HAGSHAW ENERGY CLUSTER WESTERN EXPANSION

SLR

3R Energy

Hagshaw Energy Cluster – Western Expansion

Phase I

ENVIRONMENTAL IMPACT ASSESSMENT

NON-TECHNICAL SUMMARY

March 2025

Contents

Background

1. This document is a Non-Technical Summary (NTS) of the Environmental Impact Assessment (EIA) Report which accompanies an application made by Spirebush Ltd (the Applicant), a 3R Energy Solutions Ltd (3R Energy) group company.

2. The Applicant is applying for a Section 36 (S.36) consent and deemed planning consent, under the terms of the Electricity Act 1989, to construct and operate the Hagshaw Energy Cluster – Western Expansion (HEC-WE) | Phase 1 (hereafter referred to as the 'Proposed Development'). The Proposed Development site comprises a total area of c.965 hectares (ha), split into two main development areas, as illustrated on **Figure 1** and briefly described below:

    - The northern development area –located within the western and southern parts of commercial Dungavel Forest, within South Lanarkshire.
    - The southern development area –located on parts of Netherwood, Linburn and Burnfoot farms, approximately 1.4 kilometres (km) to the north of Muirkirk in East Ayrshire.

3. Renewable energy is a key factor in helping Scotland reach its target of Net Zero by 2045. The Proposed Development would make a meaningful contribution to those national targets for the generation of renewable energy, the provision of new electricity storage, and reduction in greenhouse gas emissions and contribute towards sustainable economic growth both locally and across Scotland as a whole.

Purpose of the Proposed Development EIA Report

4. SLR Consulting Limited (SLR) was appointed by the Applicant to coordinate the assessment of the potential environmental impacts of the Proposed Development in accordance with The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

5. The EIA process is reported in an EIA Report, which describes the methods used to assess the beneficial and adverse environmental impacts predicted to result from the construction and operation of the Proposed Development. Where appropriate, it also sets out mitigation measures designed to prevent, reduce and, if possible, offset any significant adverse environmental impacts. An assessment of residual effects, those expected to remain following implementation of mitigation measures, is also presented. This document is intended to present a summary of the findings of the EIA Report in non-technical language.

Availability of the Proposed Development EIA Report

6. Hard copies of the Proposed Development EIAR are available from:

    3R Energy
    Lanark Auction Market
    Hyndford Road
    Lanark
    ML11 9AX

    Tel: (01555) 660244 **Email:** info@3renergy.co.uk

7. The Non-Technical Summary is available free of charge from the Applicant, a hard copy of the EIA Report Volumes 1 to 4 are available for £2,000. In addition, all documents are available (as a PDF for screen viewing only) on a USB for £20.00.

8. Copies of the Proposed Development EIA Report will also be available for viewing during opening hours at the following locations:

East Kilbride Library
The Olympia Shopping
Centre East Kilbride
South Lanarkshire
G74 1PT

Opening Hours:
Mon-Wed 09:15 to 17:00
Thurs 09:15 to 20:00
Fri- Sat 09:15 to 17:00

The Hub
Muirkirk Enterprise Group
Furnace Road, Muirkirk
East Ayrshire
KA18 3RE

Opening Hours:
Tues-Wed 10:00 to 12:00
Thurs 16:30 to 18:00
Fri 10:00 to 11:30

9. The application documents including the EIA Report can be accessed at http://www.energyconsents.scot/ (reference number **ECU00004623**) or at https://3renergy.co.uk/projects/hagshaw-energy-cluster-western-expansion/ as required by The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 (Scottish Government, 2020).

Representations to the Application

10. Any representations on the S.36 application should be made directly to the Scottish Government Energy Consents Unit as follows:

Energy Consents Unit
Scottish Government
4th Floor
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

Email: representations@gov.scot **Web**: www.energyconsents.scot/Register.aspx

Site Description and Design

Site Description

11. The Proposed Development site comprises a total area of around 965 hectares (ha), split into two main development areas connected by the B743. The proposed wind turbines and associated infrastructure are located in the northern development area (Dungavel Forest), and the proposed solar panels and long duration energy storage (LDES) and associated infrastructure are located in the southern development area (Netherwood, Linburn, Burnfoot) refer to **Figure 2**.

12. The northern development area extends to approximately 750 ha and is located within the western and southern parts of the commercial coniferous Dungavel Forest plantation, bounded to the north and east by the operational Dungavel and Kype Muir Wind Farms, to the south by the proposed Bankend Rig 3 wind farm and the Muirkirk and North Lowther Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI), and to the west by the B743, within South Lanarkshire.

13. The southern development area is principally located on the Netherwood Farm landholding, including parts of Burnfoot Farm and Linburn Farm, approximately 1.4 km (at its closest point) to the north of Muirkirk in East Ayrshire. The southern development area extends to approximately 204 ha and comprises rough grassland principally used for silage and grazing cattle and sheep, with woodland fringes.

14. The two development areas are connected by the public road corridor of the B743.

Site Selection

15. The HEC-WE project was initially proposed as it presented a significant opportunity to build on the positive outcomes of the Hagshaw Development Framework at scale, extending the benefits from the Hagshaw Energy Cluster west to Muirkirk and north to Sandford and Upper Avondale, with the local communities and surrounding environment, namely the Muirkirk and North Lowther Uplands SPA and SSSI, standing to receive significant investment from the project.

16. The site was selected and is considered an appropriate and viable location for a renewable energy project due to:

    - Being within an established wind farm landscape, where there is an opportunity to progress a coordinated layout, phasing, access, grid connection and landscape strategy.
    - Ability to re-use existing access tracks.
    - In close proximity to a viable grid connection point.
    - Good average wind speeds and generation capacity, evidenced by the surrounding operational sites.
    - Opportunity to positively contribute to regional and national renewable energy and carbon reduction targets.
    - Opportunity to provide significant social and economic investment to several communities within South Lanarkshire Council (SLC) and East Ayrshire Council (EAC).

17. The HEC-WE project also presented a significant opportunity for private investment in nature to support recovery of the adjacent SPA and SSSI.

Design Process

18. As part of the EIA process design iterations were prepared and considered for the turbine locations, solar panels, energy storage facilities and on-site infrastructure, including access tracks, construction compounds and substation locations. The following principles were adopted during the design iterations made by the Applicant to ensure that the final design of the Proposed Development was the most suitable for the site:

    - the Proposed Development should avoid inconsistent turbine spacing, such as relatively large gaps, outliers or excessive overlapping turbines to minimise visual confusion and ensure a balanced / compact array from key views;
    - took account of the positioning of existing and in planning wind energy developments in the local area from key views;
    - Create a layout that fits the existing pattern of development in the surrounding landscape context;
    - minimise impacts on the existing forestry resource and operations within the site;
    - minimise impacts on the setting of Dungavel Hill Cairn Scheduled Monuments;
    - maintain intervisibility between Dungavel Hill Cairn, Cairn Table , Blacksidend cairn and Glen Garr cairn Scheduled Monument;
    - Avoid of areas of deep peat wherever possible; and
    - other environmental constraints and associated buffers are to be respected.

Alternatives

19. The Applicant has considered a large number of alternative layouts for the Proposed Development which are detailed in **Chapter 2** of the EIA Report.

20. The Proposed Development layouts have taken account of identified technical and environmental constraints based on desk-based study and walkover survey work, as well as preliminary wind yield analysis and the opinions of statutory and other interested stakeholders on the proposals being put forward through a formal Scoping process with Scottish Government as well as direct consultation.

21. The most notable layout change made throughout the EIA process was the decision to remove any proposed infrastructure from within the SPA and SSSI, in direct response to comments received by NatureScot and the Royal Society for the Protection of Birds (RSPB) on their concerns around development within the SPA and SSSI. The decision was subsequently taken by the Applicant to split the project into two separate phases which was the subject of a Scoping Update Report to the Scottish Government in February 2024.

22. This application forms Phase 1 and comprises wind turbines within the northern development area and solar panels and long duration BESS within the southern development area, which all now lies outwith the SPA and SSSI (**Figure 2**). Short duration BESS and substation options are provided in each development area as explained below.

The Proposed Development

23. The Proposed Development is planned to comprise approximately 415 megawatts (MW) of renewable energy generation and energy storage output capacity, including:

    - approximately 130 MW wind energy,
    - approximately 60 MW solar energy,
    - approximately 25 MW short duration BESS, and
    - approximately 200 MW long duration BESS.

