

GLENSHERO WIND FARM

Environmental Impact Assessment Report

2018

Volume 1: Non-Technical Summary



SIMEC

res
power for good

1 Introduction

- 1.1.1 SIMEC Wind One Ltd (the Applicant) has applied for consent¹ to construct and operate a 39 turbine wind farm at a site located approximately 8 km west of the village of Laggan, in the Highlands (hereafter referred to as the proposed development) (Figure 1: Site Location).
- 1.1.2 The Environmental Impact Assessment Report (EIAR) has been prepared by RES Limited (RES) and Ramboll Environment and Health UK Limited (Ramboll) on behalf of the Applicant to accompany the application for consent.

1.2 Purpose of the Non-Technical Summary

- 1.2.1 The purpose of the EIAR is to report on the potential for significant environmental effects as a result of the proposed development, and to specify mitigation to avoid or reduce significant environmental effects. The EIAR comprises the following volumes:
- Volume 1: Non-Technical Summary (NTS);
 - Volume 2: Main Report;
 - Volume 3: Figures; and
 - Volume 4: Technical Appendices.
- 1.2.2 Additional documents that will be submitted with this application include:
- Socio-economic & Tourism Impact Assessment;
 - Planning Statement, which includes a Design and Access Statement (Appendix 3 of the Planning Statement);
 - Pre-application Consultation Report; and
 - Cover Letter, confirming deposit locations for the EIAR.
- 1.2.3 This document provides a Non-Technical Summary (NTS) of the EIAR.
- 1.2.4 The aim of the NTS is to summarise the content and main findings of the EIAR in a clear and concise manner to assist the public in understanding what the significant environmental effects of the proposed development are likely to be. The full EIAR provides a more detailed description of the proposed development and the findings of the EIA Process.

1.3 Further information

- 1.3.1 Further information is available on the project website (<http://www.glenshero-windfarm.co.uk>) and hard copies of the EIAR and other documentation can be viewed at the following locations:

The Highland Council
Inverness Service Point
Town House
High Street
Inverness
IV1 1JJ

The Highland Council
Fort Augustus Service Point
Memorial Hall
Fort Augustus
PH32 4DJ

Laggan Stores Coffee Bothy &
Gallery
Laggan
Newtonmore, Inverness-shire
PH20 1AH

- 1.3.2 An electronic version of the EIAR and statements supporting the application will be available to download from www.glenshero-windfarm.co.uk. A full copy of the EIAR, in hard copy

¹ An application for consent for the proposed development will be made to the Scottish Ministers under section 36 of the Electricity Act 1989, along with a request for a direction that planning permission be deemed to be granted under section 57(2) of the Town and Country Planning (Scotland) Act 1997 as amended

format, is available at a cost of £400 (including postage and packaging) or on CD-ROM (price £15). An NTS of the EIAR is available free of charge from the Applicant on request.

1.3.3 Copies of the EIAR can be obtained from:

RES Limited
3rd Floor, STV
Pacific Quay
Glasgow
G51 1PQ

1.4 Commenting on the Application

1.4.1 When the application for the proposed development is lodged with the Scottish Government the Applicant will advertise the application in the Edinburgh Gazette, a national newspaper and a local newspaper, providing details of by when representations should be made. The Energy Consents Unit will invite formal representations on the proposal, which will be taken into account before any decision is reached on the application.

1.4.2 Any representations in relation to the application should be made by email to the Scottish Government, Energy Consents Unit mailbox at representations@gov.scot or 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.

2 Development Description

2.1 Infrastructure

2.1.1 The proposed development (Figure 2a&b: Infrastructure Layout) would include the following key components:

- 39 wind turbines, of a maximum ground to tip height of up to 135 m;
- Turbine foundations;
- A wind farm control building/substation compound;
- Crane hardstanding area at each turbine base with a maximum permanent area of 1,200 m²;
- A total of approximately 28 km of new on-site access track and turning points with associated watercourse crossings (the proposed development would also make use of 18.5 km of existing tracks within the consented Stronelairg Wind Farm);
- Two temporary site entrance offices and layby areas with a maximum total area of 900 m² each;
- Up to three temporary site construction compounds and laydown areas with a maximum total area of 4,000 m² each;
- Underground cabling linking the turbines with the substation;
- Search areas for up to seven temporary mineral workings, with a total maximum search area of 118,424 m² and a predicted extraction volume of 195,000 m³;
- A concrete batching plant;
- Associated ancillary works; and

- Engineering operations.

2.2 Construction Activities

- 2.2.1 The construction phase of the proposed development is anticipated to be approximately 24 months. The envisaged construction hours of work would be Monday to Saturday 07:00 to 19:00. There would be no deliveries made to the site after 13:00 on Saturdays. There would be no working on a Sunday.
- 2.2.2 A Traffic Management Plan (TMP) would be written in consultation with The Highland Council (THC) to avoid and reduce effects associated with construction traffic during working hours.
- 2.2.3 A Construction Environmental Management Plan (CEMP) would be implemented during construction to avoid, reduce or control associated adverse environmental effects.
- 2.2.4 An Access Management Plan has been prepared for managing public access to the site during the construction phase of the proposed development.

2.3 Operation Management and Maintenance

- 2.3.1 The expected operational life of the proposed development is 30 years from the date of final commissioning.
- 2.3.2 Despite being designed to operate largely unattended, an operator would be employed to monitor the turbines and to manage the proposed development.
- 2.3.3 Routine maintenance of the turbines would be undertaken approximately twice yearly. This would not involve any large vehicles or machinery.
- 2.3.4 A sign would be placed on the proposed development giving details of emergency contacts. This information would also be made available to the local police station and Scottish and Southern Hydro Electric Transmission (SHET).

2.4 Residues and Emissions

- 2.4.1 The EIA has considered the potential for residues and emissions associated with the construction and operation of the proposed development, including consideration of: water; air; soil and subsoil; noise and vibration; light; heat and radiation; and waste. All discharges would be managed in accordance with relevant guidance and regulations. With the implementation of the CEMP, no significant residues or emissions have been identified during the construction phase. No significant residues or emissions would result from the operation of the proposed development.
- 2.4.2 If the proposed development obtains consent it is expected that an agreement would be put in place to allow for the establishment of a decommissioning bond or fund to be set aside for when the proposed development is decommissioned after its operational life. Prior to decommissioning of the proposed wind farm, a method statement would be prepared and agreed with THC. There would be residues from decommissioning, but at this stage it is not known how the site would be decommissioned and managed 30 years in the future, but it not anticipated that the decommissioning residues would be significant.

