

Fell Wind Farm Infrastructure Variation

Comparative Environmental Impact Assessment Report Volume I – Main Text

March 2025

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1 INTRODUCTION

Background

- 1.1 Planning permission was granted for Fell Wind Farm at appeal on 2 November 2021 (references 20/0148/FUL and PPA-170-2146). The consented wind farm comprises nine wind turbines, seven of which with tip heights of up to 200m and two of which with tip heights up to 180m, together with associated infrastructure. The planning application was accompanied by an Environmental Impact Assessment Report dated December 2019 (herein after referred to as the "Original EIAR").
- 1.2 An application, made under section 42 of the Town and Country Planning (Scotland) Act 1997, was submitted in March 2022 (22/0471/S42), appealed in August 2022 (PPA-270-2163) and granted on 10 March 2023. The variation application sought to vary condition 1 to allow an increase in the consented tip height of one of the wind turbines (T2) at Fell Wind Farm (the "Consented Development").
- 1.3 This Comparative Environmental Impact Assessment Report (Comparative EIAR) is submitted in support of an application under Section 42 of the Town and Country Planning (Scotland) Act 1997 by Energiekontor UK Ltd ("the Applicant") to vary conditions 2 and 13 of planning permission 22/0471/S42/PPA-270-2163 to remove one turbine (T3) and allow adjustment of infrastructure outwith the consented 100m micro-siting allowance at Fell Wind Farm ("the Proposed Development" resulting in Fell Wind Farm comprising 8 turbines.
- 1.4 This Comparative EIAR has been prepared by Energiekontor UK Ltd with specialist input where necessary and sets out the findings of a comparative Environmental Impact Assessment which has been undertaken to consider whether the Proposed Development would result in any additional significant environmental effects not identified in the previous EIAR for Fell Wind Farm.

Site Location and Proposed Development

The Site and its Surroundings

- 1.5 The Site is located in Dumfries and Galloway, Scotland. The Site is centred at approximately OS Grid Reference: 273300, 583670. The closest settlement to the proposed turbines is the village of Moniaive, located approximately 6.5 km to the north-east of the Site. The town of St Johns Town of Dalry is located approximately 11 km to the south-west of the Site. The operational Blackcraig wind farm lies close to the west and south-west of the Site.
- 1.6 The nearest main highway is the A702 which passes adjacent to the northern extent of the Site, with the A712 passing approximately 5 km to the south. A number of minor roads are located close to the Site, including along the eastern Site boundary, which provides a link from the A702 and A712 to scattered houses and farms.
- 1.7 The land under control of the Applicant covers approximately 565 ha and consists largely of upland moorland. The red line planning boundary is shown on Figure 1.1.

- 1.8 The topography of the Site varies in elevation from 158 m AOD at Monybuie to the south east – the Site's lowest point – to 334 m AOD at the summit of Halfmark Hill. Within this range the proposed turbines are situated at elevations between 220 m and 309 m AOD.
- 1.9 The Site is characteristic of a large-scale upland moorland agricultural landscape.
- 1.10 There are no international or national landscape designations within 10 km of the Site. Within the locality the land use is predominantly mixed-use farmland and commercial forestry.

Description of Proposed Development

- 1.11 The Proposed Development seeks to:
- Change the crane pad configuration to meet current turbine manufacturer requirements;
 - Create a new site entrance onto the A702 at the north of the Site;
 - Adjust some associated infrastructure outwith 100m micro-siting allowance; and
 - Remove turbine 3.
- 1.12 Table 1.1 below shows the proposed turbine coordinates at Fell Wind Farm, all of which are within the consented micro-siting allowance. Figure 3.1a shows the Proposed Development infrastructure overlaying the Consented Development and illustrates the areas where infrastructure is proposed outwith the micro-siting allowance of the Consented Development.

WTG	Easting	Northing	Consented Tip Height	Proposed Tip Height
1	274613	585168	180m	200m
2	273671	585240	200m	200m
3	-	-		
4	273422	584479	200m	200m
5	274331	584595	200m	200m
6	273997	584209	200m	200m
7	273049	543851	200m	200m
8	273419	583766	200m	200m
9	272931	583378	200m	200m

Table 1.1 Proposed turbine coordinates

Structure of Report

- 1.13 This Comparative EIAR has been prepared by Energiekontor UK Ltd and sets out the findings of a comparative Environmental Impact Assessment which has been undertaken to consider whether the Proposed Development would result in any additional significant environmental effects not identified in the original EIAR for the wind farm development.
- 1.14 Three areas with the potential for materially different effects from those reported in the original EIAR have been identified. These are in relation to the landscape and visual, ecology, ornithology, traffic and transport, and soil and water effects of the Proposed Development.

1.15 This Comparative EIAR is structured as follows:

- Section 1 provides a background to the Proposed Development;
- Section 2 presents a review of the key topics in the original EIAR and any specific items within these topics which have the potential for materially different environmental effects as a result of the Proposed Development;
- Sections 3-5 provide a detailed assessment of the key topics identified in section 2 which have the potential for materially different environmental effects as a result of the Proposed Development;
- Section 6 provides a summary of the findings of the comparative environmental assessment.

The Applicant

- 1.16 Energiekontor UK Ltd is a renewable energy development company with offices in Edinburgh, Glasgow and Leeds. The company was formed in 1999 and develops onshore wind and solar farms throughout the United Kingdom. The company operates eleven existing wind farms in the UK, including three subsidy-free wind farms in Scotland, with several others at different stages of the development process.
- 1.17 Energiekontor UK Ltd is part of the Energiekontor Group. The parent company, Energiekontor AG, was established in 1990 in Bremerhaven in Northern Germany. It has since grown to become one of the leading wind energy companies in Europe and is active in Germany, France, The Netherlands, Portugal, the USA and the UK. The company has built more than 140 onshore wind farms in Europe.

2 COMPARATIVE EIA SCREENING

Introduction

- 2.1 This Comparative EIAR has been prepared by Energiekontor UK Ltd and sets out the findings of a comparative Environmental Impact Assessment which has been undertaken to consider whether the Proposed Development would result in any additional significant environmental effects not identified in the original EIAR or the updated assessment of the 2022 application (the "2022 Application"). This section provides an appraisal of the potential for significant environmental effects to occur as a result of the Proposed Development.

Comparative EIA Screening

- 2.2 Table 2.1 below sets out the findings of the comparative EIA screening exercise.

Landscape and Visual Amenity	
Key findings from original EIAR and the 2022 Application for the wind farm.	Eight of the nine turbines are located on the north-eastern edge of the extensive 176: Foothills with Forest Landscape Character Type (LCT). There would be a major level of effect upon LCT 176 within 1km of the Proposed Development. Within 3km, the effect upon LCT 176 would be limited by the extensive areas of plantation woodland and higher land to the west of the Site. However, due to the prominence of the turbines, a major level of effect upon the LCT is predicted. Beyond 3km, effects upon LCT 176 are predicted to be not significant. One of the nine turbines is located on the north-eastern edge of the 176: Foothills with Forest LCT. This LCT would experience a major level of effect within 1km. Within 4km of LCT 175, much of the land to the north east is open in nature and therefore, the influence upon the LCT is extensive and widespread, resulting in a major level of effect upon the LCT, which is deemed significant. Beyond 4km, effects upon the LCT are predicted to be not significant. All other predicted effects upon other LCTs would be not significant. Four of the fifteen representative viewpoints would experience significant visual effects. Three of the fifteen residential properties assessed would experience significant visual effects, plus on the garden/curtilage or access track of a further six properties. For other properties within 2-5km there would be significant visual effects upon properties along the A702, as well as upon the elevated driveway to Minnygryle. For Primary Settlements beyond 5km, a single effect would arise upon the

	eastern and southern most areas of Moniaive, with other areas of the town having no view towards the Proposed Development. All other effects from properties and settlement would be not significant.
Potential for material change / significant effects as a result of the Proposed Development	There is not considered to be any potential for material change or any alteration of the assessment of significant effects due to the nature of the variation.
Comment	No change is predicted.
Ecology and Ornithology	
Key findings from original EIAR and the 2022 Application for the wind farm.	In relation to ecology, no significant effects are predicted in relation to important ecological features, either within the Site itself or the wider area. Similarly in relation to ornithology, to significant effects are predicted in relation to any bird species, either from the wind farm alone or in combination with other schemes.
Potential for material change / significant effects as a result of the Proposed Development	There is potential for changes to the level of effects identified in the original EIAR due to the ground infrastructure changes outwith the 100m micro-siting allowance.
Comment	Further assessment to determine the ecology effects associated with the Proposed Development is provided in Sections 4 and 5 of this Comparative EIAR.
Cultural Heritage	
Key findings from original EIAR and the 2022 Application for the wind farm.	Nine potential direct impacts on heritage assets have been identified, arising from the construction of the Proposed Development. In addition, 13 heritage assets lie within the 100m micro-siting allowance and could be affected by any micro-siting of the proposed layout. In the absence of mitigation two of these are assessed as being potentially of major/moderate significance. The other impacts are assessed as being not significant. Seven Scheduled Monuments, one Category A listed building, 21 Category B listed buildings, one Inventory Garden and Designed Landscape, one Conservation Area and 26 non-designated HER sites of 'regional significance' have been identified within 5km from which there is predicted visibility of the Proposed Development. The assessment has resulted in the identification of three significant effects of major/moderate significance: on the settings of one Scheduled Monument (SM659) and two non-designated sites of MDG4355 and MDG5294). In all other cases the settings of the assets would not be significantly

	affected by the construction and operation of the Proposed Development.
Potential for material change / significant effects as a result of the Proposed Development	The Proposed Development would not lead to any additional direct or indirect effects on any cultural heritage assets, whether designated or otherwise. The magnitude of effect predicted in relation to the indirect effects would remain unchanged.
Comment	No change is predicted.
Noise	
Key findings from original EIAR and the 2022 Application for the wind farm.	The procedure for establishing noise limits is set out in the document <i>ETSU-R-97 Assessment and Rating of Noise from Wind Farms</i> . Environmental noise predictions were made for a range of wind speeds for the proposed wind farm. The predictions found that noise limits established by ETSU-R-97 would be satisfied. Operational noise from the wind farm has been assessed in accordance with national planning guidance and demonstrated to be within acceptable levels.
Potential for material change / significant effects as a result of the Proposed Development	The Proposed Development would operate in accordance with the noise limits that are set out in the planning permission for the Consented Development.
Comment	No change is predicted.
Traffic and Transport	
Key findings from original EIAR and the 2022 Application for the wind farm.	Disturbance to local residents and other road users due to abnormal load deliveries is a potential negative effect. However, given the low number of vehicles involved and mitigation measures proposed the amount of disturbance would be limited. HGV movements delivering construction materials would also result in negative effects on road users and local residents. The significance of the effects are considered to be low given the short duration of the works, the existing levels of traffic along most of the route and the mitigation measures proposed.
Potential for material change / significant effects as a result of the Proposed Development	The Proposed Development would not materially increase the amount of construction traffic associated with the wind farm nor increase the duration of the construction period, but it would introduce deliveries along part of the road network that has not previously been assessed.
Comment	Further assessment to determine the traffic and transport effects associated with the Proposed Development is provided in Section 6 of this Comparative EIAR.
Soil and Water	

Key findings from original EIAR and the 2022 Application for the wind farm.	The effects of the wind farm on the hydrological, hydrogeological and geological conditions of the Site are not significant in EIA terms.
Potential for material change / significant effects as a result of the Proposed Development	Due to proposed infrastructure outwith the consented micro-siting allowance there is potential for material change or alteration of the assessment of significant effects.
Comment	Further assessment to determine the soil and water effects associated with the Proposed Development is provided in Section 6 of this Comparative EIAR.
Infrastructure and Shadow Flicker	
Key findings from original EIAR and the 2022 Application for the wind farm.	Wind turbines can interfere with broadcast transmissions such as radio and television. Consultation was undertaken with those organisations whose transmissions may be affected including mobile telephone service providers, emergency services, television companies etc. From the replies received it was predicted that there would be no disturbance to communications systems with the mitigation measures proposed. Wind turbines have the potential to affect aviation safety both through the interference with radar and navigation systems. Rotating wind turbine blades can cast moving shadows which can affect neighbouring properties. As the blades rotate, there can be alternating light and shadow, an effect known as shadow flicker. The effect occurs inside buildings, where the shadow falls on a window. The impact of shadow flicker has been assessed for properties within an arc of 130 degrees either side of north and within 10 rotor diameters (in this case 1.5km) of any turbine position. This assessment has quantified the likelihood of shadow flicker effects occurring at nearby properties as a result of the proposed wind farm, along with their times and durations. Overall the effects have been identified as being minor.
Potential for material change / significant effects as a result of the Proposed Development	There is not considered to be any potential for material change or any alteration of the assessment of significant effects. These effects remain unchanged with the proposed infrastructure variation.
Comment	No change is predicted.

Table 2.1: Comparative EIA Screening Summary

Summary

- 2.3 Three topic areas with the potential for materially different effects from those reported in the original EIAR for the wind farm has been identified, namely ecology, traffic and transport and soil and water effects. These topics are discussed further in the subsequent section.

3 ECOLOGY

Background

- 3.1 Atmos Consulting Ltd (Atmos) was commissioned by EnergieKontor UK Ltd (EKUK) to carry out ecological surveys and prepare an ecological impact assessment chapter in relation to Fell Wind Farm (hereafter the Proposed Development) located 6.5 km southeast of Moniave, Dumfries and Galloway.
- 3.2 The Proposed Development was previously consented (20/0148/FUL) in November 2021 following a successful appeal (PPA-170-2146). As part of that application, an Environmental Impact Assessment Report (EIAR) was submitted (EnergieKontor 2019). This application seeks to:
- Remove Turbine T3; and
 - Amend the site layout as some infrastructure are to be moved outside the micro-siting allowance, plus creation of new access track from the north of the Proposed Development.
- 3.3 Table 1 details all turbine location amendments, distances from original position and tip height changes.

