this screening request:

- a) a description of the location of the development, including a plan sufficient to identify the land (see Figure 1 in Appendix 1);
- b) a description of the proposed development, including in particular –
 - i. a description of the physical characteristics of the proposed development and, where relevant, of demolition works;
 - ii. a description of the location of the proposed development, with particular regard to the environmental sensitivity of geographical areas likely to be affected (see Appendix 2);

- c) a description of the aspects of the environment likely to be significantly affected by the proposed development (see Appendix 2); and
- d) a description of any likely significant effects, to the extent of the information available on such effects, of the proposed development on the environment resulting from—
 - i. the expected residues and emissions and the production of waste, where relevant;
 - ii. the use of natural resources, in particular soil, land, water and biodiversity (see Appendix 2).

We have undertaken an environmental assessment to identify whether there is potential for significant environmental effects as a result of the variation proposals. This assessment is presented in Appendix 2. All mitigation committed to as part of the Chirmorie Wind Farm consent would be delivered as part of this proposals (see Appendix 3) and the assessment of predicted effects presented in Appendix 2 takes account of these measures. Appendix 3 also includes additional mitigation measures which are specific to the construction and operation of the access track.

This assessment has not identified any predicted significant environmental effects from the proposals, and the applicant's view is that the works which are proposed to be sought under a S36C variation application do not constitute EIA development as defined by the EIA Regulations.

We hope that the information provided with this letter is sufficient to allow the Scottish Ministers to provide a screening opinion on the proposals.

Once a decision has been confirmed, we will submit the formal letter and application to vary the existing section 36 consent.

Please do not hesitate to contact myself or the applicant if any further information or discussion is required.

Yours sincerely



Alexandra Gardiner

Senior Consultant

D +44 131 2972691

M +44 7947804871

agardiner@ramboll.com

Enclosed:

- Appendix 1: Figures
- Appendix 2: Environmental Assessment
- Appendix 3: Committed Mitigation
- Appendix 4: Ecology Assessment

T: 0300-244 1241
E: alan.brogan@gov.scot

Alexandra Gardiner
Ramboll
By email

Copied to – South Ayrshire Council, planning
Stewart Forsyth (Chirmorie Wind Farm Limited)

24th April 2019

Dear Alexandra

ELECTRICITY ACT 1989

THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017 (AS AMENDED)

SCREENING OPINION OF THE SCOTTISH MINISTERS

IN RESPECT OF - A PROPOSED APPLICATION UNDER SECTION 36C OF THE ELECTRICITY ACT 1989 TO VARY THE EXISTING SECTION 36 CONSENT TO CONSTRUCT AND OPERATE CHIRMORIE WIND FARM, 5KM SOUTH WEST OF BARRHILL IN THE PLANNING AUTHORITY AREA OF SOUTH AYRSHIRE COUNCIL

Thank you for your email dated 15th March 2019 requesting, on behalf of Chirmorie Wind Farm Limited, a screening opinion in respect of a proposed application under Section 36C of the Electricity Act 1989 to vary the existing consent under section 36 of said Act to construct and operate Chirmorie Wind Farm generating station within the planning authority area of South Ayrshire Council.

The screening opinion sought concerns proposed variations to the existing consent and deemed planning permission in respect of Chirmorie Wind Farm, which was granted by the Scottish Ministers on 16th March 2018.

The proposed variation to the existing section 36 consent would seek to extend the operational lifetime of the wind farm by 5 years, which would allow it to operate for 30 years from the date of the final commissioning of the generating station. The application would also request that a direction is made by the Scottish Ministers under section 57 (2ZA) of the Town and Country Planning (Scotland) Act 1997 that the existing planning permission, which was deemed to be granted by the Scottish Ministers on granting the existing section 36 consent, is varied in order to provide for construction of a new section of access track within an altered development boundary, and extension of the footprint of the substation and the

temporary construction compound both of which form part of the development ancillary to the generating station.

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

The request was made under regulation 8 (1) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the Regulations').

The Regulations set out (at 8(2)) the information that must accompany any screening request. The screening request was accompanied by a description of the location of the proposed wind farm and the surrounding area, a description of the proposed development and its physical characteristics, and a description of the extent to which aspects of the environment would be affected by the development. The request was accompanied by a site location plan, a plan showing the detail of the proposed additional infrastructure, a plan showing sensitive areas in the vicinity and a phase 1 habitat survey.

A comprehensive screening report was provided to accompany the request. A description of the location, the varied construction proposals and identified potential for significant effects has been provided. Being that the most intrusive proposed change to the overall development involves providing for alternate access to the generating station, the screening report focussed a review on any potential significant effects of this proposed access against a range of environmental factors. The report also enclosed a description of proposed measures (additional to those measures committed to as part of the Chirmorie Wind Farm consent) envisaged to mitigate adverse effects on the environment arising from the proposed access. An Ecology Assessment for the area covered by the altered access route was also enclosed by the applicant.

Statutory Consultation

Under regulation 8 (5) of the Regulations, Scottish Ministers are required to consult the planning authority within whose land the proposed application is situated. South Ayrshire Council made their views known on 17th April 2019 advising that, in their view, the proposed development does not constitute EIA development.

Scottish Ministers' EIA Considerations

EIA development is defined in the regulations, in respect of an application for Electricity Act consent, as Schedule 1 development or Schedule 2 development likely to have significant effects on the environment by virtue of factors such as its nature, size or location.

The proposed development falls under Schedule 2 development.