3 Design Evolution and Alternatives

3.1 Site Selection and Site Context

- 3.1.1 The site covers an area of approximately 37.4 km² and is located approximately 5 km north of the A86 and approximately 8 km west of the village of Laggan, in the Highlands (Figure 1: Site Location). There are areas of coniferous plantation woodland located within the central and southern part of the site, between the two main watercourses, Allt Coire Iain Oig and the Allt Gilbe and on the southern site boundary. The majority of the site comprises open moorland used for grazing livestock and for rearing grouse.
- 3.1.2 The consented Stronelairst Wind Farm, which is located adjacent to the site's northern boundary, is currently under construction.
- 3.1.3 The site was chosen for the proposed development for the following reasons:
- The turbine array can be sited outwith designated areas (such as those designated for nature conservation, landscape or cultural heritage reasons);
 - The site is largely located in areas defined by Scottish Planning Policy 2014 and THC as "Areas with potential for wind farm development"; and
 - There is existing infrastructure in the area which can be utilised by the proposed development such as Melgarve substation and the Beauldy Denny 400 kV overhead line to the south of the site and Stronelairst Wind Farm to the north. Due to the presence of this existing infrastructure the proposed development could utilise an existing track network thereby reducing the need for new track.

3.2 Do-Nothing Alternative

- 3.2.1 The "do nothing" scenario is considered to represent the current baseline situation as described in the individual chapters presented in EIAR Volume 2: Main Report. It is recognised that the baseline would not remain static for the lifetime of the proposed development. In particular, and apart from any changes arising from economic and agricultural policies and economic market considerations, it is predicted that biodiversity and landscape would undergo some level of change as a result of climate change. Due to the complexities and uncertainties inherent in attempting to predict the nature and extent of such changes to landscape and biodiversity during the lifetime of the proposed development, it has been assumed that the current baseline would subsist.

3.3 Design Evolution and Alternative Layouts

- 3.3.1 Figure 3: Design Evolution summarises the wind farm design evolution from the draft scoping layout to the final (design freeze) layout.
- 3.3.2 A range of site layouts were assessed with four principal iterations, taking account of a range of environmental considerations including input from specialists on:
- The special qualities of designated or classified landscape areas, landscape character and visual amenity within a 40 km study area;
 - Cultural heritage, including mapping all known assets within the site, and assets of national importance within a 5 km study area to assess the potential for visibility and setting effects;
 - Sensitive animals, with the mapping of the presence of European protected animals;

- Sensitive habitats, particularly peat forming habitats (supported by habitat and peat probing surveys) and habitats dependent on groundwater;
- Birds, including surveys for bird flight activity and breeding bird activity on the site;
- Hydrology and hydrogeology, including identifying all sensitive surface water features; and
- Peat depth.

4 Likely Significant Effects

4.1.1 The EIA process is designed to identify any significant effects that the proposed development could have on the environment. The EIA considered the environmental impacts across a range of factors; as required by the EIA Scoping Opinion. The conclusions of the EIA are that, potentially significant effects were identified for a number of topics (see bullet list below) but that these would be reduced to non-significant through the application of mitigation. The only exception to this being for LVIA where some significant residual effects would remain:

- Landscape and Visual;
- Ecology;
- Ornithology; and
- Traffic and Transport.

4.2 Landscape and Visual

4.2.1 The study area for the Landscape and Visual Impact Assessment (LVIA) comprises a 40 km radius area extending from the outermost turbines of the proposed development. Desktop findings were verified and targeted field visits were undertaken during which all key sensitive receptor locations were visited.

4.2.2 The assessment of landscape and visual effects considers effects on:

- Landscape fabric (the physical elements of the landscape);
- Landscape character (the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people);
- Designated landscapes (e.g. National Parks, National Scenic Areas, Special Landscape Areas; and
- Visual amenity (the particular composition of landscape elements that contribute to a view or views).

4.2.3 The design of the proposed development was informed by a number of technical, commercial and environmental drivers. Key priorities have been adopted in order to mitigate potential landscape and visual effects and to reflect on the performance of the proposed development relative to the Criteria of THC's Adopted Onshore Wind Energy Supplementary Guidance (2016).

4.2.4 No significant construction or operational effects are anticipated in relation to landscape fabric. No significant construction effects are predicted on landscape character; designated landscapes and visual amenity.

4.2.5 The proposed development is predicted to have significant operational effects on restricted locations within the following LCTs within the study area:

- Rugged Massif LCT (LBR7);

- Rolling Uplands LCT (INV2);
 - Isolated Mountain Plateau LCT (LGN1);
 - Smooth Rounded Hills LCT (LGN2);
 - Uplands and Glens (Monadhliaths & Ardverikie) LCT (CGN2); and
 - Cairngorm Straths (Spey Headwaters) LCT (CGN3).
- 4.2.6 However, the significant effects would be highly localised and are not considered to undermine the integrity of LCTs.
- 4.2.7 None of the designated landscapes within the study area would be subject to direct operational effects. However, the following designated landscapes are predicted to have highly localised significant indirect effects:
- Cairngorm National Park (CNP): north of Aberarder Lodge, in the vicinity of Garvamore, and at Dun da Lamh hill fort; and
 - Ben Alder, Laggan, and Glen Banchor Special Landscape Areas (SLA): at a number of elevated summits and south of the Spey Dam and at Carn Liath.
- 4.2.8 Notwithstanding the above highly localised effects, the effects on designated landscapes overall are not considered to significantly effect or undermine their integrity.
- 4.2.9 The three Wild Land Areas (WLA) were assessed which were: WLA 20 Monadhliaths; WLA 19 Braeroy - Glenshirra - Creag Meagaidh; and WLA 14 Rannoch - Nevis - Mamores – Alder. The proposed development is located outwith these WLAs and would therefore have no direct effects on these mapped areas. A detailed assessment of the indirect residual effects was undertaken and concluded that there would be no significant effects on the wild land qualities or attributes of these WLAs.
- 4.2.10 The visual assessment has identified no effects on the amenity of local settlements and no appreciable effects on the amenity of transportation routes within the study area. The visual assessment has however identified major significant, but localised residual operational effects on the following:
- Corrieyairack Pass between Laggan and Ardachy Road;
 - Glen Spean and the Corrieyairack Pass through Glen Roy;
 - Geal Charn; and
 - Carn Liath.
- 4.2.11 Significant cumulative operational effects have been identified for all of the above listed LCTs except Cairngorm Straths (Spey Headwaters) LCT (CGN3). Significant localised cumulative operational effects have also been identified at a small number of summits adjoining the western boundary of the CNP (e.g. at Geal Charn and Carn Dearg) and Ben Alder, Laggan, and Glen Banchor SLA.
- 4.2.12 The magnitude of cumulative impact on the Corrieyairack Pass between Laggan and Ardachy Road has been identified as moderate and the sequential effect as significant. Significant cumulative effects are also predicted at Geal Charn and Carn Liath.
- 4.2.13 To conclude, significant effects identified would be geographically limited in extent and would not affect nationally important landscapes or visual resources.