24. As shown on **Figure 2**, the proposed wind turbines will be sited in the northern development area, and the proposed solar panels and long duration BESS will be sited in the southern development area. Short duration BESS options are provided in each area as explained below.

Wind

25. The Proposed Development comprises up to 18 wind turbines as well as associated infrastructure, located within the northern development area (as shown on **Figure 3**). Seventeen turbines will to be up to 230 m maximum blade tip height and one turbine (T06) up to 200 m maximum blade tip height. Each turbine will have a generating capacity of up to c.7.2 MW and a rotor diameter up to 163 m.

26. A number of ancillary development components are also proposed, including: four construction compounds and turbine laydown area; hardstandings adjacent to the wind turbines for construction, maintenance and decommissioning cranes; access tracks; underground cables between turbines; maintenance building with welfare facility; and three borrow pit search areas.

27. As the turbine structures are over 150 m high, there is a statutory requirement to install visible aviation lighting on the turbines, as such it is proposed that 8 of the turbines will be installed with aviation lighting.

Development Components:
18 wind turbines
Solar photovoltaic panels
Short duration BESS
Long duration BESS

Operational Lifespan:
40 years

Generation/Storage Capacity:
Wind c.126 MW*
Solar c.60 MW
Short duration BESS c.25MW
Long duration BESS c.200MW
Or around 415MW in total

Community Benefit:
£668k per year or £27.6 million in total*
**based on 18 x 7.2MW of wind energy being installed*

Energy Generated:
Provide electricity to power over 200,000 households**
***based on 18 x 7.2MW of wind energy and 60MW of solar being installed*

Energy Storage:
Provide electricity storage to power over 560,000 households for up to 12 hours***
****based on 200MW of long duration electricity storage*

Solar

28. The proposed solar development is located on south facing slopes of the southern development area (as shown on **Figure 4**). The solar photovoltaic modules will stand approximately 0.6 - 0.8 m Above Ground Level (AGL) at their minimum point and will be angled and arranged in rows, the maximum height of the modules will be up to 3 m AGL.

29. Inverter stations and field transformer units will be installed on site in order to convert the Direct Current (DC) produced by the solar modules, into an Alternating Current (AC) which is compatible with the electricity supply network.

30. Security fencing and CCTV units will be established around the edge of the solar array areas to prevent unauthorised access. The fencing will stand up to 2.5 m AGL and is proposed to comprise standard deer-proof stock mesh interspersed with wooden fenceposts.

Energy Storage

Short Duration BESS

31. It is proposed that approximately 25 MW of short duration BESS (up to 4 hours discharge duration) is located adjacent to the Proposed Development substation, which currently has two options presented – one in the southern development area (currently contracted location) and one in the northern development area (alternative location) (**Figures 3** and **4**).

32. The short-duration BESS compound shall be approximately 100 m by 50 m surrounded by a security fence up to 3 m in height. The compound will include containerised battery units, inverter units, a containerised electrical switch room, a welfare unit, a storage unit, water storage tank(s), access tracks and car parking. The indicative height of the battery units themselves will be approximately 3 m and it is currently proposed that the short duration BESS facility would utilise conventional lithium-ion battery technology. However, technology continues to develop in the field of energy storage, therefore confirmation of the final design details would be provided nearer to the commencement of construction, proposed to be secured by an appropriately worded planning condition. The design would conform with relevant safety standards and requirements for the selected technology.

Long Duration BESS

33. The long-duration BESS (minimum of 8 hours discharge duration and up to approximately 12 hours discharge duration) has been designed to service the long duration electricity storage market and will have the capability to draw power from the Proposed Development or the National Grid to be stored for re-use when the National Grid requires it. It will be located within the southern development area as shown on **Figure 4**.

34. It is currently proposed to use flow batteries as opposed to conventional lithium-ion technology. Unlike lithium-ion batteries, flow batteries use a water based, non-flammable electrolyte, significantly reducing fire risk and allowing safe deployment at greater densities. Long duration BESS technologies like these provide much greater capacity and longer discharge durations than traditional short duration (lithium-ion) BESS schemes and, therefore, provide a different power balancing service to the National Grid.

35. For the purposes of the EIA, a maximum design envelope for both the density of long-duration BESS units in plan, and the height of long-duration BESS units in elevation, has been assumed. The Proposed Development layout assumes a maximum layout density of units at a maximum height of up to 9 m. Similar to the short duration BESS, the long-duration BESS compound shall be surrounded by a security fence up to 3 m in height.

Access to Site

36. Access to the two development areas is proposed to be taken from two existing and one new entrance off the B743, the three Access Points are shown on **Figure 2**.

37. All abnormal loads (large turbine components) would be manufactured off-site and transferred to the site for assembly from the proposed Port of Entry (PoE) at King George V (KGV) Docks in Glasgow. There are two abnormal loads routes for to the site presently being considered for the Proposed Development (see **Figure 5**):

    - Route Option 1 - is to be taken from Junction 11 (Poniel) of the M74, through the existing Hagshaw Energy Cluster to join the A70 east of Muirkirk. Vehicles would then follow the A70 west through Muirkirk, then turning right (north) just west of Smallburn using the site entrance to the former Burnfoot Moor Opencast Coal Site and following the existing tracks through and along the edge of forestry land, to join the B743 and continuing north entering the site at Access Point A.
    - Route Option 2 - would be to leave the M74 trunk road at Junction 8 (Canderside Toll) and travel west along the A71, travelling through the settlement of Stonehouse, leading to Strathaven. Vehicles would then turn left (south-west) onto the B743 for approximately 13.5 km where they would turn left (east) into the site at Access Point A.

38. Component deliveries for the southern development area will use the existing public road network to access the site and will come directly off the B743 at an amended entrance (Access Point C) to Linburn Farm to access the solar, BESS and substation development areas.

39. A transport assessment (Volume 1, **Chapter 11** of the EIAR) has been undertaken in support of the application for the Proposed Development and this provides greater detail on access routes to the site and provides an estimate of vehicle trip generation during construction. The transport assessment includes a review of the proposed abnormal load routes, and construction traffic impacts.

Grid

40. The Proposed Development has secured a grid connection date of July 2028 via the proposed new Redshaw Transmission Substation to the south-east of the site to allow the electricity produced to be exported to the wider electricity network. The electrical power produced by the Proposed Development will be fed to an on-site substation and BESS compounds via underground cables. The substation and control room buildings will accommodate all the equipment necessary for automatic remote control and monitoring of the Proposed Development, in addition to the electrical switchgear, fault protection and metering equipment required to connect the Proposed Development to the electricity network. The design of the substation buildings/compounds and BESS on site is flexible and detailed design will be provided nearer to construction.

41. As noted above, the Proposed Development short duration BESS and substation compounds are currently proposed to be located in the southern development area next to the currently contracted grid connection point for the project to the west of Linburn Farm (refer to **Figure 3**). However, an alternative grid connection point for the project has also been considered within the northern development area in Dungavel Forest (refer to **Figure 2**). The final decision on location of the Proposed Development substation and associated short duration BESS compound is subject to ongoing discussions with grid network operator to determine the optimum grid connection solution for the project. Therefore, for the purposes of fully assessing potential environmental effects that may arise from the Proposed Development, both locations have been assessed within the EIA.

Habitat Management & Enhancement Plan

42. Significant biodiversity enhancements are proposed as set out in an Outline Habitat Management and Enhancement Plan (OHMEP) which includes c.56 ha of peatland restoration, c.147 ha of habitat management for wading birds, and a long-term commitment to funding habitat management and enhancement within the adjoining Muirkirk and North Lowther Uplands SPA and SSSI. This project will be delivered across an area of c.592 ha in the SPA and SSSI to improve habitat and foraging conditions for hen harrier (and other SPA qualifying species), with the target of reversing the decline in numbers within this part of the SPA. The OHMEP represents a substantial financial commitment from the Proposed Development to fund nature conservation over a 40 year period which will deliver significant biodiversity enhancements and local job creation.