Table 1: Updated turbine locations and heights

Turbine Number	Initial Turbine locations			Revised Turbine locations			Distance from Original Position (Metres)
	Easting	Northing	Tip Height	Easting	Northing	Tip Height	
1	274586	585194	180	274613	585168	180	37
2	273720	585243	200	273671	585240	200	49
3	274057	585003	200	-	-	-	0
4	273059	584483	200	273422	584479	200	87
5	274252	584649	200	274331	584595	200	95
6	273942	583815	200	273997	584209	200	99
7	273095	583815	200	273049	543851	200	58
8	273497	583706	200	273419	583766	200	98
9	272893	583301	200	272931	583378	200	86

- 3.4 Ecological surveys had been carried out at the time of the initial application. However, due to the time that had passed since then, and the fact that some infrastructure is to be constructed

beyond the previous limits of deviation, the Extended Phase 1 survey was refreshed for those areas outside those limits of deviation. Impacts on those areas may not have been fully considered in the initial application and as such, to carry out any re-assessment of impacts, it was necessary to refresh the previous survey data.

- 3.5 The proposed new access track enters the Proposed Development from the north (Figure 3.1). This includes upgrade to an existing track which passes through the conifer plantation in the north of the Proposed Development Site as well as a section of proposed new track further north. This proposed access track was also surveyed, whereas coverage in this area was minimal in the original EIAR.
- 3.6 It was not possible to carry out any further National Vegetation Classification surveys (NVC) due to the season.
- 3.7 As a result, this chapter presents the results of the refreshed surveys and reassesses the proposed changes to the layout of the Proposed Development.
- 3.8 In preparing this chapter, the information contained in the original EIAR (EnergieKontor 2019) has also been relied on.
- 3.9 This chapter is supported by Technical Appendix 9-1: Confidential Annex

Methodology

Relevant Legislation and guidance

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora;
 - Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017;
 - Wildlife and Countryside Act 1981 (as amended);
 - Wildlife and Natural Environment (Scotland) Act 2011;
 - Nature Conservation (Scotland) Act 2004; and
 - Conservation (Natural Habitats, &c.) Regulations 1994.
- 3.10 At the time of the 2019 application Policy 3 'Biodiversity' and Policy 4 'Natural Places' of the National Planning Framework 4 NPF4 were not in place. Published in 2023 this is now relevant to the updated assessment, in particular where it states at Policy 3(b):

"Development proposals for national or major development, or for development that requires an Environmental Impact Assessment will only be supported where it can be demonstrated that the proposal will conserve, restore, and enhance biodiversity, including nature networks so they are in a demonstrably better state than without

intervention. This will include future management. To inform this, best practice assessment methods should be used. (Scottish Government, 2023)."

Assessment Methodology

- 3.11 Assessment methodology follows that set out in the Original EIA (Energiekontor 2019).
- 3.12 Potential changes in assessment relate to updated information on habitats and protected species information from on-site surveys carried out in 2024. Conclusions on designated sites remain the same as the 2019 application and are not repeated here. This is because distances were given from the Proposed Development boundary, and this has not changed. Desk top records have not been updated for they are regarded as an indication of what could be found on the Proposed Development, as subsequently ground-truthed by surveys,

Survey Methods

- 3.13 The surveys carried out in 2024 were as follows:

Extended Phase 1 Habitat Survey

- 3.14 An Extended Phase I Habitat Survey was undertaken by suitably experienced ecologists on the 11th of December 2024. It included a walkover of areas within the Proposed Development red line boundary, focusing on areas within a 100 m buffer zone of the new proposed infrastructure, where access permitted and outwith the Limits of Deviation (LoD) of the consented scheme.
- 3.15 A Phase 1 Habitat Survey is a standardised method of recording habitat types and characteristic vegetation, as set out in the Handbook for Phase 1 Habitat Survey – a technique for Environmental Audit (Joint Nature Conservation Committee, 2010). The Phase 1 survey method is 'extended' through the additional recording of specific features indicating the presence, or likely presence, of protected species or other species of nature conservation significance.
- 3.16 Whilst not a full protected species or botanical survey, the Extended Phase 1 method enables a suitably experienced ecologist to undertake a baseline ecological appraisal of the Site that:
- Provides a preliminary evaluation of the nature conservation significance of the new areas (detailed in paragraph 9.4) and assesses the potential for impacts on habitats/species likely to represent a material consideration in planning terms; and
 - Determines the scope of further specialised surveys that may be required to inform an ecological assessment.
- 3.17 The Site was inspected for evidence of, and its potential to support, protected or notable species of plants and animals. More attention is given to species listed under Schedule 2 of the Habitat Regulations, Schedule 1 (Birds,) Schedule 5 (Mammals) and Schedule 8 (Plants) of the Wildlife & Countryside Act 1981.

Specialist Surveys

- 3.18 The new areas were surveyed for evidence of badger setts or other activity such as paths, latrines, or signs of foraging. Methodologies used, and any setts recorded were classified according to published criteria (Harris, Cresswell & Jefferies, 1989).
- 3.19 The new areas were appraised for their suitability to support herpetofauna (amphibians and reptiles). The assessment was based on Guidance outlined in the Joint Nature Conservation Committees published Herpetofauna Workers' Manual (Gent & Gibson, 2003), and the Great Crested Newt Conservation Handbook (Langton, Beckett, & Foster, 2001).
- 3.20 The new areas were also appraised for their suitability to support other protected or notable fauna including mammals, birds and invertebrates regarding CIEEM's Guidelines for Preliminary Ecological Appraisal (2013) and BS42020:2013 Biodiversity – Code of Practice for Planning and Development. Evidence of any current or historical presence of such species was recorded.

Preliminary Roost Assessment

- 3.21 All methodology follows the current guidance from the Bat Conservation Trust (BCT) (Collins, 2023) unless otherwise specified. A preliminary roost assessment was undertaken alongside the Extended Phase 1 survey of notable trees with bat roost potential (BRP). This was in line with NatureScot (2021) guidance to determine whether an BRP features are within 200 m plus rotor radius of turbines, and thereby subject to further investigation.
- 3.22 The PRA was undertaken via a ground-based daytime inspection with the assistance of binoculars to view the exterior of trees, together with an assessment of surrounding habitats in relation to connectivity and foraging resource value.
- 3.23 The trees were evaluated for potential bat roost features (PRF) and categorised according to best practice guidance (Collins, 2023) based on their potential to support bat roosts (Table 2).

Table 2: Bat roost and habitat suitability criteria

Potential suitability	Description of roosting habitats	Communing and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.

Low PRF-I	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation)	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.
	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in parkland situation) or a patch of scrub.
Moderate	A structure or with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland, or water.
High and PRF-M	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses, and grazed parkland. Site is close to and connected to know roosts.
Confirmed roost	A structure or tree supporting evidence of bat presence, such as droppings and feeding remains.	N/A

Limitations

- 3.24 The Extended Phase 1 Survey was conducted in December, which is considered a sub-optimal time for identifying key habitat markers. However, given the experience of surveyors and the baseline information available present, this is not considered to be a constraining factor.
- 3.25 To usefully determine the presence or likely absence of protected species usually requires multiple visits at suitable times of the year. In consequence, this survey focuses on assessing the potential of the Proposed Development to support species of noteworthy status as well as recording any evidence for such species.
- 3.26 Attention is given to plants and animals of principal importance for the conservation of biodiversity and with further reference to those given protection under UK or European wildlife legislation. This chapter cannot, therefore, claim to be fully a comprehensive assessment of the ecological interest of the areas surveyed. However, it does provide an accurate assessment of the ecological field interest found to be present on the day and further, albeit older, information is available in the previous work carried out on the Proposed Development. This chapter also highlights areas where further field survey work may be recommended.

Results

- 3.27 The following results summarise the findings of the areas which have been surveyed for the first time (i.e. along the proposed access route) and also compare the findings of previous surveys with the results from the work undertaken in support of the 2019 application.

Habitats – Summary of Findings

- 3.28 In the north of the Proposed Development, the new access track runs through areas of neutral, improved and marshy grassland alongside areas of blanket bog and wet modified bog to the north of the plantation. Additionally, there was a thin strip of wet modified bog along the proposed track within the plantation.
- 3.29 To the north of Turbine 2 blanket bog has expanded to the east and north into what was grassland, replacing areas of improved grassland. To west and east of the blanket bog the habitat transitions into neutral-unimproved grassland where previously the habitat was recorded as improved and acid grassland.
- 3.30 To the west of Turbine 5, blanket bog was replaced mainly by wet modified bog with a small encroachment of wet dwarf shrub heath from the south.
- 3.31 The area of amended infrastructure to the south of the plantation has seen the loss of some wet dwarf shrub heath into marshy grassland on the west side and a small patch of wet dwarf shrub heath has been replaced by acid grassland on the eastern area.
- 3.32 The area of amended development between Turbines 4 and 6 has remained the same mixture of wet modified bog and grassland.
- 3.33 The amended infrastructure areas to the south of Turbine 7 and 8 remain relatively unchanged since the 2017 survey.

Blanket Bog

- 3.34 The blanket bog areas are dominated by deer grass *Trichophorum cespitosum* with large patches of *Sphagnum papillosum* and is wetter underfoot with small waterbodies present at the time of the survey. Additionally, hare's-tail cottongrass *Eriophorum vaginatum* is present in small quantities.

Wet modified bog

- 3.35 Absent of *Sphagnum* species and dominated by purple moor grass *Molinia caerulea* with small stands of soft rush present throughout. There was no ericoid presence in the area towards the north of the Proposed Development. However, other areas of wet modified bog in the south contain higher levels of ericoids with cross-leaved heath *Erica tetralix* presenting between 10% and 20% cover with small patches of bare peat also present.

Wet dwarf shrub heath

- 3.36 Wet dwarf shrub heath was present throughout portion of the Proposed Development south of the plantation area, and typically showed over 20% ericoid coverage with purple moor grass dominant throughout and often transitioned to grassland habitats such as marshy grassland.

Marshy grassland

- 3.37 Low lying areas surrounding drainage channels and inundated with water and constricted by soft rush *Juncus effusus* with small patches of tufted hairgrass *Deschampsia cespitosa* can be classified as marshy grassland and remain ungrazed.

Neutral grassland

- 3.38 Small areas of unimproved neutral grassland were present around the Proposed Development and were dominated by tufted hairgrass with small patches of purple moor grass and soft rush when transitioning to other habitats. In the northern section, the proposed access track passes through a series of intensively grazed fields that lie on a steep gradient leaving the ground dry and species poor. The areas of high ground within the field is seen as semi-improved neutral grassland.

Acid grassland

- 3.39 Acid grassland was dominant in high ground, dry areas in the southern section of the Proposed Development where drainage was prominent. Both unimproved and semi-improved areas of acid grassland occur on site with unimproved being dominated by sheep's fescue *Festuca ovina* and common bent *Agrostis capillaris*. The semi improved areas were dominated by Yorkshire fog *Holcus lanatus* as both unimproved and semi-improved showed patches of soft rush where transitioning to marshy grassland.

Coniferous woodland – Plantation

- 3.40 The large area of managed coniferous plantation is at various stages of maturity with the northern section of the plantation showing felling and replanting within the last 5 years. The plantation consisted of exclusively Sitka spruce *Picea sitchensis*.

Mixed woodland – semi-natural

- 3.41 A small patch of woodland in the north of the site consisted of oak *Quercus robur* and Scots pine *Pinus sylvestris*.

Protected species

Badgers

- 3.42 During the Extended Phase 1 survey, an active main badger *Meles meles* sett was discovered adjacent an area of proposed infrastructure. Further information is provided in Confidential TA 9-1.

Bats

- 3.43 Within a stand of trees a dead beech *Fagus sylvatica* tree, found at NGR NX 7278 8638 and located adjacent a section of proposed track contained multiple cavities and flaking bark that constitute potential roost features for bats. The number of these features present mean that this is a moderate suitability potential roost feature. The tree is outwith the 200 m from turbine tip as considered applicable under NatureScot guidance (2021).

Herpetofauna

- 3.44 No evidence of herpetofauna was found when undertaking the Extended Phase 1 survey. However, the Proposed Development Site provides extensive areas of suitable habitat for these species and, as such, they should be considered as a potential constraint.

Other species

- 3.45 No evidence of otter *Lutra lutra*, water vole *Arvicola amphibius*, red squirrel *Sciurus vulgaris* or other protected and priority species was recorded during the survey. No watercourses are included within the new areas and the previous assessment with regards to fish, remains the same. Whilst the survey carried out in December is sub-optimal for water vole, no sightings were found in previous surveys which were undertaken in optimal conditions. Whilst potentially present it is likely to be at a low density. Pre-construction survey would be undertaken within the May to September period, which is optimal for water vole in upland locations (NatureScot, 2024).
- 3.46 As such, these Important Ecological Features (IEFs) will not be considered further.

Features taken forward for assessment

- 3.47 On the basis of the new areas, when considered in the context of the previous application, the following IEFs are taken forward for assessment. Their inclusion is based on their value assessed as being important at a local level. Local level was the level they were assessed in the previous application. and as changes are minor variations to those consented, there is no substantive change.

Habitats:

- Blanket Bog
- Wet modified bog
- Wet dwarf shrub heath
- Marshy grassland

Species:

- Badger
- Bats

Impact Assessment – construction and operational impacts

3.48 The review of impacts as a result of the changes in layout have taken account of the mitigation set out in Chapter 9 of the Original EIAR (EnergieKontor 2019). Mitigation will be delivered via a Habitat Management Plan (HMP), overseen by a project Ecological Clerk of Works (ECow), and include habitat restoration and compensation for loss/disturbance to peat and flush habitats, including new areas identified in the 2024 surveys, and measures to mitigate/compensate effects upon badger. Any additional mitigation identified as a result of the findings of the 2024 surveys is also summarised below.