4.3 Ecology

- 4.3.1 The ecological assessment focused on the proposed development site and appropriate buffer areas (collectively the 'study areas'²) which have been applied. Desk studies were undertaken plus, ecological fieldwork (including peat surveys) which commenced in May 2017 and was completed in July 2018. The surveys included: vegetation and habitat surveys; peat depth and mire condition surveys; protected species surveys; bat surveys; and fish surveys.
- 4.3.2 There are no statutory nature conservation designations within the site but there are four Special Areas of Conservation (SAC) and five Sites of Special Scientific Interest (SSSI) within 10 km of the site.
- Monadhliath SAC (underpinned by Monadhliath SSSI) – borders the site to the east;
 - River Spey SAC (underpinned by River Spey SSSI) – borders the site to the south;
 - Creag Meagaidh SAC (underpinned by Creag Meagaidh SSSI) – 555 m to the south;
 - Ness Woods SAC (underpinned by Glen Tarff SSSI) – 6.3 km to the west; and
 - Creag Dhubh SSSI – 9.7 km to the east.
- 4.3.3 The dominant habitats within the proposed development are wet dwarf shrub heath, blanket bog and dry dwarf shrub heath: acid. The National Vegetation Classification (NVC) surveys recorded 28 recognised NVC communities within the NVC study area. The NVC study area is dominated by extensively hagged, eroding and degraded blanket bog and wet dwarf shrub heath communities. Potential Ground Water Dependant Terrestrial Ecosystems (GWDTE) were recorded throughout the proposed development and the site contains scattered areas of Class 1 and Class 2 priority peatlands³.
- 4.3.4 Protected species surveys identified the presence of otter; water vole; reptiles; bats (two medium risk species and one low risk species); juvenile salmon; brown trout; and red deer. No evidence of badger, pine marten or wildcat was recorded but the site is considered to have variable suitability to those protected species.
- 4.3.5 It was possible to scope out most species and habitats recorded in the study areas from the assessment by virtue of their absence from the site, their low conservation value, the type and frequency of field signs present, the small extent of the sensitive habitat, or the negligible scale of potential effects.
- 4.3.6 Potential construction effects on blanket bog, wet dwarf shrub heath and dry dwarf shrub heath were assessed. The main effect would be direct and indirect habitat loss due to land take for infrastructure and associated hydrological disturbance. Habitat losses would be minor (and largely would be losses of degraded habitat).
- 4.3.7 A Habitat Management Plan (HMP) would be implemented to compensate for the loss of blanket bog, wet and dry heath communities. The OHMP would also deliver net enhancement benefits through delivering positive habitat management at a ratio of 4:1; i.e. at least four times the area of habitats affected by the proposed development would be subject to positive management measures to enhance their condition.

² Phase 1 and NVC: 300 m buffer around proposed turbine locations and a 150 m buffer for tracks; Protected Species: 450 m buffer of the outermost turbine locations; Bats: within 50 m of each turbine location plus a control site of 3.671 km away from the closest turbine location; Electrofishing: all major watercourses draining the proposed development area.

³ As identified by the Carbon and Peatland Map (SNH, 2016): <https://www.nature.scot/professional-advice/planning-and-development/general-advice-planners-and-developers/planning-and-development-soils/carbon-and-peatland-2016-map>.

- 4.3.8 With the application of mitigation including the HMP, Deer Management Plan (DMP) and a Construction Environmental Management Plan (CEMP) the effects on these habitats would be potentially beneficial and not significant effect.
- 4.3.9 Due to the presence of European designated sites (Monadhliath SAC and River Spey SAC) an assessment of potential likely significant effects was undertaken. This assessment concluded that with the application of mitigation including OHMP, DMP and a CEMP, there would be no adverse effects on the integrity of these sites.

4.4 Ornithology

- 4.4.1 Ornithological fieldwork commenced in March 2013 and was completed in July 2017 to understand existing bird flight activity at and around the site.
- 4.4.2 There are no statutory conservation designations with an ornithological interest within the site but there are the following designated sites with an ornithological interest within 20 km of the site:
- Monadhliath SSSI – borders the site to the east;
 - Creag Meagaidh SSSI – 0.5 km to the southwest;
 - Creag Meagaidh Special Protection Area (SPA) – 2.0 km to the southwest;
 - Loch Knockie and nearby Lochs SPA – 5.2 km to the northwest;
 - Glendoe Lochans SSSI – 5.2 km to the northwest;
 - Drumochter Hills SPA – 18 km to the southeast;
 - Drumochter Hills SSSI – 18 km to the southeast
 - Ben Alder and Aonach Beag SSSI – 17 km to the south; and
 - West Inverness-shire Lochs SPA, SSSI – 18 km to the west.
- 4.4.3 Potentially important ornithological receptors within the study area⁴ includes:
- Golden eagle;
 - Golden plover;
 - Dunlin
 - Greenshank; and
 - Monadhliath SSSI breeding bird assemblage.
- 4.4.4 Other bird species present were scoped out due to the lack, or low numbers of 'at-risk' flights or breeding activity recorded during baseline surveys, and lack of habitat suitability within the site.
- 4.4.5 Unmitigated construction and decommissioning activities were assessed as having potentially significant disturbance effects on dunlin and greenshank at a Natural Heritage Zone 10 level, as well as on the Monadhliath SSSI. However, with the implementation of a Breeding Bird Protection Plan (BBPP) and the enforcement of spatial and seasonal restrictions of construction work around active nest sites, effects would not be significant.
- 4.4.6 During the operational period, potentially significant displacement effects were predicted for breeding greenshank, and the breeding bird assemblage of the Monadhliath SSSI. However,