Construction Programme

43. Normal construction hours will be between 07:00 and 19:00 Monday to Friday and 07:00 to 13:00 on a Saturday, no construction will take place on a Sunday. These times have been chosen to minimise disturbance to local residents. It must, however, be noted that during the turbine erection phase, operations may proceed round the clock to ensure that lifting processes are completed safely. A fully detailed construction programme will be provided in a Construction Environmental Management Plan (CEMP) prior to the commencement of construction.

44. The on-site construction period for the Proposed Development is expected to be approximately 24 months as shown in **Table 1**.

45. The operational lifespan of the Proposed Development would be 40 years, after which it would be appropriately decommissioned. It is expected that decommissioning would take approximately twelve months. If, after the operational lifespan of the Proposed Development has expired there is potential for re-powering the development, this would be subject to a new and separate application.

Table 1 – Indicative Construction Programme

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Mobilisation												
Tree Felling												
On-site access tracks												
Turbine foundations												
	13	14	15	16	17	18	19	20	21	22	23	24
Turbine foundations												
Substation and BESS civils works and installation												
On-site cabling												
Crane Hardstanding												
Turbine Delivery												
Turbine Erection												
Constructing Solar Mounting Frames												
Erecting Solar Modules & Central Inverters												
Commissioning and Testing												
Site Reinstatement												

Community Benefit Contribution

46. During the operational period of the Proposed Development, the Applicant proposes to make community benefit contributions of £5,000 / MW of installed wind energy capacity, plus an additional £20,000 per year for the long duration BESS, meaning that the project would generate up to £668,000 in Community Benefit contributions to local communities annually, amounting to approximately £27.6 million over its lifetime.

47. The Proposed Development represents a significant investment in the region and the Applicant has committed to taking a number of steps to ensure that benefits from the Proposed Development are maximised locally. The Applicant is committed to a local supplier approach that will endeavour to source supplier contracts locally wherever possible, sustaining local businesses and providing employment opportunities for local people.

Consultation

Statutory Consultation

48. A formal EIA Scoping Opinion was requested from the Scottish Ministers in September 2022 through the submission of an EIA Scoping Report. The EIA Scoping Report contained details of the site baseline, the Proposed Development, proposed environmental impacts to be assessed in the EIA, and the assessment methodologies that would be used. The Scottish Ministers consulted with a variety of statutory and non-statutory consultees before providing an EIA Scoping Opinion on the March 2023.

49. In response to the comments raised within the EIA Scoping Opinion from NatureScot and the RPSB, a number of changes to the Proposed Development were made, including a reduction in the spatial area and scale of the Proposed Development, namely to remove development from within the Muirkirk and North Lowther Uplands Special Protection Area (SPA) and the Muirkirk Uplands Special Site of Scientific Interest (SSSI). Therefore, and in consultation with the ECU a Scoping Update was submitted to the Scottish Ministers in February 2024 to provide consultees with information on these changes. The Scottish Ministers provided a Scoping Opinion to this update in May 2024. Information from the EIA Scoping Opinion and EIA Scoping Update Opinion informed the preparation of the Proposed Development's EIA Report.

50. Direct consultation has also been undertaken with specific statutory consultees, to confirm and agree the detailed approach to the technical surveys and assessments on a topic by topic basis.

51. Further information on the consultation process is given in Volume 1, Chapter 4 of the Proposed Development EIA Report. A summary of how the Scoping responses were addressed in the final submission is presented in the EIA Gatecheck Report.

Public Consultation

52. A programme of pre-application community engagement for the Proposed Development has been undertaken by the Applicant which has included various meetings, correspondence, and telephone discussions with local community groups, neighbours and elected representatives, alongside leaflet drops to local properties and three in-person public consultation events which were advertised in the local papers, on posters and on the Proposed Development's website.

53. The **Pre-Application Consultation Report** which accompanies the application details the findings of that work and illustrates the ways in which community engagement has helped identify potential issues arising from the emerging development proposal and, where appropriate, shape the final proposal which is now the subject of this application.

54. The pre-application consultation has helped identify the issues that are important to the local community and, where appropriate, shape the final proposal which is now the subject of this application. The Applicant confirms that the company will continue to liaise with the local community during the S.36 application process and during the construction, operational and decommissioning phases of the Proposed Development.

Environmental Impact Assessment (EIA)

55. Volume 1, **Chapter 4** of the EIA Report describes the EIA process in more detail.

56. Eleven different environmental assessments were undertaken as part of the EIA based on the description of the Proposed Development, as detailed above and in Volume 1, **Chapter 3** of the EIA Report. Each technical assessment was undertaken by a competent expert with relevant specialist skills, to evaluate the potential of likely significant effects resulting from the Proposed Development. The assessments draw upon specific site surveys, desk-based research, best practice, professional experience depending on the topic area to understand the baseline environmental conditions at the site and the magnitude of any potential impacts.

57. The following sections detail the various technical assessments contained within the EIA Report and summarises the potential effects of the Proposed Development during construction, operation and decommissioning.

58. The potential effects on the local and national economy, local tourism businesses, and recreational facilities is provided within a sperate stand-alone report that accompanies the application, please refer to the **Economic and Community Impact Report**.

Landscape And Visual

59. The full assessment of the effects on landscape and visuals receptors is provided in Volume 1, **Chapter 5** of the Proposed Development EIA Report with visulisations presented in Volume 3.

60. The landscape and visual assessment considers the likely effects that would occur during construction, the operational life-time of the project (40 years) and the decommissioning phase. It also considers the residual effects and the cumulative effects that would occur when other consented and 'in-planning' wind farms are considered to form part of the baseline landscape.

61. Embedded mitigation has been built into the design of the layout of the proposed turbines in the northern development area and the proposed visible aviation lighting scheme. A comprehensive landscape strategy (see Figure 5.26) incorporating new native planting and biodiversity enhancement has been embedded into the design of the southern development area.

62. The Proposed Development is not located in or near to an international or national landscape designation. The East Ayrshire Uplands and Moorlands Local Landscape Area (LLA) borders the south-eastern edge of the northern development area and the northern edge of the southern development area. However, none of the proposed infrastructure would be located within the LLA. During operation, the LLA would experience some localised significant effects but would not prevent an understanding or appreciation of the underlying landscape of the LLA or its key characteristics.

63. In terms of effects on landscape character, during construction, operation and decommissioning the Proposed Development would result in localised significant effects within the site or its immediate vicinity and as such would be localised.

64. In terms of effects on visual amenity, during construction and decommissioning there would be a temporary significant effect from Cairn Table, the B743 in the vicinity of the southern development area and from the minor road passing through the southern development area. During operation, significant visual effects would be experienced during daylight hours from Drumclog, Cairn Table and Loudoun Hill but no significant visual effects would be experienced at any of the representative viewpoints during the hours of darkness.

65. In terms of effects from residential properties within 2 km of the proposed turbines in the northern development area, some would experience a significant visual effect but none would experience an overbearing or overwhelming effect. From residential properties within the vicinity of the southern development area, significant visual effects would be experienced from some of the properties.

66. Significant visual effects would be experienced from the settlements of Drumclog and Gilmourton during daylight hours only. Significant visual effects would also be experienced from core paths that cross the northern development and southern development areas and from several core paths near Drumclog to the north-west of the northern development area and from parts of core paths to the south-east of Muirkirk that leading towards Cairn Table. No significant effects would be experienced from the River Ayr Way long distance walking route that passes through the southern part of the study area. Significant visual effects would be experienced from a section of the B745 to the south of Drumclog, from a limited section of the B743 which passes the along the edge of the northern and southern development areas. In all cases, no visual receptors would experience a significant visual effect during the hours of darkness.

67. In relation to cumulative effects, the existing operational wind farms within the vicinity of the northern development area have already had a characterising effect on the local landscape character redefining its character as 'Rolling Moorland Forestry with Wind Farms'. The Proposed Development would fit with this established pattern of wind energy development and would consolidate the existing effects on landscape character that have already been brought about by these other schemes and would not extend these effects beyond the extent already introduced by the other schemes. The location of the Proposed Development within this established wind cluster would mean that it would not introduce a significant visual effect and nor result in wind turbines being dominant or oppressive in views experienced within the surrounding area.

68. Localised significant effects on landscape character and visual amenity are inevitable as a result of commercial wind energy development anywhere in the UK. Whilst the LVIA identified some significant landscape and visual effects it is considered that the landscape has the capacity to accommodate the effects identified, particularly when the consented but as yet unbuilt wind farms in the surrounding landscape are taken into account in the baseline.