3.49 In line with the guidelines in Mitchell-Jones and Carlin (2014) and NatureScot (2021), which provides a methodology for determining the minimum buffer distance required between a feature of potential value for bats (e.g. the edge of a tree canopy) and a wind turbine, a minimum stand-off buffer of 50 m will be maintained between the rotor-swept area and the nearest woodland edge to any turbine. Whilst turbines have moved slightly the 50 m buffer distance remains. Turbine 2 has moved closer to woodland edge but in contrast to the previous application where trees were 15 m, they have been felled and replanted with new trees at a maximum 3 m in height. The calculation for the recommended minimum 50 m buffer from blade tips is calculated using the formula below based on 200 m tip.

□ Buffer distance from edge/feature = $\sqrt{(50\text{m} + \text{bl})^2 - (\text{hh} - \text{fh})^2}$,

□ where “bl” = blade length, “hh” = the hub height and “fh” = feature height.

3.50 For plantation up to 3 m in height this corresponds to a minimum buffer requirement of 27.2 m between turbine towers and the nearest woodland/edge feature (in two dimensions (i.e. on the ground) to enable the minimum stand-off buffer of 50 m between the rotor-swept area and the nearest woodland edge to any turbine.

Habitats

3.51 In contrast to the previous application, there is a small increase in the amount of blanket bog to be lost (compare Figure 9-1 in this application with Figure 9-2 from the previous application). As a result, the conclusions of the previous assessment remain valid due to the prediction of an

impact arising from the loss of blanket bog habitat¹. Appropriate protection, enhancement and compensation measures will be agreed between the Local Planning Authority with input from NatureScot, if required. A condition for a HMP exists under the existing consent but it is proposed that the extent of compensation required should be secured through a further condition resulting from this application.

- 3.52 For the remaining habitats considered in the previous application (wet modified bog, wet dwarf shrub heath and marshy grassland) the proposed change is considered not to alter the findings of the previous assessment in that effects would still be considered minor, and insignificant in EIA terms.

Protected species

Badger

- 3.53 The section of infrastructure located adjacent the main sett will be moved a minimum of 30 m from the sett and associated overground active badger pathways, in line with NatureScot (2018). This movement would be within the Limits of Deviation. A pre-construction survey would be undertaken no longer than 3 months before the start of construction to assess the situation at that time. This would be carried out by the ECoW who would confirm the direction the track should be micro-sited to avoid underground chambers and tunnels, informed by camera-trapping if necessary. Should it not be possible to eliminate either direct loss of the sett (partial or full), or indirect loss from disturbance a derogation licence would be obtained from NatureScot in order to facilitate works in a safe manner and ensuring the welfare of badgers which may be present. A Species Protection Plan (SPP) would be made as part of the HMP which will include mitigation such as construction fencing removing badgers from the works zone yet maintaining sett access and foraging routes.
- 3.54 This assessment proceeds on the basis that avoidance of the sett and associated habitat is possible, and on this basis no effect is considered likely. Given the dynamic nature of sett construction however, it is prudent to caveat the possibility of impacts as new holes or tunnels may be present and hence why pre-construction surveys are required to allow any changes to the sett to be mitigated or managed prior to works commencing. As a worst case the sett may need to be closed (under derogation licence), an effect comprising a permanent major impact on a Local IEF, and not significant in EIA terms. Notwithstanding this conclusion, in this event mitigation within the SPP would be developed to address the legal obligations under the derogation licence. These measures may include provision of a new badger sett, dug or artificial.
- 3.55 There is a very small area of habitat loss related to infrastructure construction in the vicinity of the badger sett. The loss of this scale of habitat would be negligible and as such, would not be significant.
- 3.56 During construction there is also possibility of disturbance both of the badger sett and to badgers within the sett. Maintaining a buffer of 30 m between construction works and the sett

¹ the 2019 chapter found a significant effect at local level which would not be considered significant in EIA terms.

would eliminate disturbance impacts. This would be detailed in the SPP and overseen by the ECoW.

- 3.57 At the operational phase no significant effect on badgers would occur as provision of appropriate habitat would either have been maintained, or provided, during the construction phase.

Bats

- 3.58 During construction the section of proposed track adjacent to the tree with moderate bat roost potential at NGR NX 7278 8638 will be moved to 30 m or more from the potential roost, a distance which would be within the Limits of Deviation of the new layout. The tree is outwith the minimum distance from turbine tip under NatureScot guidance (2021). Installation of a 30 m buffer would be overseen by the ECoW as part of an SPP to be included in the HMP. As a result of these measures the potential roost site would be removed from the possible impact zone, therefore should a roost be present, no significant effects would occur.
- 3.59 Given the distance of over 1.5 km from the nearest turbine (T2) to the tree, no significant effect from collision with turbine from bats using any roost which could be present, is likely during operation.
- 3.60 It should be noted that as T2 is 40 m from the nearest woodland edge there is a point in the near future where felling will be required to provide the 50 m felling distance from the tip of T2 to that woodland edge as required by NatureScot guidance (2021). Currently the woodland is 3 m in height, so the buffer is in place, but we predict that when trees are around 7 m that the 50 m buffer will not be met. Therefore, when trees are 7 m it is recommended that felling occurs at least 59.3 m from the turbine location as this would account for the height trees are expected to grow, and as assessed in the previous application (i.e. 15 m). An additional area to account for windblow effects should then be added and an arboriculturalist consulted for advice as to what that should be.

Cumulative Impacts

- 3.61 A number of developments are present in the locality of the Proposed Development, several of which since the original application (Table 3).
- 3.62 It is noted that the majority of IEFS covered by other projects contain many of the IEFS found in either the original application or this resubmission, but that in those assessments, most IEFs were of Local value. The exception being Regionally important populations of otter, Regional populations of *Nyctalus* at Troston and most likely the same valuation for *Nyctalus* at Divot Hill (although the SEI report doesn't specify a valuation). In the previous application for the Proposed Development it was noted that were only recorded in edge of mixed woodland copse and plantation edge habitat, and in low numbers. Habitat overall was considered sub-optimal. The changes in the 2025 application do not change this as the spatial change is limited, without ingress into habitats of higher quality where this conclusion could change. As such, when considering the distance of other projects for which information was found that refer to *Nyctalus*, a cumulative impact from the Proposed Development upon this species group is considered unlikely,

- 3.63 Another theme is the potential for disturbance/death or injury of fauna and this requires consideration given more projects have been proposed in the vicinity of the Proposed Development than at the time of the previous application. It has been noted elsewhere in this assessment that an SPP for badgers will be included in the HMP. In addition, whilst otter was not taken forward into this assessment due to no apparent change in their presence within the survey area, they were in the previous application. Given their mobile nature, an SPP for them will also be included in the HMP. This will contain detailed information around watercourse protection, the timing of works and contractor responsibilities' concerning animal welfare. As noted in the previous application, an access plan will be produced prior to construction commencing to detail the access track route and haul roads to be used by service/vehicles during soil stripping. There will be no vehicle access to areas of the Proposed Development outside those identified. Detailed pre-construction surveys will also occur within 3 months of construction. This is considered adequate to mitigate the cumulative presented by the Proposed Development.
- 3.64 Beyond this there are no major issues considered to warrant attention. Habitat loss on wind farms is typically minimal to the overall resource available and often addressed by HMPs for which there is adequate space in which to mitigate effects. In addition, many other projects included loss of habitats of low value.
- 3.65 Overall, as a result of these considerations, no significant cumulative impacts are likely to occur.

Table 3: Cumulative projects within 10km of the centre of Proposed Development (km)

Site name	County	Status	Listed turbines	Distance from centre of Proposed Development Site (km)	Information Available
Blackcraig	Dumfries and Galloway	Operational	23	1	Bog, heath and flush habitats, otter and water vole confirmed present. Badger, pine marten and red squirrel likely to be present at low density (Arcus, 2014).
Garcrogo Resubmission II	Dumfries and Galloway	In planning	7	3	A total of seven Valued Ecological Receptors (VERs) were identified within the core study area during the ecological surveys, and were taken forward for further assessment. These VERs are habitats, bats, otter, red squirrel, reptiles, butterflies and fish. The effects of the Proposed Development on VERs was found to be, at most, of moderate/minor adverse effect. Following mitigation, the residual effect is, at most, minor adverse.
Divot Hill (Margree)	Dumfries and Galloway	Approved	9	4	Habitat loss non-significant. GWDTEs affected assessed as a low potential impact. No significant impact predicted on water vole, bats and reptiles present. Concerns over the risk to local populations due to direct damage, disturbance and loss of suitable habitat. Otter, <i>Nyctalus</i> bat and red squirrel confirmed present. Potential significant impacts due to death or injury. Further mitigation in form of CEMP, HMP and post-construction monitoring of bats, otter and water vole (MargreeWind Energy Ltd, 2015).
Collieston	Dumfries and Galloway	In Planning	8	5.6	Limited information available from the EIA Scoping Report (Energiekontor, 2022) Open moorland and commercial plantation forestry habitats present, supporting ecological assemblage typical of the area. Minor watercourses present. Majority of Site within the River Nith catchment.
Knockman Hill	Dumfries and Galloway	Approved	5	5.8	Habitat losses non-significant due to low magnitude of potential impacts and mitigation measures such including a CEMP. Concern regarding loss/damage of habitat, changes to hydrology, pollution incidents and risk to ecological status of GWDTEs.

No significant impacts on badger, otter, water vole, fish or bat species predicted following implementation of mitigation measures. Primary concerns included potential killing and injury, habitat loss and disturbance. (2020 Renewables, 2016)

Troston	Dumfries and Galloway	Approved	14	6.4	Habitat losses non-significant due to fragmented low value habitat affected and mitigation measures being implemented. Concern regarding loss/damage of habitat and changes to hydrology. Regionally important otter and six bat species present, as well as salmonid fish. No significant effect likely following implementation of mitigation, including CEMP and pre-construction surveys. Concern regarding direct killing/injury, fragmentation or loss of habitat and direct disturbance. Fish monitoring plan produced to assess mitigation success post-construction. (Arcus, 2019).
Glenshimmeroch Resubmission	Dumfries and Galloway	Approved	10	7.5	Habitat losses non-significant due to low magnitude of potential impacts and mitigation measures such as a CEMP being implemented. No significant impacts on badger, otter, red squirrel or bat species predicted following implementation of the CEMP and other mitigation measures. Issues focussed on direct death and injury, and loss of suitable habitat. (EnergieKontor, 2018).
Milldown Wood	Dumfries and Galloway	Scoping	>80	9.1	No Information available
Whether Hill	Dumfries and Galloway	Operational	14	9.2	No Information available

Summary of predicted effects

A summary of likely predicted effects on important ecological features is provided in table 4 below.

Table 4 Summary of predicted effects

Predicted effect	Good Practice Measures	Significance	Predicted Effect	Additional Compensation/Mitigation	Residual Significance	Residual effect
Construction Phase						
Permanent loss of bog, wet heath	Hydrological mitigation measures.	Not Significant	Minor	None	Not Significant	Negligible
Unintentional disturbance/injury/deaths to badger and otter	Pre-construction surveys, Cover excavations and limit vehicle speed on-site.	Not Significant	Negligible	Creation of SPPs	Not Significant	Negligible

Statement of Significance

- 3.67 Following the implementation of good practice, embedded mitigation and detailed mitigation and enhancement for habitats, and measures to mitigate for the risk to protected species, no significant environmental effects are predicted as a result of the changes of infrastructure and remains consistent with the findings of Chapter 9: Ecology of the Fell Wind Farm EIA Volume 1 of the original EIA. This includes development of a detailed HMP to be agreed in tandem with the Local Planning Authority, and NatureScot, if required. The HMP will be the mechanism through which mitigation measures described in this report, as well as enhancements requirements under NPF4, will be developed and implemented.

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- Langton, Beckett, & Foster, (2001). Great Crested Newt Conservation Handbook.
- Margree Wind Energy Ltd. (2015). Supplementary Environmental Information, Margree Wind Farm, Volume 1 – Main Text.
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- NatureScot (2024). Standing advice for planning consultations - Water Voles

4 TRAFFIC AND TRANSPORT

Introduction

- 4.1 This chapter assesses the likely effects of the Proposed Development on the existing transport network and on sensitive receptors as a result of the construction, operation and decommissioning phases of the development. The key objectives of the chapter are to:
- Describe the assessment methodology and significance criteria used in completing the assessment;
 - Describe the current traffic and transport conditions;
 - Identify and assess the likely effects;
 - Identify and describe the mitigation measures proposed to address any significant effects; and
 - Assess any residual effects post mitigation implementation.
- 4.2 It is noted that a full EIA was submitted with the original Fell Windfarm application which was consented (20/0148/FUL) and varied (22/0471/S42) and included a chapter on traffic and transportation. The access strategy has now changed with access for general construction vehicles now proposed from the north rather than the south (which is the subject of the Section 42 application to vary the consent). Abnormal loads vehicles would still access via the south as per the original application. This updated traffic and transportation chapter therefore contains an updated assessment which is based on the updated access strategy for the development.
- 4.3 This chapter has been prepared by SYSTRA Ltd and is supported by the following figures as contained within Volume 2: Figures:
- Figure 11.1: Study Area;
 - Figure 11.2: Traffic Counter Locations; and
 - Figure 11.3: Abnormal Loads Route.
- 4.4 SYSTRA has extensive experience in the preparation of Traffic and Transport EIA Report Chapters (formerly Environmental Statements). SYSTRA's EIA team have produced Traffic and Transport EIA Report Chapters and Abnormal Loads Assessment reports for numerous wind farm developments across Scotland and for numerous wind farm developments within The Dumfries and Galloway Council administrative area.