⁴ Ornithological Study Area equates to all land within the application boundary plus 500 m buffer around all proposed turbine locations for all non-breeding and most breeding birds. The search area extends to 1.5 km from all proposed locations for black grouse and 2 km for scarce breeding birds.

when the implementation of an HMP is considered and together with specific measures for golden eagle, operational effects would not be significant. The additional mitigation measures for golden eagle include removal of deer carcass and gralloch within 500 m of turbines and financial contributions by the Applicant to the Regional Eagle Conservation Management Plan.

4.4.7 No significant cumulative effects have been identified.

4.5 Traffic and Transport

4.5.1 Effects on severance; driver delay; pedestrian delay; pedestrian amenity; fear and intimidation; and accidents and safety were considered.

4.5.2 In addition to a desk study, Automatic Traffic Count (ATC) surveys were undertaken in April 2018 to determine existing traffic flows and speeds on the surrounding road network to further enhance the understanding of the road network in the traffic and transport study area⁵. Survey locations were as follows:

- 1 - A82 at Invermoriston (ATC);
- 2 - A82 south of Fort Augustus (ATC);
- 3 - A82 north of Spean Bridge (ATC);
- 4 - A82 south of Spean Bridge (ATC);
- 5 - A87 south of its junction with the A887 (DfT);
- 6 - A86 at Inverlair (ATC); and
- 7 - B862 east of Fort Augustus (ATC).

4.5.3 Site visits were also undertaken as part of the Abnormal Indivisible Load (AIL) route assessment, which considered potential constraints to the movement of AILs in terms of height, width and weight restrictions.

4.5.4 The receptors identified as being sensitive to the proposed developed included settlements and road users at the following locations:

- A82;
- A87;
- A86;
- B862;
- Fort Augustus (on A82);
- Spean Bridge (on A82 and A86); and
- Invergarry (on A82 and A87).

4.5.5 No significant construction effects or cumulative construction were identified for the for any of the above receptor locations with the exception of users of the B862 in relation to potential pedestrian delay. However, following the implementation of the proposed package of traffic-related mitigation measures, the assessment of residual effects concluded that there would be no significant adverse construction effects or cumulative construction effects associated with the proposed development.

4.5.6 No significant operational or decommissioning effects were identified.

⁵ Traffic and transport study area was identified through a review of the likely routes between suppliers of equipment and materials and the site and is identified as public roads which would be used during the construction phase to access the proposed development.

5 Summary of Other Environmental Effects

5.1.1 Through the EIA process, other relevant environmental issues were assessed and it was concluded that there would not be the potentially for significant effects as a result of the proposed development. These environmental issues are summarised below and briefly described as follows:

- Archaeology and Cultural Heritage;
- Noise; and
- Socio-economics.

5.2 Archaeology and Cultural Heritage

5.2.1 A desk-based study, walkover survey and setting site visits were carried out in order to identify assets that could be affected by the proposed development and to establish their current condition. The desk-based study also informed an assessment of the potential for currently unknown archaeological remains within the Archaeology and Cultural Heritage Inner Study Area (inner study area). Photomontages and wireline visualisations were prepared to inform the assessment of impacts on the settings of heritage assets.

5.2.2 There are nine known heritage assets within the Archaeology and Cultural Heritage Inner Study Area (inner study area), which comprise a Category A-listed Building (an eighteenth-century bridge taking General Wade's military road over the River Spey (LB6900)), four undesignated Historic Environment Records (HER) entries, and four undesignated assets not recorded on HER. The four HER entries comprise: the route of the military road, (preserved as a gravel and tarmac track); and three ruined buildings and structures relating to agricultural and pastoral activity in the area. The four undesignated assets not recorded on the HER also comprise buildings and features relating to upland farming.

5.2.3 There are two Schedule Monuments, three Listed Buildings and 28 undesignated heritage assets within 5 km of the turbines in the Archaeology and Cultural Heritage Outer Study Area (outer study area). There are two Scheduled Monuments within 5 km of the turbines which are parts of General Wade's military road comprising the sections from Allt Ruadh to the Corrieyairack watershed (SM6128) and from Melgarve to Allt Ruadh (SM6129), respectively. There are three Listed Buildings within 5 km of the turbines: Category A-listed Garva "Barracks" (LB6899), and two Category B-listed bridges built by General Wade at Melgarve (Drummin Bridge (LB6895) and Melgarve Bridge (LB12373)).

5.2.4 The distribution patterns of known archaeology assets in the inner and outer study areas suggest that the inner study area is of negligible archaeological potential above approximately 450 m Above Ordnance Datum (AOD) and on steep slopes below this contour. The construction footprint is entirely above 450 m AOD and is therefore considered to be of negligible archaeological potential. Gentler gradients below 450 m AOD in the southern half of the inner study area are considered to be of low archaeological potential.

5.2.5 There would be no direct construction impacts upon any of the nine heritage assets within the inner study area and direct construction impact on unknown heritage assets is highly unlikely for the reason set out above.

5.2.6 Potential operational effects could occur because of changes to views towards and from the following heritage assets and these were considered further in the assessment: two scheduled sections of General Wade's Military Road (Scheduled Monuments: SM6128, SM6129);

Category A-listed Building LB6900; an undesignated section General Wade's military road (MHG34491); three Listed Buildings (Garva "Barracks" (LB6899), Drummin Bridge (LB6895), and Melgarve Bridge (LB12373)).

- 5.2.7 The assessment concluded that the changes to wider views would not affect the cultural significance of any of the above cultural heritage assets and the level of impact was concluded to be of negligible and therefore not significant.
- 5.2.8 No setting effects of more than negligible significance have been predicted and therefore no significant cumulative effects would occur as a result of the proposed development.

5.3 Noise

- 5.3.1 The proposed development is located approximately 8 km west of the village of Laggan, in the Highlands. The surrounding area is predominantly rural in nature and the noise character is expected to be typical of a rural environment.
- 5.3.2 The construction noise assessment considered noise arising from the site (e.g. construction of turbine bases; turbine erection, trench excavation) and from construction traffic (e.g. delivery of construction materials). It also considered the level of vibration at nearby properties due to blasting, in order to release material from the proposed mineral extraction areas.
- 5.3.3 The assessment of construction noise concluded that noise levels from construction activities on-site and construction traffic would fall within the required noise levels at times with the exception of a limited period of time between 1300 and 1900 on Saturday afternoons arising along the delivery route due to construction traffic. To address any potential resulting effects, deliveries would be restricted between the hours of 1300 and 1900 on Saturdays to reduce predicted construction noise levels to below the relevant noise threshold. An assessment against the night-time noise target level was not undertaken as construction work would not be scheduled to take place during the night.
- 5.3.4 Vibration and air overpressure due to blasting are not expected to have a significant impact on nearby residents because the Applicant would adhere to the relevant guidance and the following mitigation would be adopted: advance warning provided to residents; blasting limited to the hours of 0800-1800 Mondays-Fridays; and blasting limited to three times per day.
- 5.3.5 As for operational noise, both aerodynamic noise and mechanical noise were considered and predicted using a noise modelling. The predicted noise levels were found to be within appropriate noise limits at all considered wind speeds. Therefore, the proposed development would comply with the relevant guidance on wind farm noise and the impact on the amenity of all nearby residential properties would be acceptable and not significant.
- 5.3.6 A cumulative operational noise assessment was completed to determine the potential impact of the proposed development alongside the consented Stronelairg Wind Farm. The predicted noise levels would be within derived appropriate noise limits at all considered wind speeds. Therefore, the impact on the amenity of nearby residential properties due to cumulative operational noise levels would be regarded as acceptable and not significant.

5.4 Socio-Economics

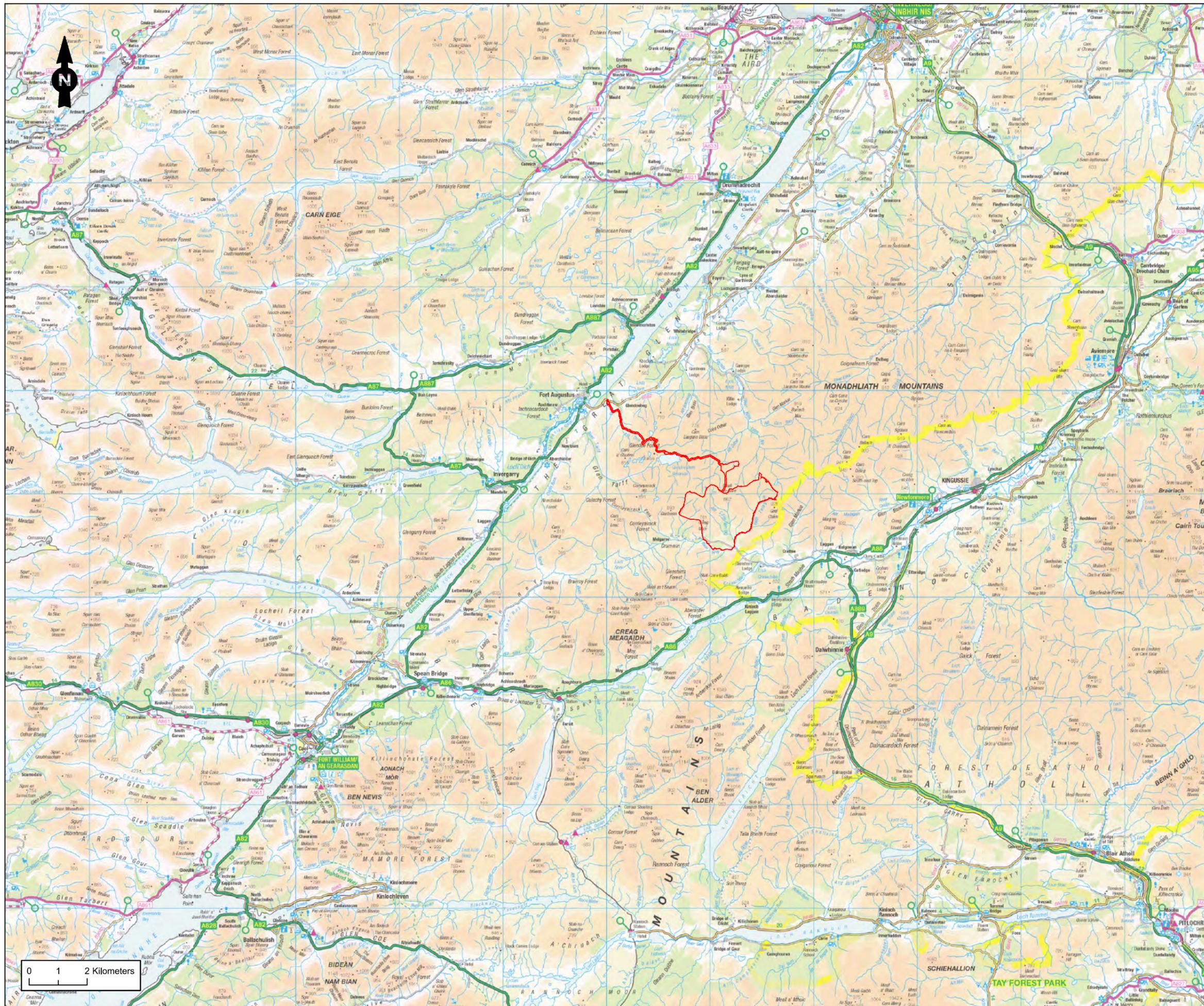
- 5.4.1 The area surrounding the site is very rural and sparsely populated, with the population being older than both the Highland and Scottish average. Tourism, as well as manufacturing and construction, are important to the local economy.
- 5.4.2 The economic impact of the proposed development was assessed based on the Applicant's projections as well as experience of what has happened at other onshore wind farms. The result of the economic analysis suggests that during the development and construction phase the proposed development is expected to contribute up to:
- £25.2 million and 224 job years of employment in Highland; and
 - £65.8 million and 596 job years of employment in Scotland.
- 5.4.3 During each year of the operation and maintenance of the proposed development could contribute up to:
- £5.2 million and 42 jobs in Highland; and
 - £8.0 million and 67 jobs in Scotland.
- 5.4.4 Additional wider benefits associated with the proposed development include:
- support wider investments by the GFG Alliance to build an alloy wheels facility that will directly employ 400 people;
 - invest £60 million over two years to Highland Green Renewables which operates hydro power schemes in new hydro schemes;
 - invest in Dalzell steel plant in Motherwell, which is expected to supply the proposed development;
 - a shared ownership opportunity for local communities to invest in up to 5% of the wind farm and invest the returns in the local area, generating substantial social and economic benefits; and
 - non-domestic rates estimated at £1.9 million per year, approximately £58.0 million over 30 years.
- 5.4.5 A review of the latest research evidence suggests there is no evidence of wind farm developments adversely impacting on the tourism economy of Scotland. However, given the importance of tourism to the local economy, an assessment of potential tourism impacts was completed. The assessment concluded that the region's main tourism attractions are located some distance from the site and therefore finds no significant tourism effects as a result of the proposed development. Overall, the effects during construction and operation of the proposed development would not be significant.

6 Summary

- 6.1.1 Environmental constraints and considerations have been taken into account in the site layout and wind farm design. As a result, most of the potential significant effects have been avoided or reduced.
- 6.1.2 The EIAR reports on the potential for significant effects under the following headings:
- Landscape and Visual;
 - Archaeology and Cultural Heritage;
 - Ecology;
 - Ornithology;

- Traffic and Transport;
- Noise; and
- Socio-Economics.

6.1.3 THE EIAR has identified residual significant effects would be limited to Landscape and Visual effects.



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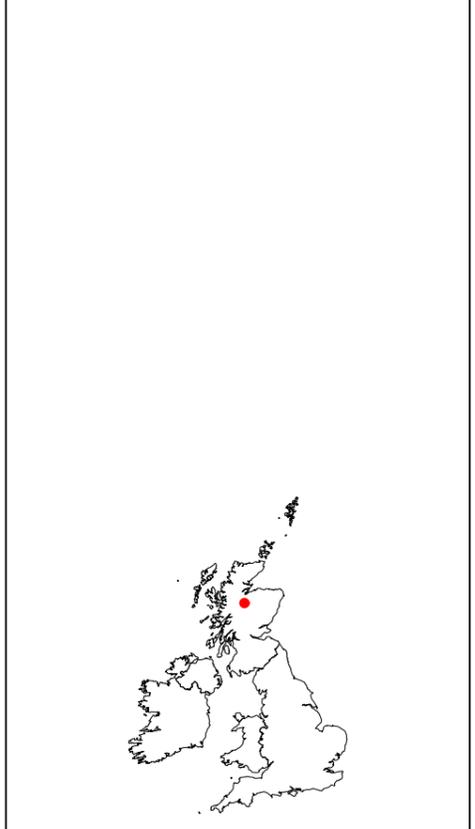
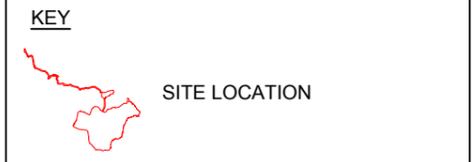


Figure Title
Site Location

Project Name
**Glenshero Wind Farm
EIA Report**

Project Number
UK12-24542

Figure No.
1

Date
August 2018

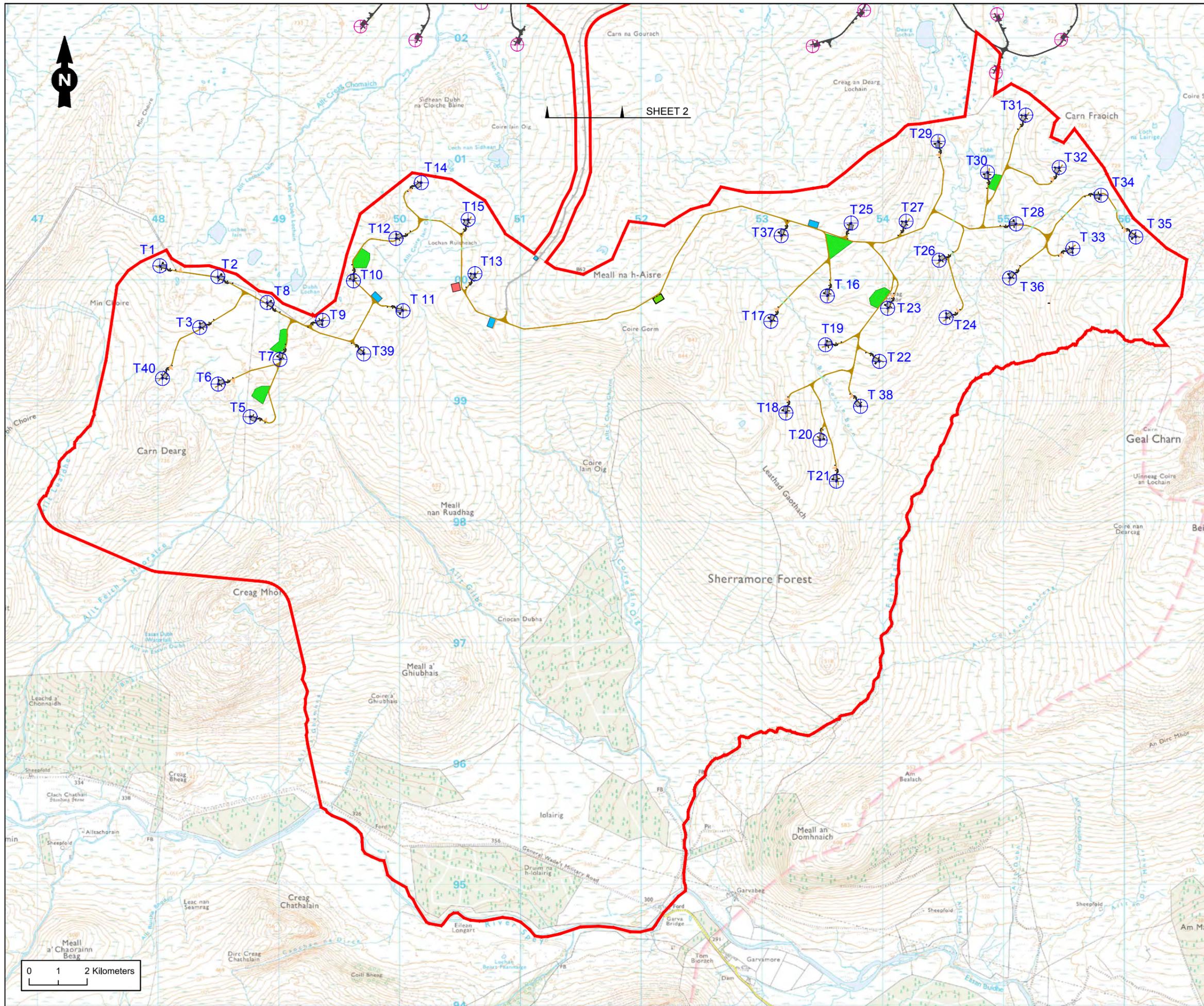
Prepared By
CT

Scale
1:350,000 @A3

Issue
1

Client
RES





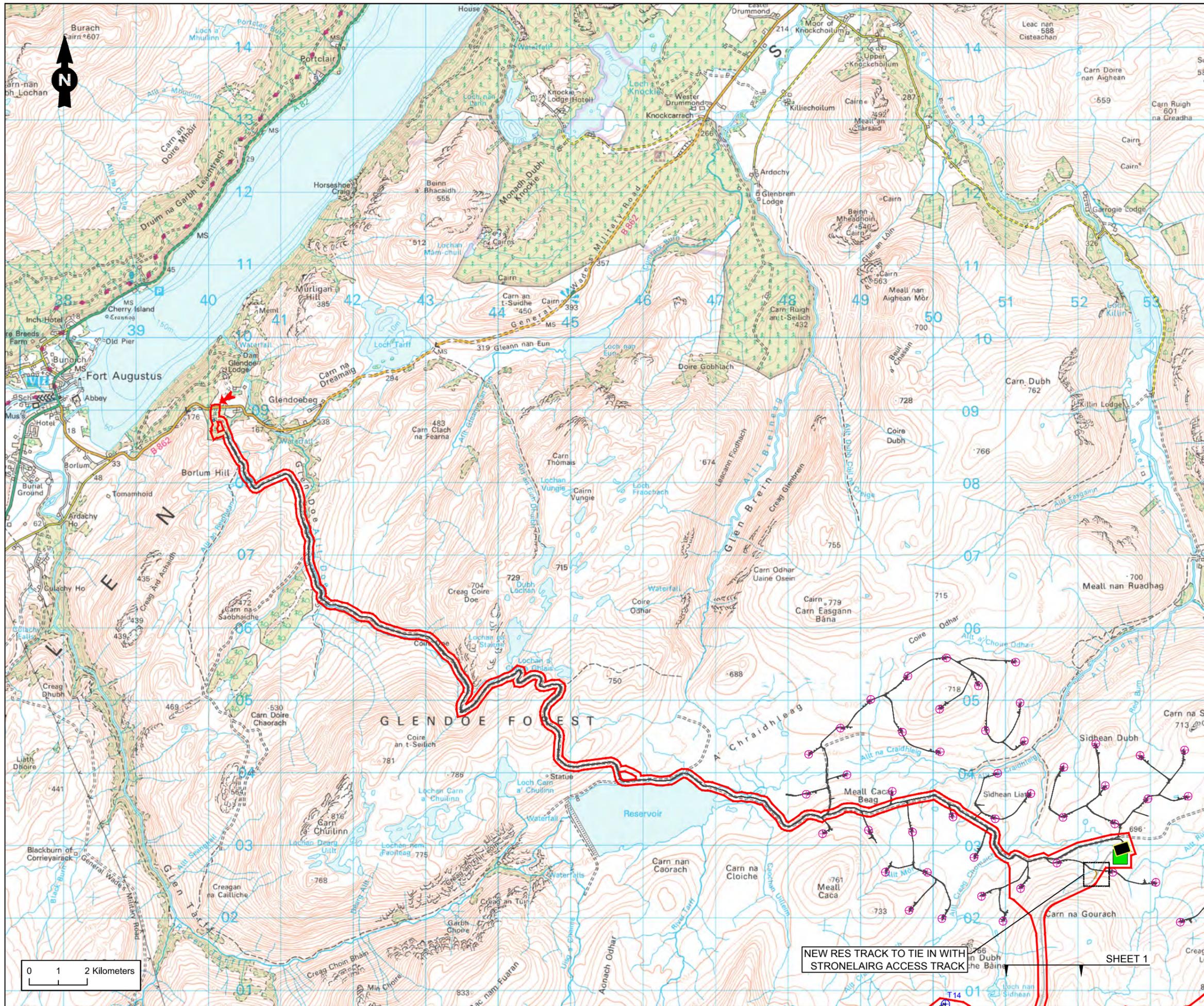
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- KEY**
- WIND TURBINE LOCATION
 - STRONELAIRG TURBINE LAYOUT
 - SITE BOUNDARY
 - NEW SITE TRACKS
 - TEMPORARY SITE TRACKS
 - WATERCOURSE CROSSING
 - CRANE HARDSTANDING AREA
 - PERMANENT
 - TEMPORARY
 - CONTROL BUILDING & SUBSTATION COMPOUND WITH PERMANENT HARDSTANDING AREA
 - TEMPORARY CONSTRUCTION COMPOUND WITH PARKING
 - TEMPORARY ENABLING WORKS COMPOUND/WHEEL WASH
 - BATCHING PLANT
 - MINERAL EXTRACTION SEARCH AREA
 - STRONELAIRG INFRASTRUCTURE
 - LINK ROAD TO STRONELAIRG