Ornithology

69. The full assessment of the effects on birds is provided in Volume 1, **Chapter 6** of the Proposed Development EIA Report.

70. In line with the current guidance from NatureScot, a suite of ornithological bird surveys were conducted within 2 km of the site between April 2021 and March 2024. Six raptor and owl species of higher conservation value were registered during the full three years of surveys, namely goshawk, hen harrier, merlin, osprey, peregrine and red kite. Three raptor species of low conservation value (buzzard, kestrel and sparrowhawk) were also registered. A total of six species of waders were recorded breeding during walkover surveys (common sandpiper, curlew, golden plover, oystercatcher, lapwing and snipe). No black grouse leks were recorded.


Source: BTO

71. Ornithological features taken forward to assessment included the Muirkirk Uplands SSSI breeding bird assemblage (including curlew and snipe), the Dungavel Wind Farm Habitat Management Plan Areas (DHMPA) hen harrier mitigation, and waders (including breeding lapwing and oystercatcher). Collision risk modelling was undertaken for six species (curlew, golden plover, goshawk, osprey, peregrine and red kite). The resultant collision values were very low, with the annual risk values predicted to be 0.04 or less for all six species.

72. With standard mitigation measures in place, all predicted effects are considered to be minor adverse or negligible and therefore not significant, with exception the of displacement/disturbance of the committed DHMPA for hen harrier during operation which was assessed as moderate adverse.

73. The Applicant has committed to additional mitigation and enhancement measures to further reduce adverse effects and introduce improvements. Measures include the implementation of an extensive Habitat Management and Enhancement Plan (HMEP) which will improve current and create new foraging and breeding habitats for ornithological features on the site, in particular aimed at hen harrier and breeding waders. The HMEP will lead to improved habitats for a broad range of other species including merlin and short-eared owl.

74. Residual effects, which take account of additional mitigation and enhancement measures, are predicted to largely remain the same as predicted effects, bar for Muirkirk Uplands SSSI: breeding bird assemblage, and breeding waders for which residual effects are predicted to be minor beneficial and Dungavel Wind Farm HMPA (hen harrier) for which residual effects are predicted to be minor-moderate beneficial.

75. Given the potential for likely significant effects on the Muirkirk and North Lowther Uplands SPA due to proximity to the site, a (shadow) Habitat Regulations Appraisal Appropriate Assessment has been undertaken which concluded no adverse effects on the integrity of the SPA as a result of the Proposed Development.

Ecology

76. The full assessment of the effects on flora and fauna at the site is provided in Volume 1, **Chapter 7** of the Proposed Development EIA Report.

77. The assessment was based on best practice guidance, and its scope determined through a combination of desk study, field surveys (from 2021 through to 2024), and consultation with relevant organisations. Potential impacts of the Proposed Development are largely related to the construction and decommissioning phases, with a small number of potential impacts expected during operation.

78. It is anticipated that there will be no direct or indirect effects of habitats within Muirkirk Uplands Site of Special Scientific Interest (SSSI) from any works associated with the Proposed Development, subject to standard best practice mitigation measures being put in place. Habitat enhancement works are considered to result in a minor/moderate beneficial effect on the SSSI habitats over the longer-term as a result of the Proposed Development.

79. There will be direct habitat loss within the Proposed Development site under proposed infrastructure as well as some temporary loss of habitat under temporary access tracks and compounds. The overall losses of habitats were found to be relatively small in the context of the overall available resource, and mitigation and enhancement commitments include the restoration of approximately 56 hectares (ha) of peatland habitats and the management of c. 592 ha of habitat for raptor species and c.147 ha of habitat for wader species. The impacts to habitats was as a minor/moderate beneficial effect overall.

80. There is potential for disturbance and or habitat loss to protected fauna species (otter, bats and fish) during the construction phase, the assessment found that with suitable mitigation measures in place the effects would be negligible. Great crested newt, water vole, and pine marten are considered likely to be absent and therefore no effects to these species are anticipated. Impacts to badger, common amphibians, reptiles and priority mammal species are considered to be avoided by the embedded mitigation measures, and there would be no significant effect.

81. Embedded mitigation relevant to identified ecological receptors include the iterative design process (which sought to minimise impacts on sensitive habitats), and the development and implementation of a site-specific Construction Environmental Management Plan (CEMP). Furthermore, a suitably experienced Ecological Clerk of Work (ECoW) would be appointed to undertake pre-construction surveys for protected species and oversee construction works to minimise any potential effects on nature conservation interests.

82. Potential operational impacts are related to foraging and commuting bats. Due to the way different species of bat fly, some species are considered to be at higher risk of collision with wind turbines than others. The NatureScot Collision Risk Tool determined that the overall collision risk level for each species at the Proposed Development was low however due to the number of wind farms in the area it is

considered that there is a cumulative moderate adverse effect. Additional monitoring prior to construction to inform a Bat Protection Plan. Implementation of the Bat Protection Plan will reduce the cumulative effect to foraging and commuting bats to a minor effect**.**

Geology, Peat, Hydrology and Hydrogeology

83. The full assessment of the effects on the local ground and water environment is provided in Volume 1, **Chapter 8** of the Proposed Development EIA Report. A combination of desk study and field survey work was undertaken to identify and characterise the geological, hydrological and hydrogeological receptors which could be subject to impacts from construction, operation and decommissioning of the Proposed Development.

84. The site is located within the catchments of the Glengavel Water and the Greenock Water and lies above largely sedimentary rock formations. Superficial deposits comprise largely peat and till, which are typically lower permeability, with alluvium and glaciofluvial deposits present along watercourses.

85. Detailed peat depth surveys found extensive deposits of peat within the eastern extent of the northern development area, which have, where possible, been avoided through design iterations. There are limited peat deposits present in the southern development area. The peat depth probing found an average depth across the site of 0.7 m, with 77.4% of probe depths <1.0 m, which is not classified as deep peat. A Peat Landslide and Hazard Risk Assessment (PLHRA) has identified that there is negligible to low likelihood of a peat landslide at the proposed turbine locations and associated infrastructure.

86. Potential construction and operational effects include changes to surface water quality and flow, designated sites and Private Water Supplies (PWS). A PWS risk assessment was undertaken of local private supplies which found the to be no significant effects in all but one property which was reduced to minor following the implementation of mitigation measures. Outline drainage design provisions and water crossing designs have been developed to ensure appropriate control of run-off, and continuous greenfield flows. Detailed designs will be agreed with SEPA and the local authority in advance of construction.

87. Proposed mitigation measures to avoid or reduce potential impacts, include developing and implementing a Construction Environmental Management Plan (CEMP) and a programme of water quality monitoring prior to the commencement of construction activities, as well as and implementing a Peat Management Plan and a Habitat Management Plan to restore peatland habitat. These mitigation measures are considered to be robust and implementable and will reduce the potential impacts on peat, watercourses and groundwater.

88. Following implementation of committed mitigation measures, the significance of residual effects on geology, surface water and groundwater is considered to be not significant. No cumulative effects are predicted.

Noise

89. The full assessment of the potential noise effects from the Proposed Development on local receptors is provided in Volume 1, **Chapter 9** of the Proposed Development EIA Report.

90. The levels of noise and vibration likely to occur at local residential properties as a result of the operation of the Proposed Development have been assessed in respect of the Proposed Development in isolation, and cumulatively with other local wind farm developments. Noise effects associated with construction and decommissioning were not assessed on the basis that they are unlikely to be significant and will be controlled by implementation of Best Practicable Means. A Construction Environmental Management Plan (CEMP) will also be produced detailing methods by which construction noise will be controlled.

91. The operational assessment has been undertaken in accordance with appropriate guidance and following the current best practice methods. Baseline noise surveys to establish the pre-existing sound levels at selected local properties, particularly in the northern development area, were not possible owing to the large number of existing operational wind turbines in the area.

92. The noise assessment for the wind component of the Proposed Development was conducted on the basis that the noise limits in the planning conditions for neighbouring and recently consented wind farm sites will be appropriate to the Proposed Development, as agreed with South Lanarkshire's Health Department. For other non-turbine fixed plant, such as batteries, inverters and transformers, noise was modelled using noise prediction software.

93. The assessment has shown that the Proposed Development will meet all the conditions regarding noise contained within the recent consents for wind energy development on adjacent sites, and it is concluded that there will be no significant effects on nearby residential properties in terms of noise immission from either the wind component or non-turbine fixed plant subject to site specific mitigation being put in place during operation.

Cultural Heritage

94. The full assessment of the effects on cultural heritage is provided in Volume 1, **Chapter 10** of the Proposed Development EIA Report.

95. The baseline assessment identified one designated heritage asset, the Dungavel Hill, cairn, a Scheduled Monument, and a further 43 non-designated heritage assets within the site boundary. In the absence of any mitigation, there is potential for construction works to result in direct impacts upon five non-designated heritage assets. More generally, there is a low to moderate potential for encountering hitherto unrecorded, buried archaeological remains within the site. With mitigation these are reduced to negligible effects.

96. Assessment of the operational impacts of the Proposed Development on the settings of heritage assets has resulted in the identification of one effect of moderate significance on the setting of the Dungavel Hill cairn Scheduled Monument. All other effects on the settings of heritage assets within the wider study area are assessed as being of no greater than minor significance (not significant in EIA terms). All cumulative effects with other wind developments are assessed as minor with the exception of Dungavel Hill, cairn which is found to be moderate). While a significant effect is anticipated at Dungavel Hill, cairn it would remain possible to experience, appreciate, and understand the cultural significance of the cairn, and it is therefore considered that the key setting aspects of the Dungavel Hill Cairn would be adequately retained such that the integrity of the setting would not be significantly compromised.

97. Additional mitigation measures have been recommended to supplement the embedded mitigation already apparent in the design and layout of the Proposed Development. The requirement for archaeological mitigation measures to avoid, reduce, and offset the effects of the Proposed Development would be at the discretion of the West of Scotland Archaeology Service (WoSAS) acting on behalf of the local authority and may include a Written Scheme of Investigation.

Traffic And Transport

98. The full assessment of the effects on traffic and transport is provided in Volume 1, **Chapter 11** of the Proposed Development EIA Report.

99. The Proposed Development has the potential to affect the surrounding local road network during its construction and operation from traffic travelling to and from the site delivering materials and plant. Due to the nature of the operation of the Proposed Development, the majority of vehicular activity is during the construction phase with minimal traffic during the operational phase.

100. A review of the two proposed route options for abnormal load deliveries, which include turbine component delivery, was completed to minimise potential effects on the surrounding road network and establish that potential pinch points can be overcome.

101. The transport assessment found that there was the potential for a significant increase in traffic on the local road network during construction which would require mitigation. It is important to note that this

represents a worst-case scenario and the impacts assessed would not occur in reality as the total traffic distribution between all links could not exceed 100%as it does in the assessment. It is also noted that the assessment has been based on the robust assumption that 70% of stone requirements will be imported to the site. In practice, a much higher percentage of stone is expected to be sourced on site as initial investigations have indicated that the identified borrow pits on site will provide the majority of the required stone quantity.

102. Mitigation will be provided in the form of a Construction Traffic Management Plan (CTMP) which sets out proposed details for staff travel, heavy goods vehicle routing and guidelines for deliveries to further reduce potential effects on the surrounding network during the construction period.

103. No significant residual effects from construction traffic are predicted to arise either as a result of the Proposed Development in isolation or cumulatively when other developments are considered following implementation of the CTMP.

Aviation and Radar

104. The full assessment of the effects on existing and planned military and civil aviation activities and infrastructure is provided in Volume 1, **Chapter 12** of the Proposed Development EIA Report.

105. An initial scoping study relating to aviation and radar identified those stakeholders potentially affected by the Proposed Development. The scoping process considered all military and civil aerodromes in the wider area out to circa 60 km, all radar installations out to the limit of their range, all navigational aids, air-ground-air communications stations and low flying activities.

106. The scoping process identified full or partial visibility to civil radars operated by NATS, Glasgow Airport and Glasgow Prestwick Airport. Because the airports and NATS provide radar based air traffic control services in the area of the Proposed Development turbines, any primary radar impacts will need to be mitigated. There is a common radar solution that can be applied in all cases called blanking and infill. Just for the airspace over the Proposed Development turbines, the affected radar or radars can be blanked, removing all radar returns. The subsequent hole in coverage is then filled using data from an unaffected radar

107. Mitigation is also required to revise instrument flight procedures at Glasgow Airport and Glasgow Prestwick Airport. The Applicant is engaged with the airports to identify revised procedures that are acceptable to the airports. This is an ongoing process.

108. Because the turbines are over 150 m tall, aviation lighting is required as a form of standard mitigation to address low flying risks. In this case a reduced lighting scheme will be used, with eight of the turbines installed with combined visible spectrum and infra-red lights, with the capacity for the visible spectrum lights to be dimmed to 10% of maximum intensity under conditions of good visibility.

109. The Applicant will continue to work with aviation stakeholders to fully determine impacts and agree mitigation as appropriate. It is anticipated that on the implementation of mitigation measures, there will be no significant residual effects on aviation infrastructure as a result of the construction, operation and decommissioning of the Proposed Development.

Forestry

110. The full assessment of the effects on forestry resources is provided in Volume 1, **Chapter 13** of the Proposed Development EIA Report.

111. The northern development area is situated within Dungavel, a commercial forest originally planted between 1979 and 1986, where the Proposed Development seeks to instal 18 wind turbines and associated infrastructure. The forest is primarily managed for timber production, while also supporting biodiversity conservation. Timber production contributes to the regional economy, while ongoing

restructuring efforts aim to enhance biodiversity and improve the appearance of the forest. The scale of the conifer plantation and the introduction of the Proposed Development infrastructure require adjustments to existing management strategies.

112. The northern development area includes a forestry felling area of 363.5 ha, of this, 301.9 ha will be restocked which leaves a tree-free area of 61.4 ha associated with the Proposed Development infrastructure. Of the 61.4 ha required to be felled but not replanted, 17.9 ha has been identified as open ground in the baseline forest plan, giving rise to a compensatory planting requirement of 43.5 ha, to be delivered offsite and secured via a suspensive Compensatory Planting Condition.

113. In the northern development area, a proportion of timber harvesting will take place before the main construction phase, with extracted timber transported via the existing forest road to the B743 and onward to market. A Forest Residue Management Plan has been developed to quantify brash and stump volumes and outline their intended use.

114. The southern development area consists primarily of farmland with small rectangular shelterbelts providing a framework around field margins. No existing management strategies exist for the woodland within this area. The southern development area requires 0.52 ha of permanent woodland removal, which will be compensated offsite.

115. The proposed Habitat Management and Enhancement Plan includes for approximately 56.6 ha of peatland restoration. As part of this, 31.1 ha of non-economic woodland will be removed to restore the bog. This removal does not require compensation, as it aligns with the Scottish Government's 2019 Policy on the Control of Woodland Removal, which prioritises public benefit.

116. The Proposed Development aligns well with the baseline forest plan and is expected to have a minor positive impact on the social, economic, and environmental benefits provided by the woodland. This is primarily due to peatland restoration and compensatory planting, which effectively balance the early increased felling area compared to the existing management plan.

Shadow Flicker

117. The full assessment on the effects of shadow flicker is provided in Volume 1, **Chapter 14** of the Proposed Development EIA Report.

118. This assessment considers whether the effect known as 'shadow flicker' is likely to be caused by the Proposed Development and assesses the potential for impact on sensitive receptors. Shadow flicker is the effect of the sun passing behind the moving rotors of the turbines, casting a flickering shadow through the windows and doors of neighbouring properties. This occurs in certain combinations of geographical position, time of day, time of year and specific weather conditions.

119. Within the study area for shadow flicker there are 24 identified receptors with potential to experience flicker effects. Both the realistic and cumulative calculations have shown that there are no expected significant effects from shadow flicker at all receptors.

120. Nonetheless, the Applicant is committed to providing a Shadow Flicker Mitigation Protocol to be engaged should any founded concerns in relation to shadow flicker effects from the turbines be raised by neighbouring properties during the operational period.

Glint And Glare

121. The full assessment on the effects of glint and glare from the solar element of the Proposed Development is provided in Volume 1, **Chapter 15** of the EIA Report. The assessment evaluates the exposure of potential receptors, including roads and residential dwellings, to glint and glare based on the geometry of the solar arrays, receptors, and surrounding obstacles that are input to the modelling software.

122. The assessment identifies three primary routes, A70, B743 and Greenock Water local road (U731), as well as fixed receptors (residential properties) potentially impacted by G&G. There are no aviation receptors in the study area, with the closest being Strathaven Airfield, located more than 15 km north of the Proposed Development.

123. The Landscape Strategy Plan for the Proposed Development proposes planting native scrub and trees, some elements of which have been included specifically to reduce potential glint and glare impacts. This includes hedgerow planting and temporary shade netting if required, to provide immediate screening while the hedgerows become fully established.

124. The results of the modelling software show that U731 Greenock Water local road may theoretically experience 'yellow' magnitude glare from some of the solar pnaels, but this is unlikely to affect many users due to the road's low traffic volume. Additionally, the Proposed Development Landscape Strategy Plan includes landscape planting which will provide screening and will significantly reduce glint and glare affecting the U731 road. The B743 is shown to predominantly experience 'green' glare (posing minimal risk), but some short sections of the road are predicted to theoretically experience 'yellow' glare during summer evenings. The model however does not take account of intervening topography or vegetation which will provide some screening and will substantially reduce any actual glint and glare effects on the B743. Additionally, the Landscape Strategy Plan includes for vegetation screening will further mitigate any effect. Road A70 is theoretically impacted by 'green glare', which has a minimal effect, and is likely an overestimate of effects in real-world conditions, given intervening topography and additional obstructions not included in the model, and the model's assumption of the sun shining 365 days of the year.

125. Fixed receptors, including residential dwellings, are shown to experience mixed glare intensities, but the overall impact is minimal and not significant in EIA terms, and effectively mitigated through screening measures as included in the Landscape Strategy Plan.

126. No potential for significant cumulative impacts, from other existing or proposed developments together with the Proposed Development, has been identified.

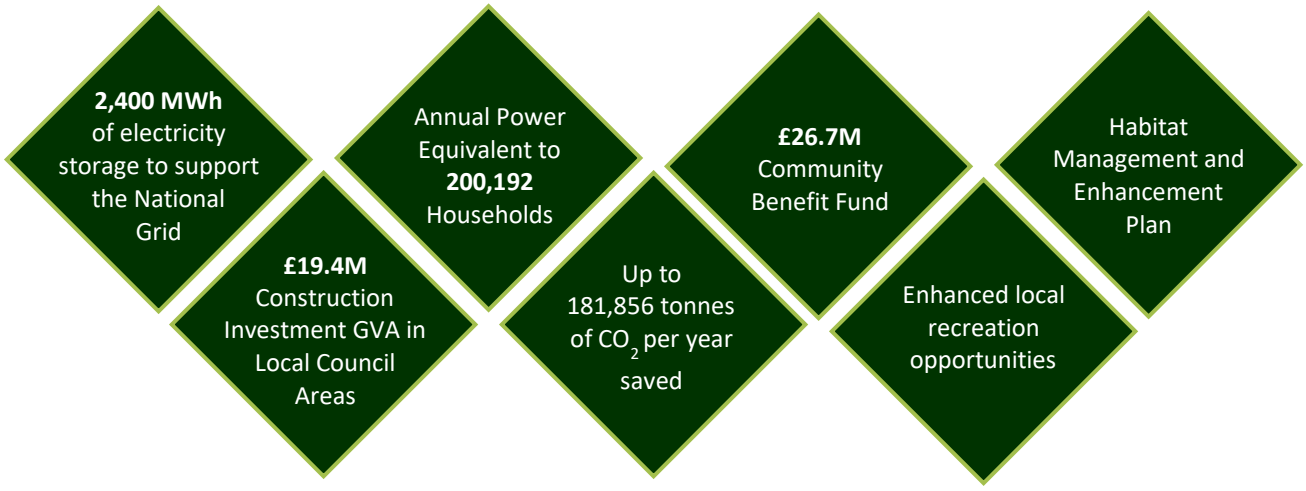
127. The overall risk of glint and glare from the Proposed Development is minimal when taking account of the embedded mitigation provided by the Landscape Strategy Plan. With the committed screening in place, the potential and residual G&G effects will be minimal and not significant in EIA terms, posing no significant risks to health or safety.

Benefits of the Proposed Development

128. The principle of development in this general location has already been established by the existing and consented wind developments immediately surrounding the northern development area. The addition of the Proposed Development will deliver the following key benefits:

- The Proposed Development would contribute to the attainment of the UK and Scottish Government policies of encouraging renewable energy developments; and in turn contribute to the achievement of UK and Scottish Government targets for both renewable electricity generation and electricity storage. The Proposed Development, with an overall capacity of approximately 415 MW, would make a valuable contribution to meeting such targets.
- The Proposed Development would have a total capacity of 415 MW, generated by eighteen c.7.2 MW turbines (130 MW), solar panels (60 MW) and energy storage facilities (225 MW). The wind and solar elements together would produce around 477 gigawatt hours (GWh)/year of clean power which would generate enough electricity to supply approximately 200,192 average Scottish households.

- Furthermore, the long duration BESS would in addition provide up to 2,400 MW hours of electricity storage to support the National Grid. That is enough electricity to power 569,201 homes for up to 12 hours, further contributing to national targets in terms of energy storage requirements to support the country's transition to a clean power grid.
- The Proposed Development is expected to save up to 181,956 tonnes of carbon dioxide per year, resulting in a total saving of over 7 million tonnes over the 40-year lifetime of the development, through displacing carbon-emitting generation.
- Based on an installed capacity of 130 MW of wind and 200 MW of long duration BESS, the Proposed Development will deliver up to £668,000 per annum in Community Benefit Funding or up to £26.7 million in total over its 40 year operational life.
- Total construction spend on the Proposed Development is estimated to generate £54.6 million Gross Value Added (GVA) in Scotland. In addition, the operational spend is estimated to generate a further £4.5 million GVA in Scotland every year over its 40-year lifetime. The Applicant is committed to a local supplier approach which aims to deliver a significant proportion of construction and operational contracts to local companies.
- The Proposed Development is part of an existing wind farm landscape, which means that the significant effects would be limited due to the existing characterising effects. The Proposed Development fits with the pattern of development. The scale of the landscape in this part of South Lanarkshire has the capacity to accommodate the modern technology – which can successfully co-exist with the underlying forestry use.
- A comprehensive suite of habitat management and enhancement proposals are being put forward within the HMEP to not only mitigate adverse effects as a result of the Proposed Development but will in addition provide significant biodiversity enhancement to local receptors through a substantial long-term commitment to funding habitat management and biodiversity enhancement in the landscape that surrounds the Proposed Development.



Conclusion

129. This Non-Technical Summary of the EIA Report provides an overview of the EIA undertaken for the Proposed Development. Within Chapter 18 of the EIAR a schedule of commitments can be found which details the environmental mitigation measures, summarised above, which the Applicant has committed to implement.

130. Volume 1, **Chapters 16** and **17** of the EIA Report summarise the potential effects, the mitigation to be implemented and the resulting residual effects. It also provides a summary of the cumulative effects of

the Proposed Development in combination with other proposed, consented and operational developments in the local area.

131. The final layout has been informed by a robust EIA and lengthy design iteration process, considering potential environmental impacts and their effects, physical constraints, and health and safety considerations. The information used to inform the design iteration process included consultation responses received, baseline data and the impact assessment undertaken.

132. Consideration has been given to a range of design issues as well as various environmental, ecological and technical requirements. Predicted environmental effects arising from the Proposed Development have been mitigated as far as possible, if not eliminated during the iterative design process.

133. The Proposed Development site is considered an appropriate and viable location for a hybrid renewable energy project due to:

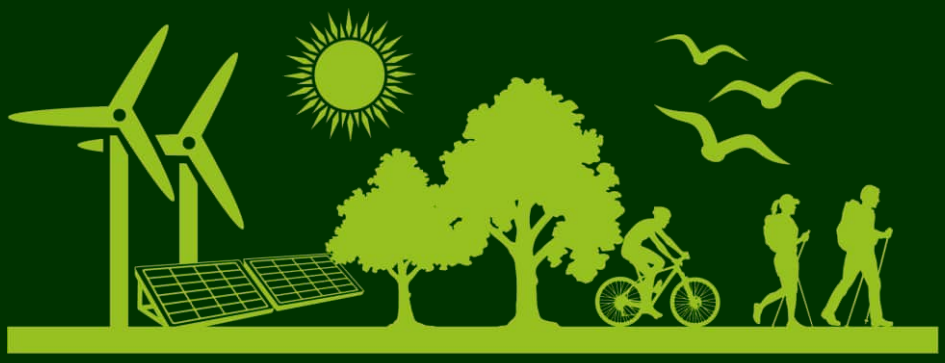
- Being within an established wind farm landscape and pattern of development;
- Close proximity to a viable grid connection point;
- Remoteness from communities;
- Good average wind speeds and generation capacity, evidenced by the surrounding operational sites;
- Positive contribution to regional and national renewable energy and carbon reduction targets; and
- Provision of social and economic benefits to the local area.