Legislation and Policy Context

- 4.5 This Chapter has been prepared taking cognisance of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations) and relevant documents set out in Chapter 5 (Renewable Energy and Planning Policy) of this EIA Report.
- 4.6 This assessment is informed by the following policy documents, data sources and guidelines:
- National Planning Framework 4 (NPF4, Scottish Government 2023);
 - Institute of Environmental Management and Assessment (IEMA) publication - "Environmental Assessment of Traffic and Movement", 2023 ("the IEMA Guidelines");
 - Transport Assessment Guidance (Scottish Government, 2012);
 - Department for Transport (DfT) publication "Design Manual for Roads and Bridges" (DMRB, DfT 2013);
 - Planning Advice Notice (PAN) 75 – "Planning for Transport" (Scottish Government 2005).

Consultation

- 4.7 Consultation was undertaken with the Road Officers at Dumfries and Galloway Council (DGC) as part of the EIA Scoping exercise for the original application for 11 turbines on the site in 2018 which was consented. It is considered that the responses received in 2018 remain relevant to this Section 42 application and are therefore summarised in Table 11-1 along with an updated consultation response received from Dumfries and Galloway Council in relation to the newly proposed access strategy.

Consultee	Summary	Addressed
Dumfries and Galloway Council (DGC) (2018 response)	DGC Roads have no objections in principle to the proposal and have no issues with the proposed assessment scope or methodology outlined in the Scoping Report. DGC Roads offer the following observations to be considered in the ES: 1. It would be appropriate that Transport Scotland be consulted with regard to any access utilising the Trunk Road network. 2. The road network in Dumfries and Galloway has been assessed relative to use by forestry extraction vehicles by	1. Transport Scotland no longer responds to EIA consultations in a statutory capacity. 2. Noted. 3. Noted. 4. Layouts detailing required accommodation works will be submitted to the

	Dumfries and Galloway Council in partnership with the Forestry Industry and this is reflected in the Agreed Routes Map. It should be noted that the C36s is listed as a consultation route. 3. Some improvements have been implemented on the C36s to accommodate Blackcraig Wind Farm. Where possible, collaborative work should be taken with other wind farms utilising similar routes. 4. It would be appropriate that any future application identify the full extent of proposed off-site road accommodation and mitigation works including passing place provision, carriageway strengthening, widening and alterations to road boundaries all along any proposed access routes necessary to permit construction traffic and the passage of component delivery vehicles (this may require land outwith the public road boundary and a separate planning consent may be required in respect of these works) and the potential impacts on utility services lying within the public road boundary. 5. All accommodation works must be designed and constructed to the satisfaction of the Planning Authority in consultation with the Roads Authority and will require appropriate permits and consents to have been issued. 6. Proposals for all accommodation works should be supported by swept path tracks. 7. Where public road boundaries are to be altered either for the formation of temporary accesses or for accommodation works, these should be reinstated in their original position at the conclusion of construction works (unless prior agreements have been secured with the Planning and Road Authorities). 8. It would be appropriate that	Planning Authority. 5. Noted. 6. Noted. 7. Noted. 8. A Construction Traffic Management Plan (CTMP) will be produced post-planning consent in agreement with the Roads Authority and Police Scotland). An indication of measures to be included in the CTMP is contained in the Mitigation Measures Section of this Chapter. Details such as projected traffic movements by programme month and vehicle type are included in this Chapter and will be included in the emerging CTMP. 9. Noted, potential cumulative effects associated with other wind farm developments are considered within this chapter and the CTMP will co-ordinate traffic movements with other development sites where appropriate.
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	any future submission/ES include reference to a Traffic Management Plan (to be agreed in writing with the Police and the Roads Authority prior to any works commencing on site) that should include a programme of projected traffic movements associated with the project by programme month and vehicle type, details of all proposed mitigation measures, agreed and excluded access routes, enforcement measures (driver code of conduct and disciplinary action) and details of measures that will be implemented to ensure that no stacking of delivery vehicles occur on any part of the public road network. 9. Whilst it is accepted that the intention is that normal and abnormal loads will take access and egress via an 'agreed' route, there is likely to be some increase in traffic using other minor roads. There is also the possibility of other unrelated windfarm projects being constructed in the vicinity concurrently with this project. Therefore, it would be appropriate that the TMP acknowledge that co-ordination phasing may be required to mitigate against the cumulative traffic impact. 10. Any future submission/ES should include worst-case details of tonnages and vehicle movements so that the potential impact of importing aggregate from elsewhere via the public road network be assessed. 11. It would be appropriate that there should be consultation with nearby forest managers and timber hauliers through the office of the South of Scotland Timber Transport Officer to co-ordinate timber haulage operations that may use the access route during the construction period to minimise the cumulative impact on communities and road users.	10. This assessment is based on robust scenarios and considers the likely worst-case impact of traffic associated with the Proposed Development during the busiest month of construction in terms of vehicle movements. 11. Noted, these discussions can take place post-planning consent and any actions agreed can be implemented through the CTMP.
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Dumfries and Galloway Council (DGC) (2024 response)	12. The new access for the Fell WF must be considered in the context of the overall wind farm proposal, and EIA. The proposed access off the A702 is fundamentally different to the consented access coming in from the south, in terms of the principle. Cumulative and intrinsic environmental impacts associated with coming in from the A702 have not previously been considered in the Fell WF EIA. The potential effects of the new access off the A702 cannot be considered in isolation from the Fell WF because it is an integral component of the wind farm.	The applicant withdrew the stand-alone planning application for the northern access and has now submitted a Section 42 application to vary the original consent. A comparative EIA has been prepared to support the application and this chapter provides an updated assessment of traffic and transportation based on the new access strategy.
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Scope of Assessment

- 4.8 The assessment is made with reference to the Proposed Development, as described in Chapter 3: Project Description and Construction Methods.

Abnormal Load Deliveries

- 4.9 The most identifiable traffic and transport characteristic associated with wind farm developments is the need to transport the wind turbine components to the Site. Turbine components would be delivered to an appropriate Port of Entry (PoE) and then transported as abnormal loads to the Site via the public road network.
- 4.10 Initial assessment has identified the likely PoE for the turbines would be King George V Docks in Glasgow from where the abnormal loads vehicles would navigate onto the M8 towards the M74, M6 and A75 Trunk Roads. The abnormal loads will exit the A75 at Castle Douglas Interchange and continue north-west along the A713 for approximately 20km until the junction with the A712. The abnormal loads vehicles will turn right onto the A712 and continue east for approximately 6km to the junction with the C36S, then continue on the C36S and C117S to the Site access point. The proposed route is indicated by Figure 11.3
- 4.11 It is anticipated that the route via the trunk road network from the port of delivery will generally be of a suitable standard to accommodate the abnormal loads associated with the Proposed Development as it is a tried and tested route by other nearby wind farm developments. Some upgrade work will be required on the local road network to enable abnormal loads

but the route is shared with other consented EnergieKontor windfarms so the requirements are known and understood. The ALA route is indicated in Figure 11.3.

General Construction HGVs

- 4.12 There is also a need to bring to the Site general construction materials (concrete, aggregates, pipes, cabling, etc.) in standard heavy goods vehicles (HGVs). The characteristic of this form of traffic is a temporary intensification of HGV traffic on the road network. This intensification varies depending on the scale of the development, the construction stage and operational requirements. A small amount of traffic would also be generated by construction workers commuting to/from the Site during the construction and operational stages.
- 4.13 General construction HGV traffic is proposed to access the Site from the west via the A713, either approaching from the north or south, or the A712 from the east, the via the B7075 to the the B702 towards the site access.

Cumulative Assessment

- 4.14 The potential for a cumulative assessment in respect of the traffic and transport effects has been considered for other wind farm developments within the surrounding area that would potentially utilise the same road network as the proposed development during the construction period.
- 4.15 It is recognised that the construction period represents the greatest intensification in traffic although it is important to note that this intensification is temporary in nature. The parameters and assumptions used to inform this chapter have been designed to represent a robust and worst-case scenario.

Potential Effects Scoped Out

- 4.16 On the basis of a detailed desktop study, the professional judgement of the Environmental Impact Assessment (EIA) team and experience from other relevant projects and policy guidance, the following characteristics have been scoped out of this Traffic and Transport Chapter.

Operational Stage

- 4.17 Once the Proposed Development is operational, the amount of traffic associated with a wind farm is minimal, relating to general site maintenance and maintenance of wind turbines only. Vehicles used for maintenance are likely to be road going 4x4s. There may, on rare occasions be the need for HGV access to the wind turbines. It is estimated that on average there would be two 4x4s accessing the Site on a monthly basis and one HGV every 3 months. It is considered that the effects of vehicle movements during the operational phase would be negligible. In respect of traffic and transport the operational phase of the Proposed Development is therefore not assessed in this Chapter. Therefore, the effect of vehicle movements during the operational phase will be negligible. In respect of transport, the operational phase of the Proposed Development is therefore not assessed further.

Decommissioning Stage

- 4.18 Planning permission for the Proposed Development is sought for a 35 year period, after which time the Proposed Development will be decommissioned unless a further application is submitted for an operational extension. Traffic associated with the decommissioning stage is anticipated to be significantly less than that generated during construction.
- 4.19 Given the timescales involved and the likelihood for changes to the baseline situation during this period, the transport and access effects of wind farm decommissioning are not assessed further.

Peak Hour Congestion

- 4.20 The effect of construction related vehicles on the road network is considered unlikely to be significant in terms of peak hour congestion as deliveries will be spread out across the day. Therefore, detailed junction capacity assessments have not been undertaken.

Access Tracks and Beyond the Study Area

- 4.21 The effect of increased traffic associated with the Proposed Development on existing access tracks is not anticipated to have a discernible environmental effect and is therefore not appraised in this report. The effects of the Proposed Development on the local public road network are included.
- 4.22 It is anticipated that the volume of traffic associated with the construction of the Proposed Development will not have a discernible effect on roads and sensitive receptors outwith the study area as the effects of traffic are diluted with increasing distance from the point of origin.

Assessment Methodology & Significance Criteria

Assessment of Effects

- 4.23 The assessment of effects is based on the project description as outlined in Chapter 3: Project Description and Construction Methods.
- 4.24 This assessment is structured around the consideration of potential environmental effects relating to traffic and transport, as identified by the IEMA Guidelines and including the following:
- Severance of communities
 - Road vehicle driver and passenger delay
 - Non-motorised user delay and amenity
 - Fear and intimidation on and by road users
 - Road user and pedestrian safety
 - Hazardous and large loads
- 4.25 There are no hazardous loads associated with the Proposed Development.
- 4.26 Guidance for the assessment of the environmental effects of generated traffic is provided in the IEMA document, "Environmental Assessment of Traffic and Movement". The document is the only guidance document currently available that sets out a methodology for assessing potentially significant environmental impacts where a Proposed Development is likely to give rise to changes in traffic flows.
- 4.27 The guidance suggests that in order to determine the scale and extent of the assessment and the level of impact the development will have on the surrounding road network, the following two 'rules' should be followed.
- Rule 1 – Include road links where traffic flows are predicted to increase by more than 30%; and
 - Rule 2 – Include any other specifically sensitive area where traffic flows are predicted to increase by 10% or more.
- 4.28 These rules are used to identify the road links within the Study Area where a full assessment of environmental effects associated with an intensification in road traffic may be required. It is noted that further consideration should be given to road user and pedestrian safety as well as driver delay effects even if the above thresholds are not exceeded.

Study Area

- 4.29 The Study Area for the assessment of traffic and transport has been identified using the assessment thresholds within the IEMA Guidelines as an aide and is

indicated by Figure 11.1: Study Area. The study area has been predicated on the access point to the Site and the proposed routes to this access point from the external road network. To determine appropriate access routes, detailed consideration and assessment of the surrounding road network has been undertaken and the location of nearby sensitive receptors has been considered. Notwithstanding this, the route taken by construction vehicles will largely depend on where the construction materials are sourced. A comprehensive desk-based study has been undertaken to fully understand the surrounding road network.

- 4.30 The results have established that the most appropriate route for general construction HGV traffic is via the A713, either approaching from the north or south, or the A712 from the east and onto the B702 via the B7075 to travel towards the site access. This avoids construction traffic routing through the village of Moniaive (east along the A702) where the road is narrow with on-street parking. The centre of St John's Town of Dalry along the A702 will also be avoided where there is a concentration of pedestrians and other road users (albeit the A713 travels through the west of St John's town of Dalry past some residential properties and some amenities). Therefore, the route has been selected to avoid sensitive receptors as far as practicable. A Construction Traffic Management Plan (CTMP) will be used to ensure that construction vehicles are kept on the preferred haul routes.
- 4.31 Should stone require to be imported, it is currently unknown which quarry or quarries would be used, but it is considered most likely that access would be via the A712, B7075 and A702.
- 4.32 The study area is therefore identified as:
- The A702;
 - The B7075;
 - The A712; and
 - The A713.
- 4.33 It is considered highly unlikely that there would be any significant effects on the road network outside of the study area identified above as traffic will be diluted across the road network beyond these points.
- 4.34 The C36S and C117S would only be utilised by abnormal loads vehicles over three months of the construction phase and not general construction traffic, therefore these roads are not included in the study area. The C36S was used as a construction route for the nearby Blackcraig Wind Farm with improvements carried out for that purpose therefore the road is considered to be of a suitable standard to accommodate the limited number of abnormal loads vehicles required for construction of the Proposed Development.
- 4.35 Taking into account the IEMA Guidelines for sensitive receptors, it is considered that the A712 within the settlement of Corsock would be classed

as a sensitive receptor since there would be pedestrians present and local services/amenities with direct frontage onto the A712. St Johns Town of Dalry would also be considered a sensitive receptor however it is assumed that only a small proportion of construction traffic would originate north of the village, and therefore route through the village. It is considered that all road links within the study area are subject to Rule 1(30% threshold), with the settlements of Corsock and St Johns Town of Dalry identified as sensitive receptors and subject to Rule 2 (10% threshold).