**INFRASTRUCTURE LAYOUT
SHEET 1 OF 2**

Figure Title	
Infrastructure Layout	
Project Name	
Glenshero Wind Farm EIA Report	
Project Number	Figure No.
UK12-24542	2a
Date	Prepared By
August 2018	CT
Scale	Issue
1:30,000 @A3	1
Client	
RES	





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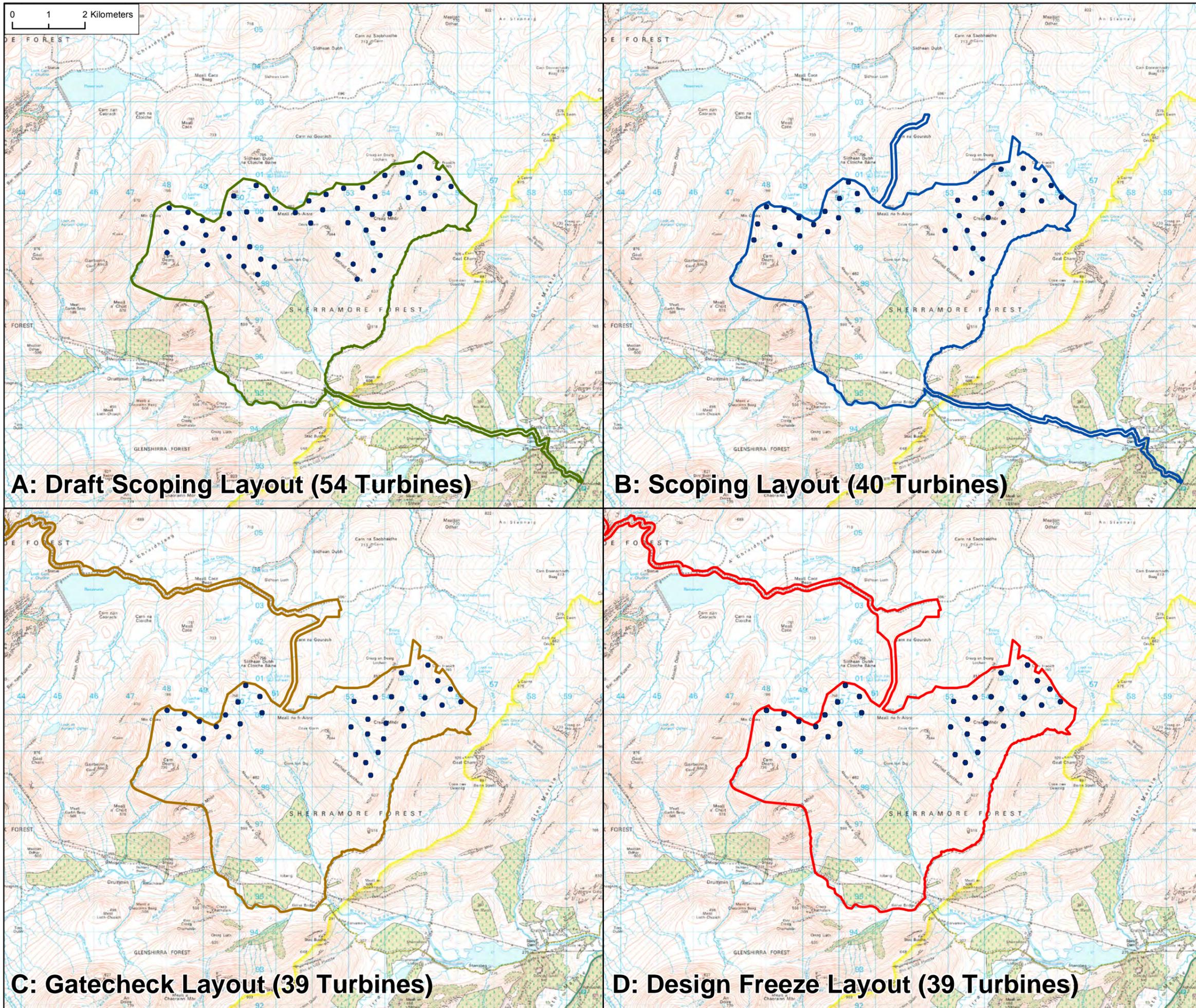
- KEY**
- STRONELAIRG TURBINE LAYOUT
 - SITE BOUNDARY
 - NEW SITE TRACKS
 - MINERAL EXTRACTION SEARCH AREA
 - SITE ENTRANCE LOCATION
 - LINK ROAD TO STRONELAIRG
 - STRONELAIRG INFRASTRUCTURE
 - STRONELAIRG SUBSTATION

ACCESS TRACK
SHEET 2 OF 2

Figure Title Infrastructure Layout	
Project Name Glenshero Wind Farm EIA Report	
Project Number UK12-24542	Figure No. 2 b
Date August 2018	Prepared By CT
Scale 1:50,000 @A3	Issue 1
Client RES	

NEW RES TRACK TO TIE IN WITH STRONELAIRG ACCESS TRACK

SHEET 1



A: Draft Scoping Layout (54 Turbines)

B: Scoping Layout (40 Turbines)

C: Gatecheck Layout (39 Turbines)

D: Design Freeze Layout (39 Turbines)

Legend

Draft Scoping Layout Boundary

- Draft Scoping Layout Boundary
- Draft Scoping Layout Turbines

Scoping Layout Boundary

- Scoping Layout Boundary
- Scoping Layout Turbines

Gatecheck Layout Boundary

- Gatecheck Layout Boundary
- Final Turbine Locations

Design Freeze Layout Boundary

- Design Freeze Layout Boundary
- Final Turbine Locations



Figure Title	
Figure 3: Design Evolution	
Project Name	
Glenshero Wind Farm EIA Report	
Project Number	Figure No.
UK12-24542	3
Date	Prepared By
August 2018	GM/AC
Scale	Issue
1:100,000 @A3	2
Client	
RES	





SIMEC

res
power for good