134. Overall, the Proposed Development is an appropriately designed, and sensibly located renewable energy and storage development which is in line with policies in the local and strategic development plans and conforms to national policy. The Proposed Development has been designed to maximise energy production from an existing wind farm landscape, within acceptable environmental limits. The Proposed Development will provide a valuable contribution towards the ambitious national targets for renewable energy generation and storage, provides substantial biodiversity enhancements and contributes towards sustainable economic growth locally and throughout Scotland as a whole.

Figures

SLR

3R Energy



HAGSHAW ENERGY CLUSTER

WESTERN EXPANSION

3R Energy

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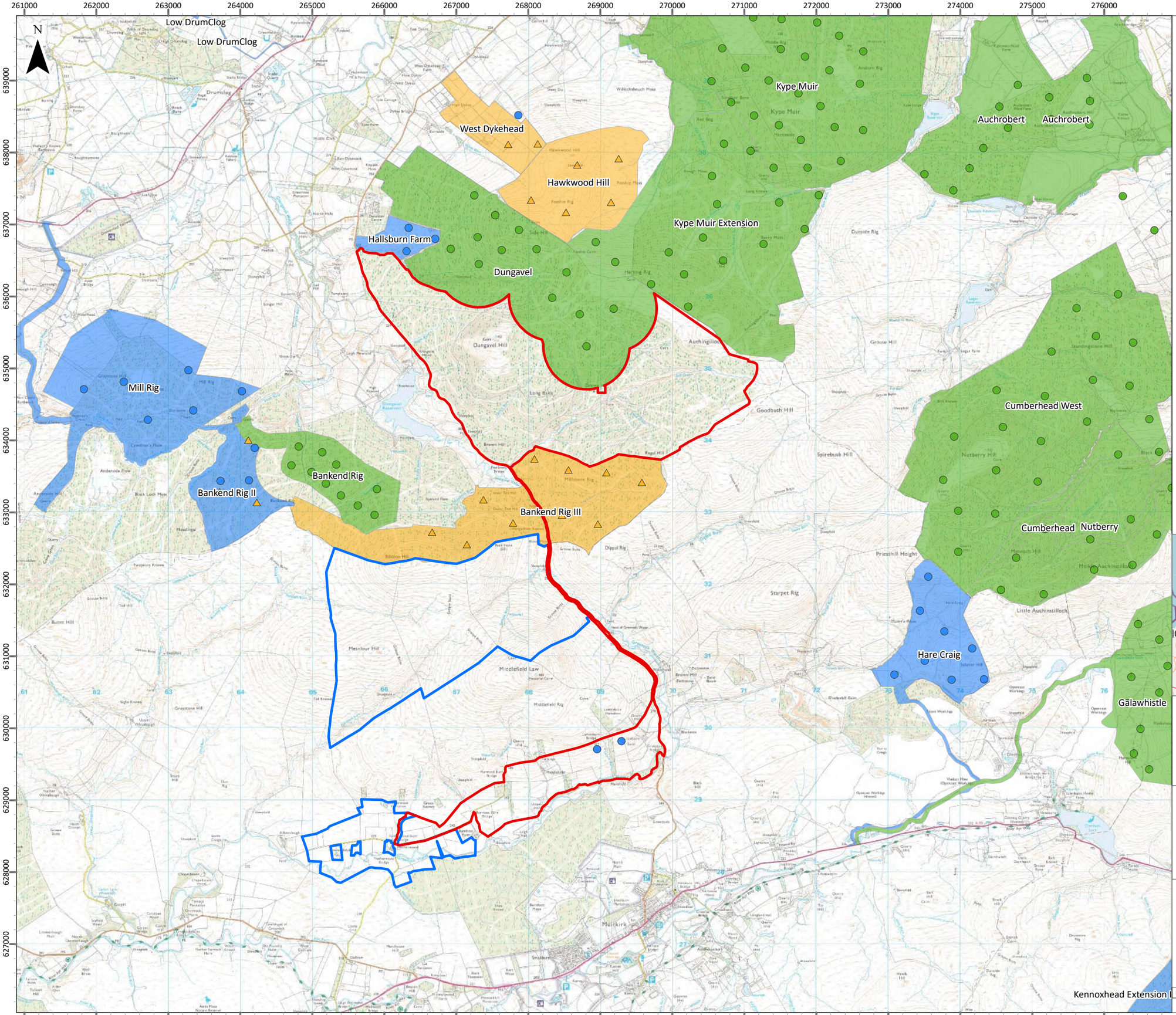
Lanark Auction Market, Hyndford Road, Lanark ML11 9AX.
T: 01555 660244 E: info@3renergy.co.uk W: www.3renergy.co.uk



Legend

- Site Boundary
- Additional Land in Control of the Applicant for Habitat Management

Cumulative Wind Development

- Application
- Consented
- Operational / Under Construction

0 0.65 1.3 1.95 2.6 Km

Scale 1:50,000 @ A3

HAGSHAW ENERGY CLUSTER WESTERN EXPANSION

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SLR

Hagshaw Energy Cluster - Western Expansion
Phase 1
EIA Report | Non-Technical Summary

Figure 1
Site Location

Project/File: 4188			
Date: 04/04/2025	Drawn by: AR	Checked by: JH	Version: 1

263000 264000 265000 266000 267000 268000 269000 270000 271000 272000 273000

637000 636000 635000 634000 633000 632000 631000 630000 629000 628000

N

Access Point A
Access Point B
Access Point C

T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12 T13 T14 T15 T16 T17 T18

WX01 WX02 WX03 WX04 WX05 WX06 WX07 WX08 WX09 WX10 WX11 WX12 WX13 WX14 WX15 WX16

Glengavel Reservoir

Legend

- Site Boundary
- Turbine Location (200m to tip)
- Turbine Location (230m to tip)
- Temporary Hardstand
- Permanent Hardstand
- Turning Head
- Underground Electricity Export Cable(s)
- Solar PV Module
- Solar Inverter
- Long Duration Energy Storage
- Short Duration Energy Storage
- Proposed Development Substation
- SPEN Substation
- SPEN Temporary Compound & BESS
- SPEN Temporary Compound
- Temporary Construction Compound
- Borrow Pit and Bund
- Borrow Pit Surface Water Drain
- Security Fence
- Proposed Access Point

Access Tracks

- Track at Access Point A – Option 1
- Track at Access Point A – Option 2
- Existing - Upgraded
- Floating
- Cut
- Existing Forest Road
- Forestry Spur Road

Watercourse Crossing

- New
- Existing - Upgraded
- Existing

0 0.5 1 1.5 2 Km

Scale 1:34,000 @ A3

HAGSHAW ENERGY CLUSTER WESTERN EXPANSION

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Hagshaw Energy Cluster - Western Expansion
Phase 1
EIA Report | Non-Technical Summary

Figure 2
Proposed Development Layout

Date:	Drawn by:	Checked by:	Version:
06/03/2025	GW	JH	V1

266000 267000 268000 269000 270000 271000

637000 636000 635000 634000 633000

N

Halls
Detention Centre
B745
B743
MS
Sheep Dip
Templeland
Laigh Plewland
High Plewland
Boathouse
Glengavel Reservoir
Aqueduct
Watercourse
Braidie Burn
Spouttoch Burn
Ryeland Flow
Bibblon Hill
Buck Stone (BS)
Blood Moss
Hangyshaw Knowe
Inner Tod Hill
Outer Tod Hill
Regal Bridge
Millstone Rig
Brown Hill
Long Bank
Dungavel Hill
Glengavel House
Bugnt Burn
Patrick Burn
Ribbone Burn
Glengavel Water
Regal Burn
Feeshie Moss
Feeshie Rig
Feeshie Cairn
Side Hill
Cairn
Sheepfold
Harting Rig
Rough Moss
Quarry (dis)
Long Knowe
North Feeshie Burn
South Feeshie Burn
Berry Moss
Auchingilloch
Auchingilloch Glen
Drown Rig
Dippal Rig
Dippal Burn
Dippal
Ford
Goodbush
Regal Hill
Grouse Butts
Self Grain
Waterfall
Mon
FB
37
36
35
34
33

WX01
WX02
WX03
WX04
WX05
WX06
WX07
WX08
WX09
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T13
T14
T15
T16
T17
T18
Access Point A
Access Point B

Legend

- Site Boundary
- Turbine Location (200m to tip)
- Turbine Location (230m to tip)
- Temporary Hardstand
- Permanent Hardstand
- Turning Heads
- Underground Electricity Export Cable(s)
- Proposed Development Substation
- SPEN Substation
- SPEN Temporary Compound & BESS
- Temporary Construction Compound
- Borrow Pit and Bund
- Borrow Pit Surface Water Drain
- Proposed Access Point

Access Tracks

- Track at Access Point A – Option 1
- Track at Access Point A – Option 1
- Existing - Upgraded
- Floating
- Cut
- Existing Forest Road
- Forestry Spur Road

Watercourse Crossing

- New
- Existing - Upgraded
- Existing

0 0.25 0.5 0.75 1 Km

Scale 1:20,000 @ A3

HAGSHAW ENERGY CLUSTER WESTERN EXPANSION

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Hagshaw Energy Cluster - Western Expansion
Phase 1
EIA Report | Non-Technical Summary

Figure 3
Site Layout Plan | Northern Development Area

Date:	Drawn by:	Checked by:	Version:
06/03/2025	GW	JH	V1

266000 267000 268000 269000 270000

631000 630000 629000 628000

N

Middlefield Law
466
Memorial Cairn
Middlefield Rig
Cairn
Grouse Butts
Sheepfold
Head of Greenock Water
FB
Greenock Water
Waterhead
Brown Hill
Enclosures
Lamonburn Plantation
Quarry (dis)
Access Point C
Blackside
Lamonburn Bridge
Linburn
Greenock Bridge
Waterfall
Forkings
Harwood Burn
Harwood Burn Bridge
Middlefield
Mansfield
Black Hill
Netherwood Plantation
Green Knowe
Burnfoot Burn Bridge
Burnfoot Farm
Laigh Hall
Netherwood
Netherwood Bridge
Netherwood Burn Bridge
Greenside
North Muir
Bankend
Long Stone of Convention
Cemetery
Kirk Plantation
Kirkburn Bridge
Smallburn Plantation
Holmhead
Shaw Knowe
Burnfoot Moor
Mossy Burn
Back Burn
Small Burn
Kirk Burn

WX10
WX11
WX12
WX13
WX14
WX15
WX16

Legend

- Site Boundary
- Underground Electricity Export Cable(s)
- Solar PV Module
- Solar Inverter
- Long Duration Energy Storage
- Short Duration Energy Storage
- Proposed Development Substation
- SPEN Substation
- SPEN Temporary Compound
- Temporary Construction Compound
- Proposed Borrow Pit
- Security Fence
- Proposed Access Point

Access Tracks

- Existing - Upgraded
- Cut

Watercourse Crossing

- New
- Existing - Upgraded
- Existing

0 0.25 0.5 0.75 1 Km

Scale 1:15,000 @ A3

HAGSHAW ENERGY CLUSTER WESTERN EXPANSION

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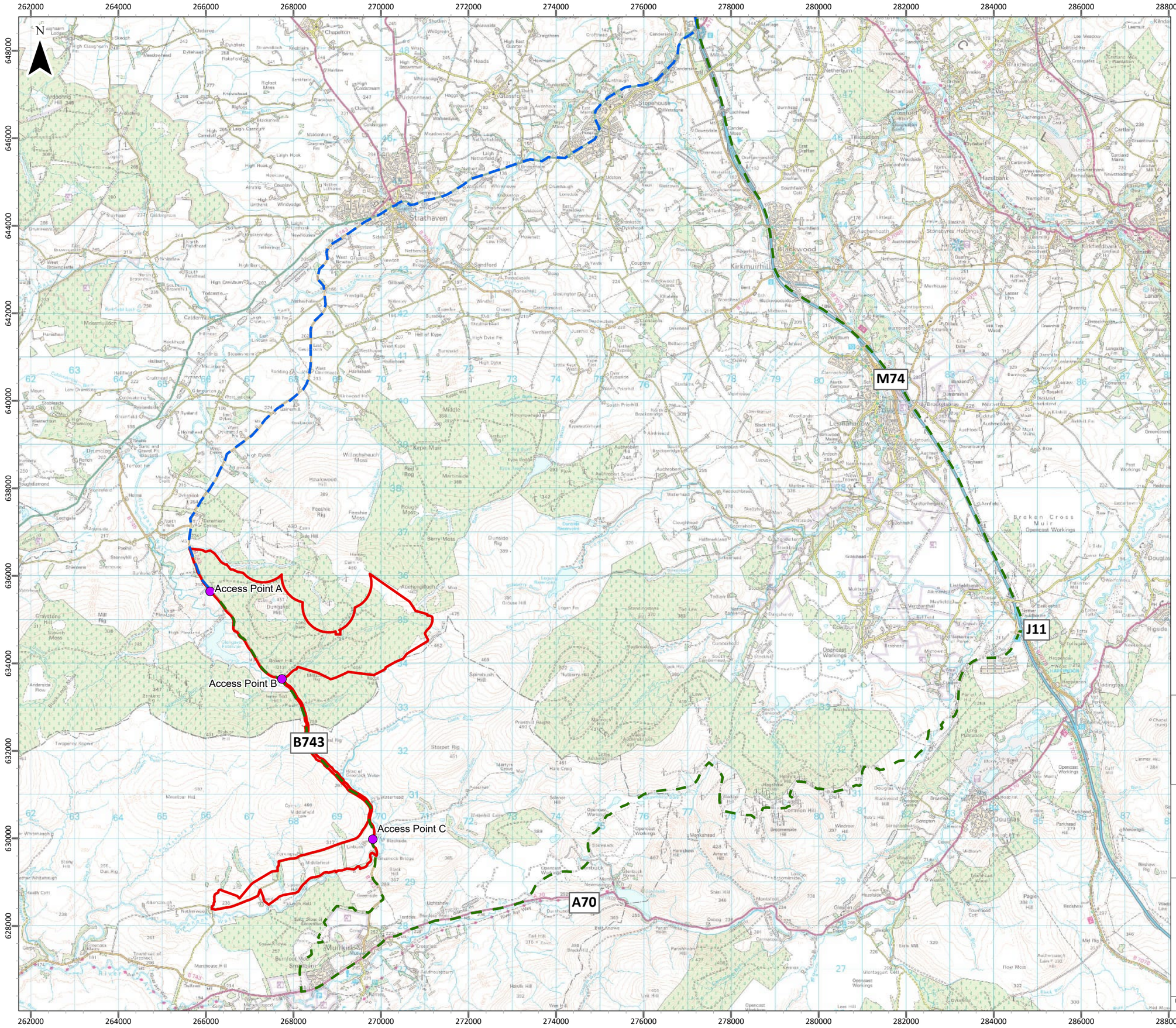
Hagshaw Energy Cluster - Western Expansion
Phase 1
EIA Report | Non-Technical Summary

Figure 4
Site Layout Plan | Southern Development Area

Date:	Drawn by:	Checked by:	Version:
06/03/2025	GW	JH	V1



Legend

- Site Boundary
- Abnormal Load Access Route Option 1
- Abnormal Load Access Route Option 2
- Proposed Access Point

0 2.5 5 Km

Scale 1:82,000 @ A3

HAGSHAW ENERGY CLUSTER WESTERN EXPANSION

3R Energy

SLR

Hagshaw Energy Cluster - Western Expansion
Phase 1
EIA Report | Non-Technical Summary

Figure 5
Abnormal Load Transport Routes to Site

Date:	Drawn by:	Checked by:	Version:
18/03/2025	GW	JH	V1