Desk Based Research and Data Sources

- 4.36 There are no hazardous loads associated with the Proposed Development.
- 4.37 The traffic and transport study area characteristics have been determined by a desk-based assessment and Automatic Traffic Count (ATC) surveys commissioned for the Proposed Development. The source of the traffic count information at each of the road links identified in the study area is set out below and is illustrated by Figure 11.2:
- Commissioned ATC data collected for the A702 over a 7-day period (6th October – 12th October 2024).
 - Commissioned ATC data collected for the B7075 over a 7-day period (6th October – 12th October 2024)
 - Commissioned ATC data collected for the A712 over a 7-day period (4th October – 10th October 2019); and
 - Commissioned ATC data collected for the A713 over a 7-day period (4th October – 10th October 2019).

Assessment of Significance

- 4.38 The following section sets out the methodology used to assess the significance of effects at locations along the proposed public road routes within the study area where total traffic levels or the level of HGV traffic exceed the screening thresholds set out by IEMA.

Evaluation of Sensitivity

- 4.39 The sensitivity to change in traffic levels of any given road segment and the receptors located along that road segment are generally assessed by considering the residual capacity of the network under existing conditions. Where there is a high degree of residual capacity, the network may readily accept and absorb an increase in traffic and therefore the sensitivity may be said to be low. Conversely, where the existing traffic levels are high compared to the road capacity, there is little spare capacity, and the sensitivity to any change in traffic levels will be considered to be high.
- 4.40 Consideration has been given to the composition of the traffic on the road network, under both existing and proposed conditions. For example, light

goods vehicles (LGVs) have less effect on traffic and the road system than HGVs. Similarly, HGVs can have less effect than abnormal load vehicles, depending on the frequency of the abnormal loads.

- 4.41 The criteria that have been used to make judgements on the sensitivity of the receptor(s) and the magnitude of change are presented in Table 11-2.

Table 11.2: Receptor Sensitivity

Sensitivity	Criteria
High	Receptors of high importance and value on international or national scales. Designated or heritage areas of unique value. Large settlements with a large number of public services and facilities, traffic control measures and regular use by pedestrians and cyclists. Minor and historic roads not generally suitable for HGV traffic.
Moderate	Receptors of some regional importance. Medium-sized settlements with some public services facilities and infrastructure and some traffic control measures, including some accommodation for pedestrians and cyclists. Capable of supporting regular HGV traffic.
Low	Receptors with low regional importance. Typically, small settlements with few facilities and no traffic control measures and with nearby trunk or A-class roads that are able to accommodate HGV traffic.
Negligible	Users not sensitive to transport effects. Includes very small settlements and roads with no significant settlements including new strategic trunk roads or motorways.

Evaluation of Magnitude

- 4.42 The magnitude of traffic effects is a function of the existing traffic volumes, the percentage increase and change due to the Proposed Development, changes in the type of traffic and the temporal distribution of traffic (day of week, time of day).
- 4.43 The determination of magnitude has been undertaken by reviewing the Proposed Development, establishing the parameters of the receptors that may be affected and quantifying these effects utilising IEMA Guidelines and professional judgement.
- 4.44 The criteria that has been used to make a judgement on the magnitude of the effect on the receptor(s) is provided in Table 11-3.

Table 11.3: Thresholds for Determining Magnitude of Effects

Magnitude	Criteria
Major	>90% increase in traffic
Moderate	60%-90% increase in traffic

Minor	30%-60% increase in traffic
Negligible	0%-30% increase in traffic

- 4.45 In line with Rules 1 and 2, as set out in paragraph 11.13, an increase in traffic on a particular route of less than 30% is generally not considered significant and does not warrant an assessment, except in areas of particular sensitivity. In this instance, an increase of more than 10% will be assessed. An increase of less than 10% does not warrant assessment even in sensitive areas given that daily variations in background traffic flow may vary by this amount.

Evaluation of Significance

- 4.46 As a guide to inform the assessment, but not as a substitute for professional judgement, criteria for determining the significance of traffic related effects are set out in Table 11-4. This is based on combining the magnitude of the effect with the receptor sensitivity.

Table 11.4: Significance Matrix

		Magnitude of change			
Sensitivity		Major	Moderate	Minor	Negligible
	High	Major	Major/ Moderate	Moderate	Moderate/ Minor
	Moderate	Major/ Moderate	Moderate	Moderate/ Minor	Minor
	Low	Moderate	Moderate/ Minor	Minor	Minor/ Negligible
	Negligible	Minor	Negligible	Negligible	Negligible

- 4.47 The effects recorded in grey highlighted cells are considered to be '**Significant**'.
- 4.48 Significance is categorised as major, moderate, minor or negligible. Effects judged to be of minor or negligible significance are considered '**Not Significant**'.

Baseline Conditions

- 4.49 The following paragraphs detail the baseline conditions of the road links identified as being within the Study Area in addition to the Site access tracks.

A702

- 4.50 The A702 runs between Edinburgh and St John's Town of Dalry (meeting the A713) and routes through the village of Moniaive. In the vicinity of the

Proposed Development, the road is a rural single carriageway without footways or streetlighting and is subject to the National Speed Limit (60 mph). There are a small number of isolated properties along the A702.

- 4.51 All general construction traffic associated with the Proposed Development will be required to use the A702 to reach the northern Site access point. As discussed above, construction traffic would approach the Site from the west to avoid routeing through Moniaive and would turn onto the A702 from the B7075 as opposed to travelling through the centre of St John's Town of Dalry.

B7075

- 4.52 The B7075 within the Study Area comprises an approximately 2.8 km long stretch of road between the A712 and the A702. The road has similar characteristics to the A702 in that it is a rural single carriageway without a footway and has a small number of isolated properties along the route.
- 4.53 All general construction traffic will utilise the B7075 to reach the A702 from the A713 via a short section of the A712. This route means that the centre of St John's Town of Dalry is avoided to minimise the impact of traffic associated with the Proposed Development on sensitive receptors.

A712

- 4.54 The A712 is a good standard single-carriageway road which runs in a south-east to north-west direction between the A75 at Newton Stewart and the A75 at Crocketford, passing the villages of Corsock and Balmaclellan in the vicinity of the Site. The A712 is subject to varying speed limits with sections of 30mph through settlements and the National Speed Limit (60mph) elsewhere in more rural locations. The A712 is a route well-used by HGV traffic and provides connections to the A75 and the A713 in the vicinity of the Site.
- 4.55 The majority of general construction traffic would be required to use a section of the A712 to route from the wider road network to the A702 (via the B7075). Construction vehicles will approach from the east (A713) or west (A75) depending on the origin of materials and staff.

A713

- 4.56 The A713 is a good standard single-carriageway road which runs in a north-west to south-east direction between Ayr and Castle Douglas through St Johns Town of Dalry. The A713 is subject to varying speed limits with sections of 30mph through towns/villages and the National Speed Limit (60mph) elsewhere in more rural locations. The A713 is a route well-used by HGV traffic and provides connections to the A712 and A75 in the vicinity of the site.
- 4.57 The A713 forms part of the abnormal loads route and is likely to be used by a proportion of general construction traffic originating from a north-west

and/or south-west direction to route from the wider road network and onto the A702.

Baseline Traffic Flows

- 4.58 Table 11-5 describes the source and location of the traffic counters used to establish baseline traffic flows, also illustrated in Figure 11-2.

Table 11.5: ATC Locations

Location	Data Source
1. A702	2024 Survey
2. B7075	2024 Survey
3. A712	2019 Survey
4. A713	2019 Survey

- 4.59 Table 11-6 indicates the two-way Average Daily Traffic Flow (ADT) in the Study Area and the percentage of traffic which is classified as HGVs. Future year traffic forecasting from 2024 to 2028 (assumed as the year construction would begin) using the National Roads Traffic Forecast 'low growth' rate (1.021) has been applied to the data to represent a robust assessment of the baseline conditions.

Table 11.6: Summary of baseline traffic data

Location	Base ADT 2024	Base ADT HGV 2024	2028 ADT	ADT HGV 2028	Percentage HGV
1. A702	194	32	198	33	16%
2. B7075	212	38	216	39	18%
3. A712	1,247	157	1273	160	13%
4. A713	1,688	200	1723	204	12%

Road Safety

- 4.60 The Crashmap website has been utilised to determine the number of accidents that have occurred in the five year period 2018-2022 (the most recent available data) along the road links within the identified study area. The results of this investigation are indicated by Table 11-7 with additional commentary provided on serious and fatal accidents, if applicable.

Table 11.7: Accident statistics

Counter Location	Slight	Serious	Fatal	Comment
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1. A702	-	2	-	Two serious accidents between Corriedoo and Holmhead, both in 2022 and both involving one vehicle and one casualty.
2. B7075	-	-	-	
3. A712	3	-	-	-
4. A713	2	4	-	One serious accident at the A712 northern junction (west of A713) involving 2 vehicles and one casualty in 2019.

- 4.61 Table 11-7 indicates that a total of 5 slight and 6 serious accidents have occurred within the study area over the previous five years. The accidents are spread out across the road network with no identifiable accident 'hot spots' or clusters.

The 'Do Nothing' Scenario

- 4.62 If the Proposed Development was not implemented then it is likely that there would be no significant changes to the traffic and transport situation in the vicinity of the Proposed Development, other than changes to background traffic as a result of general traffic growth and any nearby committed developments

Identification and Evaluation of Key Effects

Construction Programme

- 4.63 The construction traffic associated with the Proposed Development would comprise of construction workers, HGVs / LGVs carrying construction materials & plant, and abnormal load vehicles carrying the main wind turbine components.
- 4.64 Estimates of traffic generation associated with the construction phase of the Proposed Development have been calculated from first principles and consider the following activities:
- Highway modifications to enable vehicles to access the Site from the strategic and local highway network;
 - Installation of construction compound/storage area for Site office facilities and storage of materials and components;
 - The excavation of the borrow pit and extraction of aggregate for new tracks, upgrades existing tracks and hardstandings;
 - The felling of existing areas of forestry to make way for ground infrastructure, with suitable buffers to allow normal operation of the wind farm;
 - Construction of new permanent Site tracks and the upgrading of existing sections;
 - Installation of hardstandings and outrigger pads for the support of the

cranes that would be used for the erection of the turbines;

- Construction of foundations for the support of the turbine structures;
- Wind turbine delivery and erection;
- Installation (if necessary) of transformers in separate housings alongside each wind turbine;
- Installation of on-Site High Voltage (HV) cabling, communication cabling and earthing;
- Installation of Supervisory Control and Data Acquisition (SCADA) system;
- Construction of substation;
- Commissioning of Site mechanical and electrical equipment; and
- Reinstatement, landscaping, removal of temporary Site offices, reseeding verges, borrow pit and areas around turbine bases.

4.65 The works would mainly follow the order detailed above, but many would be carried out concurrently to reduce the overall length of the construction programme. There would be construction phasing, with civil engineering works progressing in some areas whilst turbines are being erected elsewhere. In order to minimise disruption to land use, Site restoration would be undertaken as early as possible in development areas.

4.66 At this stage, it is proposed that construction activities on-site shall only take place between the hours of 07:00 to 18:00 on Monday to Friday inclusive and 07:00 to 13:00 hours on a Saturday, with no construction works on Sundays or Bank Holidays, unless otherwise agreed with DGC. Outside of these hours, there may be a requirement to take advantage of low wind speeds for the erection of turbines. In addition, turbine erection works cannot suddenly cease – in the event of a delay or complication it may be necessary to continue works beyond normal hours until they can end safely. Other activities that may take place outside these hours are limited to emergency works and dust suppression, unless otherwise agreed in writing by DGC.

4.67 There is expected to be between 15 and 25 personnel working on-site at any one time. It is important to note that the number of personnel on-site would vary during the construction process. It is expected that staff would travel to the Site by private car or works minibus.

4.68 In order to calculate a robust scenario, information was gathered regarding the materials required and the size of average loads associated with the construction vehicles. Table 11-8 includes an estimate of construction vehicle numbers required for each task during the construction period.

Table 11.8 – Estimated No. of HGV Trips during Construction

Construction Task	Vehicle Type	Approximate No. of Loads
Site establishment / Plant / Fuel / Misc and Site restoration	Low Loader, Dump Truck, Fuel and Misc Plant	337
General site deliveries	Low Loader and Dump Truck	68
Imported stone (access roads, crane hardstanding areas, other hardstanding areas)*	Dump Truck	3076
Reinforcement	Low Loader	18
Foundations (off-site batched concrete)	Concrete Wagon	680
Cabling deliveries	Low Loader	128
Erection of turbines	Abnormal Loads	72
Total Inbound Trips		4,379
Total Trips (Inbound plus Outbound)		8,758

*assumes 75% stone requirements are imported to the Site

- 4.69 Potential on-site borrow pits have been identified and it is likely that a proportion of the required stone can be sourced from them. It is the Applicant's intention to win stone in this manner in order to construct access tracks and hardstanding areas. The use of borrow pits will help to reduce HGV levels considerably. For the purposes of this assessment, it is assumed that 75% of the stone estimated to be required to construct the site would be sourced from an off-site location thus the assessment undertaken represents a very conservative and robust approach.
- 4.70 In addition to the construction vehicles identified in Table 11-8, it is anticipated that there would be approximately 30 - 50 two-way daily private car/LGV trips to the Site associated with construction staff/welfare. This equates to a maximum of 25 arrivals and 25 departures at the start and end of the working day. In these circumstances, the effects of car/LGV traffic are considered to be negligible, therefore not significant, however, to represent a robust assessment this number of non-HGV trips has been included in the assessment.
- 4.71 It is anticipated that the abnormal loads will require car or LGV escort vehicles whilst transporting the turbines. This would equate to approximately four vehicles per day when transporting the abnormal loads. This impact is

considered to be negligible and not significant and has therefore not been assessed further.

- 4.72 The construction of the Proposed Development would take approximately 12 months. Using the indicative construction programme, the number of construction trips that are anticipated to visit the Site for each month of the construction period has been calculated and is presented within Table 11-9.

Table 11-9: Estimated No. of HGV Trips per Month

Activity	1	2	3	4	5	6	7	8	9	10	11	12	Total
Site establishment / Plant / Fuel / Misc and Site restoration	42	25	15	15	15	15	15	15	15	15	75	75	337
General site deliveries		6	6	6	12	12	12	6	4	4			68
Imported stone (access roads, crane hardstanding areas, other hardstanding areas)*	514	514	514	514	510	510							3,076
Reinforcement				5	5	4	4						18
Foundations (off-site batched concrete)				145	145	145	145	100					680
Cabling deliveries							37	58	33				128
Erection of turbines								24	24	24			72
Total Inbound Trips	556	545	535	685	687	686	213	203	76	43	75	75	4,379
Total Trips (Inbound plus Outbound)	1,112	1,090	1,070	1,370	1,374	1,372	426	406	152	86	150	150	8,758

- 4.73 The construction Site may be operational 11 hours every weekday (07:00 – 18:00) and 6 hours on a Saturday (08:00 – 14:00), with no construction works on Sundays or Bank Holidays, therefore vehicles could be arriving or leaving at any time during this working week of 5.5 days. Construction vehicles would be arriving and departing the Site at regular intervals during expected Site working hours.
- 4.74 Table 11-9 indicates that the HGV trips are relatively well spread out over the duration of the construction period. Month 5 has the highest number of trips associated with the importation of stone for the construction and upgrading of the Site access track network in combination with foundation construction and other Site establishment activities. The last four months are very light in terms of HGV trips when compared with the months with stone importation/access track construction.

Abnormal Load Movements

- 4.75 With regard to the movement of abnormal load vehicles, Table 11-9 indicates that abnormal loads will only be transported over three months of the 12-month construction period. Assuming 24 inbound abnormal load vehicle trips per month, this equates to approximately 6 inbound trips per week. Abnormal load vehicles are restricted in the hours that they can operate and a maximum of four abnormal loads would be transported on any given day. It is also noted that abnormal load vehicles will retract to the size of an HGV for their return journey once the loads have been delivered to the destination, equating to 6 inbound abnormal load trips plus 6 outbound HGV trips per week.
- 4.76 The movement of abnormal loads may be spread out evenly across the day of the week or concentrated over 2 – 3 days within each week, therefore meaning that there would be no movements on the remaining days of the week. The schedule of movements of abnormal loads will be agreed upon following discussions with the hauliers and Police Scotland to ensure the least impact on the road network as possible.
- 4.77 Given this low number of vehicles and the short duration for which abnormal load vehicles will be on the local road network, it is not anticipated that the number of abnormal load vehicles will give rise to any significant environmental effects within the Study Area. As a result, no further assessment of the effect of abnormal load vehicles has been undertaken.

Worst Case Assessment

- 4.78 The worst-case month for construction HGVs traffic is Month 5 with an estimated 1,374 two-way HGV trips. Assuming four weeks per month, this equates to approximately 344 two-way HGVs per week (approximately 172 inbound and 172 outbound). Month 5 is therefore used to assess the impact and effect of the Proposed Development on the transport network. This estimate of HGV movements assumes that 75% of stone requirements are imported; however, there is a high possibility that a considerably higher proportion of stone could be sourced on-site which would significantly reduce the number of HGV movements. It is therefore considered that the traffic levels assessed are worst-case and provide a robust assessment of the Proposed Development's traffic impact.

- 4.79 The daily HGV trip generation for Month 5 is therefore estimated to be approximately 62 total trips (assuming 5.5 days per week). This equates to approximately 5 HGV trips per hour (2.5 inbound and 2.5 outbound), assuming an 11-hour working day. It is important to note that this number of trips applies to the worst-case month only which is Month 5; all other months have a significantly lower construction traffic generation.

Staff Movements

- 4.80 In addition to the construction vehicles illustrated in Table 11-8, it is anticipated that there would be approximately 30 – 50 two-way daily private car trips to the Proposed Development associated with construction staff. This equates to a maximum of 25 arrivals and 25 departures at the start and end of the working day, assuming as a worst case scenario no car-sharing amongst staff. This represents a small volume of traffic on an existing road network which does not suffer from congestion. Notwithstanding this, the potential impact of this level of trip generation has been considered in the assessment.

Construction Effects

Traffic Distribution

- 4.81 To assess the impact of construction traffic it is necessary to determine the distribution of trips generated. As discussed, abnormal load vehicles will likely navigate towards the site via the trunk road network from the PoE at Glasgow, and then approach the Site from the south along the A713, A712, B7075 and A702.
- 4.82 At this stage, the source of the construction materials is unknown and given that the A713 and A712 are both good standard roads in the vicinity of the Proposed Development, it is possible that a proportion of general construction traffic (HGVs and staff) could originate from either route. However, it is anticipated that the majority of general construction traffic will originate from the east via the A712 which provides a direct route to the wider strategic road network (without travelling along the A713). There are numerous possibilities for material sources and residential areas to draw staff from via this route.
- 4.83 Based on these assumptions, and in order to assess a robust scenario, a distribution of 100% of HGVs and staff vehicles has been applied to the A712 and 70% to the A713. 100% of construction traffic has been applied to the B7075 and A702 as it is assumed all traffic regardless of origin will travel on these routes. The sensitive receptor of Corsock would not necessarily experience the full 100% level of traffic generation as a percentage of traffic is likely to travel to the Site via the A713 and only use the section of the A712 to the west of the junction with the B7075.
- 4.84 All general construction traffic will be required to use the A702 as access to the proposed development is taken directly from this road.
- 4.85 It is important to note that this represents a worst-case scenario for each road link in isolation and this impact would not occur in reality as the total traffic distribution between all links could not exceed 100%. Table 11-10 below indicates the distribution of traffic across each counter location.

Table 11-10: Construction Traffic Distribution

	1.A702	2.B7075	3.A712	4.A713
% Distribution of HGV's	100%	100%	100%	70%
% Distribution of staff	100%	100%	100%	70%
Daily HGV movements	62	62	62	44
Daily staff movements	50	50	50	35
Total no. of daily movements	112	112	112	79

Construction Traffic Impact

- 4.86 Table 11-11 details the daily percentage increases in traffic flows associated with the construction of the Proposed Development at the traffic counters within the Study Area during the worst-case month. The location of the traffic counters is illustrated in Figure 11.2.

Table 11-11 - Assessment of Construction Traffic Impact (Month 5)

	1.A702	2.B7075	3.A712	4.A713
2028 ADT	198	216	1273	1723
2028 HGV	33	39	160	204
2028 % HGV	16%	18%	13%	12%
Month 5 daily HGV	62	62	62	44
Month 5 daily staff trips	50	50	50	35
2028 ADT + Month 5 total traffic	310	329	1385	1802
2028 HGV + Month 5 HGV traffic	95	101	223	248
Percentage increase in total traffic due to the proposed development	57%	52%	9%	5%
Percentage increase in HGVs due to the proposed development	191%	161%	39%	21%

- 4.87 Table 11-11 indicates that, as a worst case, the temporary increase in daily total traffic levels along the A712 and the A713 associated with the Proposed Development would be 9% and 5% respectively, whilst the increase in HGV traffic would be 39% and 21%. This exceeds the threshold for 'Rule 2' (increase of 10% or more at sensitive locations) for the sensitive receptors of Corsock on the A712 and St Johns Town of Dalry on the A713.
- 4.88 The increase in total traffic levels along the A702 and B7075 is predicted to be 57% and 52% respectively during the worst-case month. The temporary increase in HGV traffic is predicted to be 191% on the A702 and 161% on the B7075. This large percentage increase is due to low baseline levels of total and HGV traffic using these road links rather than a large absolute increase in vehicle numbers. Nevertheless, both percentage increases exceed the 'Rule 1' threshold of 30% increase and therefore a full assessment of these links is required.

Severance of Communities

- 4.89 The IEMA Guidelines advise that “Severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure”.
- 4.90 The potential for traffic associated with the Proposed Development to cause severance is assessed on a case by case basis using professional judgement where non-negligible traffic increases are predicted on roads through residential settlements.
- 4.91 Increased severance can result in the isolation of areas of a settlement or individual properties. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure. Severance effects could equally be applied to residents, motorists or pedestrians.

Road Link 1: A702 and Road Link 2: B7075

- 4.92 With reference to Table 11-3, the magnitude of the change in HGV levels along the A702 and B7075 is considered to be major (over 90%). As discussed, this is undoubtedly due to the fact that baseline HGV levels are very low rather than there being high traffic volumes associated with the construction of the proposed development. To put the increase in traffic levels into perspective, 62 total (inbound plus outbound) HGV movements per day equates to only five additional HGVs per hour over the course of a day.
- 4.93 The sensitivity of links 1 and 2 to an increased severance effect is considered to be negligible in accordance with Table 11-2. The A702 and B7075 within the study area are rural roads with a number of farm access roads but no settlements along the routes or facilities which would generate pedestrian movements.
- 4.94 Combining the major magnitude of change with the negligible sensitivity of the receptor in accordance with Table 11-4 equates to a likely significance of effect which is classed as minor and **Not Significant** as per the EIA Regulations.

Road Link 3: A712

- 4.95 The magnitude of the change in HGV levels along the A712 is considered to be minor given that the increase (39%) is between 10% - 40% of baseline levels at a sensitive receptor (Corsock). The sensitivity of the road link to an increased severance effect is considered to be moderate in accordance with Table 11-2. The road is generally rural in nature, however within the village of Corsock there are footways provided for pedestrians and it is considered that pedestrians are moderately sensitive to increased severance effects at this location.
- 4.96 Combining the minor magnitude of change with the moderate sensitivity of the receptor on the A712 equates to a likely significance of effect which is classed as moderate/minor and **Not Significant** as per the EIA Regulations.

Road Link 4: A713

- 4.97 The magnitude of change along the A713 is considered to be negligible (>30%). The sensitivity of the A713 to an increased severance effect is considered to be moderate in accordance with Table 11-2 as the route passes through the settlement of St Johns Town of Dalry (if originating on the A713 to the north). Various amenities are located on the main street such as a post office, bus stops and the Clachaig Inn mean this section of the route is likely to generate pedestrian activity. The negligible increase combined with the moderate sensitivity equates to a likely significance of effect which is classed as Minor and **Not Significant**.

Road Vehicle Driver and Passenger Delay

- 4.98 Some driver delay may be experienced when construction traffic is accessing the Site. The IEMA Guidelines advise "delays are only likely to be significant when the traffic on the network surrounding the Site is already at, or close to, the capacity of the system".
- 4.99 Traffic delay to non-development traffic may occur at several points on the network surrounding the Site including:
- At the Site entrance where there will be additional turning movements;
 - At intersections along the local road network which might be affected by increased traffic; and
 - At side roads where the ability to find gaps in traffic may be reduced, thereby lengthening delays.
- 4.100 It is noted that there are no significant areas of congestion within the Study Area at this point in time.

Road Links 1: A702 and 2: B7075

- 4.101 With reference to Table 11-3, the magnitude of the change in HGV levels along the A702 and B7075 is considered to be major given that the increase exceeds 90% of baseline levels. The sensitivity of these road links to an increased driver delay effect is considered to be low in accordance with Table 11-2 as there are very few junctions and therefore potential areas for delaying of other road users by turning HGVs. Furthermore, the AADF of both roads is low therefore sufficient excess capacity is available to accommodate additional vehicle movements without causing delay to other road users.
- 4.102 Combining the magnitude of the change with the sensitivity of the receptor in accordance with Table 11-4 equates to an effect which is classed as moderate and **Significant** as per the EIA Regulations. As a result, mitigation would be required to address this effect.

Road Link 3: A712

- 4.103 With reference to Table 11-3, the magnitude of the change in HGV levels along the A712 is considered to be minor given that the increase is between 10% - 40% of baseline levels. Within Corsock there are a number of properties which access directly onto the A712 and there are two junctions linking to unclassified roads. As such, the sensitivity of the road link to an increased driver delay effect is considered to be moderate in accordance with Table 11-2 as there are potential areas where other road users could be delayed by turning HGVs. It is however, noted that an additional 62 HGVs per day (as a worst-case) equates to less than six additional HGVs per hour.
- 4.104 Combining the magnitude of the change with the sensitivity of the receptor equates to an effect which is classed as moderate/ minor and **Not Significant** in accordance with the EIA Regulations.

Road Link 4: A713

- 4.105 With reference to Table 11-3, the magnitude of the change in HGV levels along the A713 is considered to be negligible given that the increase is between 21% of baseline levels. Within St Johns Town of Dalry there are a small number of properties which access directly onto the A713 and a few junctions with minor roads leading from the A713, however outwith the village there are very few junctions. The sensitivity of the road link to an increased driver delay effect is considered to be moderate in accordance with Table 11-2 as there are potential areas where other road users could be delayed by construction HGVs.
- 4.106 Combining the magnitude of the change with the sensitivity of the receptor equates to an effect which is classed as minor and **Not Significant** in accordance with the EIA Regulations.

Non-Motorised User Delay and Amenity

- 4.107 The IEMA Guidelines advise that “The assessment of pedestrian delay serves as a proxy for the delay that other modes of non-motorised users may experience when crossing roads”.
- 4.108 Traffic volumes, traffic composition, traffic speed, the existence of pedestrian footways and the existence of pedestrian crossings all contribute to the level of general pleasantness experienced by pedestrians and other vulnerable road users.

Road Links 1: A702 and 2: B7075

- 4.109 With reference to Table 11-3, the magnitude of the change in HGV levels along the A702 and B7075 is considered to be major (over 90%). As discussed, this is undoubtedly due to the fact that baseline HGV levels are very low rather than there being high traffic volumes associated with the construction of the proposed development.
- 4.110 The sensitivity of links 1 and 2 to an increased non-motorised user delay and amenity effect is considered to be low in accordance with Table 11-2. The A702 and B7075 within the study area are rural roads with a number of farm access roads but no settlements along the routes or facilities which would generate pedestrian movements, however cyclists may utilise the route.
- 4.111 Combining the major magnitude of change with the low sensitivity of the receptor in accordance with Table 11-4 equates to a likely significance of effect which is classed as moderate and **Significant** as per the EIA Regulations and mitigation will be required.

Road Link 3: A712

- 4.112 With reference to Table 11-3, the magnitude of the change in HGV levels (39%) along the A712 is considered to be minor. The sensitivity of the receptor to an increased pedestrian delay and reduced amenity effect is considered as moderate. This is due to the fact that there are pedestrians present within Corsock and, although there are footways present, no formal pedestrian crossing opportunities are provided potentially contributing to an increase in delay.
- 4.113 Combining the magnitude of the change with the sensitivity of the receptor equates to an effect which is classed as moderate/ minor and **Not Significant** in accordance with the EIA Regulations.

Road Link 4: A713

- 4.114 With reference to Table 11-3, the magnitude of the change in HGV levels along the A713 is considered to be negligible (21%). The sensitivity of the receptor to an increased pedestrian delay and reduced amenity effect is considered as moderate. This is due to the fact that there are pedestrians present within St Johns Town of Dalry.
- 4.115 Combining the magnitude of the change with the sensitivity of the receptor equates to an effect which is classed as minor and **Not Significant** in accordance with the EIA Regulations.

Fear and Intimidation by Road Users

- 4.116 IEMA guidelines state that “a further environmental impact that affects people is the fear and intimidation created by all moving objects”, with the extent of fear and intimidation dependent upon:
- The total volume of traffic;
 - The heavy vehicle composition;
 - The speed these vehicles are passing; and
 - The proximity of traffic to people.
- 4.117 The 2023 IEMA guidelines provide a weighting system to help quantify the likelihood and level of pedestrian fear and intimidation. Following this process, which is based on average traffic flows and vehicle speeds, the potentially sensitive areas such as Corsock on the A712 and St Johns Town of Daly on the A713 are assessed to have a level of fear and intimidation classed as ‘small’ which is the lowest level, and the magnitude of impact is deemed to be negligible. When the small sensitivity is combined with the negligible magnitude, the effect is assessed as minor and **Not Significant**.
- 4.118 The sensitivity of the A702 and B7075 roads to an increased fear and intimidation effect is considered to be negligible as there is unlikely to be any pedestrian activity along these road links due to the lack of footways present and no amenities which would generate pedestrian movement. When the negligible sensitivity is combined with the minor magnitude, the effect is assessed as minor and **Not Significant**.

Road User and Pedestrian Safety

- 4.119 The most recently available accident data for the road links within the Study Area has been summarised in Table 11-7.
- 4.120 An approximate calculation has been undertaken to quantify the level of accident risk that could be expected due to an increase in traffic associated with the Proposed Development. The likelihood of an accident occurring is commonly expressed in accidents per million vehicle-km. Accidents that are appraised in relation to transport are predominantly those in which personal injury is sustained by those involved (personal injury accidents (PIAs)).
- 4.121 For the purpose of this calculation, it has been assumed that the length of road is 10.5km for the A702, 2.8km for the B7075, 14.7km for the A712 and 16.9km for the A713, making a total of approximately 44.9km, which can be generally classified as ‘rural typical single carriageway’ in accordance with the criteria set out within DMRB.
- 4.122 Accident rates from the DMRB for this standard of road are:
- Rural typical single carriageway: 0.190 Personal Injury Accidents (PIA) per million vehicle-km.
- 4.123 Assuming a two-way trip on the 44.9km route for each of the 4,379 vehicles during the construction period (as set out in Table 11-9), a total distance of 393,234km is obtained.

Based on the rate above; this suggests 0.0747 accidents during the construction period associated with the additional traffic.

- 4.124 It is considered that the magnitude of this effect is negligible but receptor sensitivity to this effect is always considered as high. When combined, the effect can be classified as moderate/minor and **Not Significant**.

Hazardous and Large Loads

- 4.125 There are no hazardous loads associated with the Proposed Development.
- 4.126 IEMA guidelines state that "The movement of large (abnormal) loads is regulated by National Highways and will be subject to separate agreement with the relevant highway authorities and police". The number and schedule of abnormal load trips associated with the Proposed Development is detailed in Table 11-9 and equates to six abnormal loads per week over weeks 8 to 10 of the construction programme. This impact is considered to be negligible and **Not Significant**.

Cumulative Impacts and Interaction of Effects

Cumulative Impacts

- 4.127 Cumulative effects have been considered for other wind farm developments in the vicinity of the Proposed Development, excluding operational Wind farms as the traffic impacts relate primarily to the construction phase. These developments either have planning consent but are yet to be constructed or are currently in planning and could utilise a common access route for general construction traffic. The potential for cumulative effects has been assessed by reviewing data available from the Traffic and Transport Chapters within the respective EIARs for the relevant developments.
- 4.128 Whilst the developments identified in Table 11-12 may share a similar route for abnormal load vehicles, the restrictions in place and requirement for Police approval and escort means that abnormal load deliveries would not be permitted to occur at the same time. Therefore, there is no scope for a cumulative effect of abnormal load movements.

Table 11.12 – Potential Cumulative Impact Wind Farm Schemes

Site Name	Status	Turbine Count
Knockman Hill Wind Farm	Consented	5
Glenshimmeroch Wind Farm	Consented	10
Divot Hill Wind Farm	Consented	9
Margree Wind Farm	Consented	9
Troston Loch Wind Farm	Consented	14
Cornharrow Wind Farm	Consented	7

Consented Wind Farms

Knockman Hill Wind Farm

- 4.129 Natural Power gained consent in 2013 for a five-turbine wind farm located approximately 5km north-east of St Johns Town of Dalry. Knockman Hill Wind Farm will be accessed from the A702 and may also utilise the A712 and A713. The traffic generation for the construction of five turbines will be less than that associated with the Proposed Development and the construction programme will be over a relatively short period given the number of turbines. Due to the different stages of planning it is unlikely that the peak months of construction would coincide.

Glenshimmeroch Wind Farm

- 4.130 Glenshimmeroch Wind Farm gained consent in 2019 for 10 turbines up to 149.9m base to tip height on land at Glenshimmeroch Hill, approximately 6km north east of St Johns Town of Dalry. Subsequent applications have been granted to increase the tip height and operational lifespan of the project.
- 4.131 The access route for Glenshimmeroch comprises the A713, the B7000 and the C51s, therefore, the only overlap in routes is the use of the A713 and no cumulative effects would occur on the A712, B7075 or the A702. Traffic figures from the Traffic and Transport EIA chapter for the Glenshimmeroch development indicate that that during the worst-case month traffic associated with the construction of Glenshimmeroch would increase total traffic levels along the A713 by 2% and HGV traffic by 22%. It is highly unlikely that the worst-case month associated with constructing Glenshimmeroch would coincide with the peak month of construction of the Proposed Development, nevertheless, the A713 has a large carrying capacity with a considerable amount of residual capacity, therefore, it is not expected that any significant cumulative effects will occur if the construction phases overlap.

Divot Hill Wind Farm

- 4.132 Divot Wind Farm gained consent in 2024 for 9 turbines up to 200m base to tip height on land at Divot Hill, approximately 6km north east of St Johns Town of Dalry.
- 4.133 Information from the Traffic and Transport EIA chapter for the development indicates a similar route to site as the proposed development, with access taken from the A702, and the route to the access via the B7075 and A712 and/ or A713. The worst case increase due to construction traffic is noted as 31 total daily trips during month 6, an increase of 158% of HGV trips on the A702/B7075 and 17% HGV trips on the A712 and A713.
- 4.134 It is highly unlikely that the worst-case month associated with constructing Margree would coincide with the peak month of construction of the Proposed Development, particularly as both developments are at different stages of planning, nevertheless construction traffic management plans would be implemented for both developments to schedule avoidance of overlap of peak traffic generating months.

Margree Wind Farm

- 4.135 Margree Wind Farm gained consent in 2022 for up to nine turbines on land approximately 6km north east of St John's Town of Dalry. Information from the Traffic and Transport EIA chapter for the development indicates a similar route to site as the proposed development, with access taken from the A702, and the route to the access via the B7075 and A712 and/ or A713. The worst case increase due to construction traffic is noted as 31 total daily trips during month 6, an increase of 172% of HGV trips on the A702/B7075 and 20% HGV trips on the A712 and A713.
- 4.136 It is highly unlikely that the worst-case month associated with constructing Margree would coincide with the peak month of construction of the Proposed Development, particularly as both developments are at different stages of planning, nevertheless construction traffic management plans would be implemented for both developments to schedule avoidance of overlap of peak traffic generating months

Trostan Loch Wind Farm

- 4.137 Trostan Loch Wind Farm gained consent in December 2020 for up to 14 turbines approximately 7 kilometres (km) west of Moniaive and 11 km east of Carsphairn. The EIA for Trostan Loch Wind Farm demonstrates that the development will take access from the B729, with the main approach corridor via the A77, A713, B729 to site entrance. Following this approach route, the only possibility for overlap of construction vehicle route is on the A713, north of Carsphairn. It is not expected that a significant amount of construction traffic associated with the proposed development would originate from this area and therefore no significant cumulative effects are associated with Trostan Loch Wind Farm development.

Cornharrow Wind Farm

- 4.138 Cornharrow Wind Farm gained consent in 2022 for 7 turbines on land 8.6km west of Moniaive and 11km east of Carsphairn, adjacent to the B729. Access to the site would be gained directly off the B729 utilising an existing access track. Previous consented versions of the development included 11 and 8 turbine schemes. The route to site is stated in the EIA chapter for the development as A713, B7000, C51S and B729 therefore the only potential overlap in construction traffic route with the proposed development would be the A713. The worst case increase due to construction traffic on the A713 is noted as 41 daily trips during month 4, an increase of 3% in total trips and 38% in HGV trips.
- 4.139 It is highly unlikely that the worst-case month associated with constructing Cornharrow would coincide with the peak month of construction of the Proposed Development, nevertheless, the A713 has a large carrying capacity with a considerable amount of residual capacity, therefore, it is not expected that any significant cumulative effects will occur if the construction phases overlap.

Summary

- 4.140 In summary, it is highly unlikely that the peak construction period associated with another wind farm development in the area would overlap with the peak construction period of the Proposed Development as the applications are at different stages in the planning process and each development has varying lengths of construction periods. The high traffic generating activities, such as the importation of stone and concrete, only occur over a few months of the whole construction period for each development. It is unlikely that the local capacity for concrete and stone production could supply several developments at once, therefore, high traffic generating activities would naturally be staggered.
- 4.141 Furthermore, implementation of a CTMP (further details contained within the Mitigation Measures section below) for each development would ensure that there are open lines of communication with DGC, Police Scotland, Transport Scotland, other stakeholders, and wind farm developers to monitor the progress of the construction stages. This process would flag whether construction HGV traffic is reaching unacceptable levels and would ensure that action is taken accordingly to minimise effects.

Interaction of Effects

- 4.142 In addition to the effects assessed in full within this chapter (i.e. severance, driver delay etc.), there are also visual and noise effects which are inter-related to the traffic and transport impacts associated with the construction phase of the Proposed Development. These effects are assessed respectively within Chapter 6: Landscape and Visual Amenity and Chapter 10: Noise.

Mitigation Measures

- 4.143 The assessment predicts that, prior to mitigation measures, the effect of road vehicle driver and passenger delay would be **Significant** on the A702 and B7075, whilst the remaining effects of severance, pedestrian delay and amenity, fear and intimidation and road safety would be **Not Significant** along all road links within the Study Area as a result of increased levels of HGVs associated with the Proposed Development. Therefore, in accordance with the EIA Regulations mitigation is required. It is therefore proposed to prepare and implement a comprehensive Construction Traffic Management (CTMP) which is intended to minimise the effects of construction traffic within the Study Area as far as possible to a level which is considered to be **Not Significant**.

Outline Construction Traffic Management Plan

- 4.144 The final CTMP will identify measures to reduce the number of construction vehicles, as well as considering reducing or avoiding the impact of vehicles through construction programming / routing and identification of an individual with responsibilities for managing traffic and transport effects. The CTMP will also identify measures to reduce and manage construction staff travel by private car, particularly single occupancy trips. Potential measures could include (but are not limited to):
- Immediately upon commencement, all deliveries, operatives and

visitors to the Site would report to the security gate. This would be communicated to all early works contractors at their pre-start meeting.

- The main contractor would develop a logistics plan highlighting the access point for the project, loading bay(s), pedestrian / vehicular segregation, welfare, storage, security and material handling that would be enforced following full Site establishment.
- Approved haul routes would be identified to the Site and protocols put in place to ensure that HGVs adhere to these routes.
- All contractors would be provided with a site induction pack containing information on delivery routes, any restrictions on routes and maximum load capacity for the internal access tracks.
- Temporary construction site signage would be erected along the identified construction traffic routes to warn other road users of construction activities and associated construction vehicles.
- A construction traffic speed limit (for example, 20mph in 30mph zones) would be imposed through the sensitive areas along the route and on approach to the main Site access point.

1.1

- The construction material 'lay down' areas would allow for a staggered delivery schedule throughout the day, avoiding peak periods and unsociable hours (i.e., before 06:00 and after 22:00).
- An integral part of the progress meetings held with all trade contractors is the delivery schedule pro-forma. All contractors would be required to give details of proposed timing of material deliveries to the Site. At this stage, they would be given a specific area for delivery.
- The CTMP and the control measures therein would be included within all trade contractor tender enquiries to ensure early understanding and acceptance / compliance with the rules that would be enforced on this project.
- Under no circumstances would HGVs be allowed to lay-up in surrounding roads. All personnel in the team would be in contact with each other and with Site management, who in turn would have mobile and telephone contact with the subcontractors.
- A wheel washing / wheel cleaning facility would be installed on-site during the construction period in order to reduce mud and debris being deposited onto the local road network.

4.145 The CTMP will ensure that there is signage along the construction routes to make residents aware of the additional HGV traffic and to provide the opportunity to plan ahead. The CTMP will ensure that construction HGVs do not travel during peak periods or at the start/end of the school day and that they adhere to a lowered speed limit. Each of these measures will contribute to minimising the level of effect experienced by residents and road users within the Study Area.

Residual Effects

- 4.146 The assessment has been carried out considering the peak in construction traffic and any high percentage increase in HGV traffic is reflective of the low baseline HGV volumes on the roads within the Study Area. Furthermore, it is important to recognise that all effects associated with increased construction traffic will be temporary and local in nature, and that this assessment has considered the worst-case possible impact at each location.
- 4.147 Results of the assessment indicate that all temporary traffic and associated environmental effects will be minimised and deemed '**Not Significant**' after implementation of the CTMP, as summarised in Table 11-13.

Table 11-13 - Residual Effects

Potential Effect	Significance	Mitigation	Residual Effects
Severance of Communities	A702/B7075: Minor – Not Significant A712: Moderate/Minor – Not Significant A713: Minor – Not Significant	Not required	Not Significant
Road Vehicle Driver and Passenger Delay	A702/B7075: Moderate – Significant A712: Moderate/Minor – Not Significant A713: Minor – Not Significant	CTMP	Minor -Not Significant
Non-Motorised User Delay and Amenity	A702/B7075: Moderate – Significant A712: Moderate/Minor – Not Significant A713: Minor – Not Significant	CTMP	Minor- Not Significant
Fear and Intimidation	Minor – Not Significant	Not required	Not Significant
Road User and Pedestrian Safety	Moderate/Minor – Not Significant	Not required	Not Significant
Hazardous and Large Loads	Negligible – Not Significant	Not required	Not Significant

Comparison with Previous Traffic & Transport EIA Chapter

- 4.148 This Traffic and Transport EIA chapter provides an updated assessment of the proposed development based on an access point for all general construction traffic taken from the A702 to the north of the site, and the public road network utilised to reach this access point (namely A713, A712 and B7075).
- 4.149 This is in comparison to the previous Traffic and Transport EIA chapter which assessed an access point located on the C117S (to the south of the site), with the route to site specified as A713, A712 and C36S. This southern access point and route would remain the same for abnormal loads vehicles.
- 4.150 In order to provide this revised assessment, additional traffic surveys were carried out on the A702 and B7075 in October 2024 to provide baseline information for road links not previously included in the study area.

- 4.151 A proposed access leading from the A702 at north of the site would require full construction of a new access track leading south to the centre of the proposed development, in comparison to the access from the south which utilised sections of existing track which would require to be upgraded. As a robust estimate, an additional 495 tonnes of imported stone (25 tipper loads) have been assumed to be required in order to facilitate the revised internal layout associated with the A702 access location.

Summary

- 4.152 This assessment has considered the effects on the local road network of HGV traffic associated with the construction phase of the Proposed Development.
- 4.153 The construction programme associated with the Proposed Development is anticipated to cover a 12 month period, during which 4,379 HGVs would access the Site equating to 62 daily total HGV trips (31 inbound plus 31 outbound) during the busiest construction month (Month 5). The movement of abnormal loads is not anticipated to exceed 6 trips per week over the course of three months (with no overlap during the busiest construction months).
- 4.154 A robust assessment was undertaken based on a conservative approach for the total construction traffic movements and the worst-case scenario for each link. The impact of construction traffic could increase total traffic flows along the road links within the Study Area by the following:
- 57% on the A702;
 - 52% on the B7075;
 - 9% on the A712; and
 - 5% on the A713.
- 4.155 The percentage increase in HGVs associated with the worst-case month of the construction programme for the Proposed Development could increase HGV levels by the following:
- 191% on the A702;
 - 161% on the B7075;
 - 39% on the A712; and
 - 21% on the A713.
- 4.156 It is important to note that these increased traffic levels are temporary in nature and represent the expected traffic generation during the busiest month of construction. Traffic levels during the other 11 months of the construction phase would be considerably lower than those assessed in this chapter.

References

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5 WATER AND SOIL

- 5.1 Changes to the proposed layout design of access tracks have resulted in the removal, relocation and addition of a number of watercourse crossings, in comparison to the previous EIA Report Chapter 12 Appendix 12.1 design.
- 5.2 The updated watercourse crossings are presented in the latest Technical Appendix 12.1, with amendments outlined in Table 7.1.

Table 7.1: Watercourse Crossing Locations

New ID	Original ID	Amendment from Previous Design
WCX1	WC3	None
WCX2	WC4	None
WCX3	WC5 & WC6	Slight relocation downstream resulting in removal of one watercourse crossing
WCX4	WC7	None
WCX5	WC8	None
WCX6	-	New watercourse crossing to allow re-alignment of access track
WCX7	WC9	Slight relocation downstream on same watercourse
WCX8	-	New watercourse crossing to allow re-alignment of access track
WCX9	-	New watercourse crossing to allow access to north entrance and remove need for bridge at original Fell Burn WC11
WCX10	-	New watercourse crossing to allow re-alignment of access track to T6
WCX11	-	New watercourse crossing to allow re-alignment of access track to T6
WCX12	-	New watercourse crossing to allow re-alignment of access track to T5
WCX13	-	Re-alignment of track to utilise existing track and avoid requiring a new watercourse crossing
WCX14	WC13	None – existing watercourse crossing
WCX15	WC14	None – existing watercourse crossing
WCX16	WC15	None
WCX17	-	New watercourse crossing to allow re-alignment of access track to T2
WCX18	-	New watercourse crossing to allow re-alignment of access track to T2
WCX19	-	New watercourse crossing to allow access to north entrance
WCX20	-	New watercourse crossing to allow access to north entrance

- 5.3 Although the original watercourse crossings WC1, WC2, WC10, WC11 & WC12 are no longer required, the total number of watercourse crossings has increased from 15 to 20.

However, the number of crossings subject to CAR Registration remains the same (9), as the updated layout has sought to avoid increasing interactions with CAR-applicable watercourses and utilises existing track and an existing crossing (included as one of the additional crossings in latest design).

- 5.4 Although the number of crossings has increased, the design and construction of individual crossing structures shall follow good practice and incorporate appropriate location-specific mitigation (including all items detailed and assessed within Fell Wind Farm EIAR Volume 1, Chapter 12: Hydrology, Geology and Hydrogeology).
- 5.5 Following review, the amended design is not considered to change or increase the previously reported EIA effects of the development upon watercourse channels, with these remaining Minor/Negligible and non-significant (with reference to EIAR Chapter 12 and Table 12.17).

Peat Management Plan

- 5.6 The latest Appendix 12.2 Peat Management Plan has been updated in comparison to the previous EIA Report Chapter 12 Appendix 12.2. The previous report identified potential peat re-use exceeding excavation volume by approximately 8,500 m³, with both acrotelmic and catotelmic material to be re-used at turbine foundations, crane hardstands and new access tracks.
- 5.7 A larger volume of excavation is reported in the latest peat management plan, which now incorporates top soil material, which is a substantial change and results in additional material volumes. The latest peat management strategy also seeks a closer balance between anticipated excavation and re-use opportunities, reducing the re-use exceedance to approximately 2,600 m³ and seeking a tailored and much closer balance for the re-use of all categories of catotelmic material.
- 5.8 The previous assumption remains that all peat excavated at or beyond 1.0 m depth will have amorphous catotelmic characteristics, with this precautionary approach applied to ensure this sensitive material is properly considered in the design process.
- 5.9 Following recent feedback from SEPA on a similar development in this region (Glenvernoch Wind Farm), an adjusted strategy in relation to catotelmic peat is proposed. This involves purposefully avoiding re-use of fibrous and amorphous catotelmic material at track verges and transferring excess material generated from excavations for Turbine 5 and associated crane pad, that is not feasible for local re-use, to defined re-use locations.
- 5.10 Re-use locations would be prepared to retain peat and soil moisture for optimised and defined objectives, including necessary bunding and drainage arrangements. This is likely to involve a series of subdivided zones, with the sequential infill of any amorphous catotelmic peat onto an impermeable base, then fibrous catotelmic peat and capped with acrotelmic peat and turves.
- 5.11 The most pragmatic re-use locations advocated to result in a good environmental outcome is to partially reinstate one or both borrow pits, with 25% of combined borrow pit footprint proposed to receive catotelmic peat to provide adequate capacity. The

plan identifies potential re-use by depositing a maximum depth of 0.5 m of fibrous catotelm (2,600 m³), plus a much smaller quantity of amorphous catotelmic material (400 m³), should it arise during excavations and subject to specific controls for transfer and storage. It is recognised that this will result in additional peat being transferred into such locations than was originally excavated, to achieve long-term benefit. Furthermore, it is noted that the previous Peat Management Plan (Section 5.1) indicated potential for borrow pit peat reinstatement to 0.5 m and 1.0 m depths, although no volume values were taken forward.

- 5.12 Further peat management details, including latest GI, methodology, temporary storage, design of re-use zones, defined objectives and works programming, shall be furnished as part of the detailed design. This information shall be provided when applying for pre-construction consent.
- 5.13 The specific impact upon peat, which was identified as a medium sensitivity receptor, was not reported in the previous EIA Report. Applying the original EIA Report Chapter 12 criteria and taking into account good practice and mitigation, the amended design and associated peat strategy would incur a Slight effect resulting in a Moderate/Minor (non-significant) residual impact upon peat during the construction phase.
- 5.14 This non-significant residual impact is aligned with all other significance outcomes originally reported for EIA Report Chapter 12.

6 CONCLUSIONS

Introduction

- 6.1 Planning permission was granted for Fell Wind Farm at appeal on 2 November 2021 (references 20/0148/FUL and PPA-170-2146). The consented wind farm comprises nine wind turbines, seven of which with tip heights of up to 200m and two of which with tip heights up to 180m, together with associated infrastructure. The planning application was accompanied by an Environmental Impact Assessment Report dated December 2019 (herein after referred to as the "Original EIAR").
- 6.2 An application, made under section 42 of the Town and Country Planning (Scotland) Act 1997, was submitted in March 2022 (22/0471/S42), appealed in August 2022 (PPA-270-2163) and granted on 10 March 2023. The variation application sought to vary condition 1 to allow an increase in the consented tip height of one of the wind turbines (T2) at Fell Wind Farm (the "Consented Development").
- 6.3 This Comparative Environmental Impact Assessment Report (Comparative EIAR) is submitted in support of an application under Section 42 of the Town and Country Planning (Scotland) Act 1997 by Energiekontor UK Ltd ("the Applicant") to vary conditions 2 and 13 of planning permission 22/0471/S42/PPA-270-2163 to remove one turbine (T3) and allow adjustment of infrastructure outwith the consented 100m micro-siting allowance at Fell Wind Farm ("the Proposed Development").
- 6.4 This Comparative EIAR has been prepared by Energiekontor UK Ltd with specialist input where necessary and sets out the findings of a comparative Environmental Impact Assessment which has been undertaken to consider whether the Proposed Development would result in any additional significant environmental effects not identified in the previous EIAR for Fell Wind Farm.

Comparative EIA Screening

- 6.5 Three topic areas with the potential for materially different effects from those reported in the original EIAR has been identified, namely:
- Ecology;
 - Traffic and Transport; and
 - Soil and water.

Ecology

- 6.6 Following the implementation of good practice, embedded mitigation and detailed mitigation and enhancement for habitats, and measures to mitigate for the risk to protected species, no significant environmental effects are predicted as a result of the changes of infrastructure and remains consistent with the findings of Chapter 9: Ecology of the Fell Wind Farm original EIAR.

Traffic and Transport

- 6.7 This Traffic and Transport EIA chapter provides an updated assessment of the proposed development based on an access point taken from the A702 to the north of the site, and the public road network utilised to reach this access point (namely A713, A712 and B7075).
- 6.8 This is in comparison to the previous Traffic and Transport EIA chapter which assessed an access point located on the C117S (to the south of the site), with the route to site specified as A713, A712 and C36S.
- 6.9 In order to provide this revised assessment, additional traffic surveys were carried out on the A702 and B7075 in October 2024 to provide baseline information for road links not previously included in the study area.
- 6.10 A proposed access leading from the A702 at north of the site would require full construction of a new access track leading south to the centre of the proposed development, in comparison to the access from the south which utilised sections of existing track which would require to be upgraded. As a robust estimate, an additional 495 tonnes of imported stone (25 tipper loads) have been assumed to be required in order to facilitate the revised internal layout associated with the A702 access location.
- 6.11 It is important to note that these increased traffic levels are temporary in nature and represent the expected traffic generation during the busiest month of construction. Traffic levels during the other 11 months of the construction phase would be considerably lower than those assessed in this chapter and the overall significance of effects is consistent with those identified in the original EIAR.

Soil and Water

- 6.12 Following review, the amended design is not considered to change or increase the previously reported EIA effects of the development upon watercourse channels, with these remaining Minor/Negligible and non-significant (with reference to EIAR Chapter 12 and Table 12.17).
- 6.13 The specific impact upon peat, which was identified as a medium sensitivity receptor, was not reported in the previous EIA Report. Applying the original EIA Report Chapter 12 criteria and taking into account good practice and mitigation, the amended design and associated peat strategy would incur a Slight effect resulting in a Moderate/Minor (non-significant) residual impact upon peat during the construction phase.
- 6.14 This non-significant residual impact is aligned with all other significance outcomes originally reported for EIA Report Chapter 12.

Overall

- 6.15 The potentially significant environmental effects associated with the Proposed Development have been considered. There are no new potentially significant environmental effects arising from the Proposed Development which have not already been considered as part of the original EIAR.