In adopting a screening opinion as to whether the proposed development is EIA development, the Scottish Ministers must in all cases take into account such of the selection criteria in Schedule 3 of the Regulations as are relevant to the development, and the available results of any relevant assessment.

Scottish Ministers have taken the selection criteria and all of the information submitted in respect of the screening request into account, and have taken account of the views of the planning authority. Scottish Ministers adopt the opinion that the **proposal does not constitute EIA development and that any application submitted for this development does not require to be accompanied by an EIA report.**

The planning authority's response to the screening consultation is attached to this letter. In accordance with regulation 7(2), this opinion is accompanied by the following written statement with reference to the selection criteria within Schedule 3 of the Regulations as are relevant to the development. In accordance with the Regulations, a copy of the screening opinion has been sent to the planning authority.

Written Statement

The proposed change to the period of operation of the consented wind farm proposes no additional development. This particular proposed change would have no effect on the characteristics or location of the wind farm development. The characteristics of the potential impact are such that the significant landscape and visual impacts as set out in the Scottish Ministers reasoned conclusion on the significant effects of the development on the environment, within the determination letter for the wind farm dated 16th March 2018, would increase in duration of time. The magnitude, spatial impact, nature, intensity or complexity of these effects will remain unaltered by this proposed change.

The alteration to the consented access track is the largest physical change which is proposed, however the alteration is relatively small in scale. The scale of the change is not considered to be out of scale with the existing environment or the proposed development. The use of natural resources is not considered to be significant. The change in land use associated with the altered track is not considered to be significant and there are no significant adverse effects associated with construction site access as a result of this proposed change. The response from the planning authority notes that the land take associated with the proposed altered track is not significant and the agricultural land on which the track is proposed is low in value terms.

The proposal seeks to increase the footprint of the substation and of the temporary construction compound both of which are located some distance within the site boundary and which have planning permission in association with the existing s36 consent for Chirmorie Wind Farm. The scale of this increase is small and will entail minimal use of additional natural resources. The location of this part of the development is unchanged. The potential impact of its change is considered to be low in terms of magnitude and spatial extent.

Yours sincerely

Alan Brogan
Energy Consents Unit

APPENDIX 7: COPY OF PUBLIC NOTICE / NEWSPAPER ADVERT

Chirmorie Wind Farm Ltd

ELECTRICITY ACT 1989 (SECTION 36C)

THE ELECTRICITY GENERATING STATIONS (APPLICATIONS FOR VARIATION OF CONSENT)(SCOTLAND) REGULATIONS 2013

Notice is hereby given that **Chirmorie Wind Farm Ltd, 09171934, 22-24 King Street, Maidenhead, Berkshire, SL6 1EF**, has applied to the Scottish Ministers to vary the section 36 consent to construct and operate a wind farm at Chirmorie (Central Grid reference **NX 190 770**) previously consented on 16th March 2018 by Scottish Ministers (“the variation application”).

The variation application seeks to make the following variations:

- a) increase the duration of the consent from 25 years to 30 years
- b) alter the location and the size of the on-site substation and temporary construction compound
- c) include a route for access to the wind farm development boundary from the public road (A714): and
- d) include a borrowpit in the same area as the proposed new link track to potentially assist with its construction

A summary of the variation application, a copy of the variation application, a link to the original section 36 consent decision letter and the environmental reports prepared in relation to the proposed varied development can be found at the following website: **www.chirmoriwindfarm.co.uk**

The variation application and environmental report is also available for inspection, free of charge:

Barrhill Memorial Hall	South Ayrshire Council	Girvan Library	New Luce Village Shop
Main Street, Barrhill	Burns House,	Montgomarie Street	1 Station Road
Girvan, Ayrshire	16 Burns Statue Sq	Girvan	New Luce
KA26 OPP	Ayr, KA7 1UT	KA26 9HE	DG8 OAL
(Tues 10am-4pm and other times)			(Mon-Fri 9am-12noon)

They can also be viewed at the Scottish Government Library at Victoria Quay, Edinburgh, EH6 6QQ

Copies of the variation application and environmental reports may be obtained from Chirmore Wind Farm Ltd **0141 202 0625** at a charge of **£100 for a hard copy** and **£5** on CD.

Any representations to the application may be submitted via the Energy Consents Unit website at www.energyconsents.scot/Register.aspx or by email to the Scottish Government, Energy Consents Unit mailbox at representations@gov.scot or alternatively by post to the Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the proposal and specifying the grounds for representation.

Written or emailed representations should be dated, clearly stating the name (in block capitals), full return email and postal address of those making representations. Only representations sent by email to representations@gov.scot will receive acknowledgement.

All representations should be received not later than **31st July 2019** although Ministers may consider representations received after this date.

Should additional substantive information be made available in relation to this application, then further public notices will give advice on how this information may be viewed by members of the public, and how representations may be made to Scottish Ministers.

Where Scottish Ministers decide to exercise their discretion to do so, Scottish Ministers may cause a Public Local Inquiry (PLI) to be held.

Following receipt of all views and representations, Scottish Ministers will determine the application for consent in one of two ways:

- Consent the proposal, with or without conditions attached; or
- Reject the proposal

General Data Protection Regulations

The Scottish Government Energy Consents Unit processes consent applications and consultation representations under The Electricity Act 1989. During the process, to support transparency in decision making, the Scottish Government publishes online at www.energyconsents.scot. A privacy notice and a fair processing notice are published on the help page at www.energyconsents.scot. These explain how the Energy Consents Unit processes your personal information. If you have any concerns about how your personal data is handled, please email: Econsents_admin@gov.scot or write to Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU