



Balgray Wind Farm

Chapter 12 Access, Traffic and Transport

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Contents

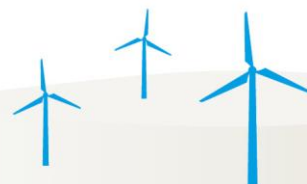
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List of Abbreviations

Abbreviation	Description
ADT	Average Daily Traffic
AIL	Abnormal Indivisible Load
CEMP	Construction Environmental Plan
CIHT	Chartered Institution of Highways & Transport
CTMP	Construction Traffic Management Plan
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DGC	Dumfries and Galloway Council
DPEA	Planning and Environmental Appeals Division
ECU	Energy Consents Unit
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
HGV	Heavy Goods Vehicle
IEMA	Institute of Environmental Management and Assessment
LGV	Light Goods Vehicle
MW	megawatt
NPF4	National Planning Framework4
NRTF	National Road Traffic Forecast
NTDS	National Traffic Data System
NTS	Non-Technical Summary
PAN	Planning Advice Note
PIA	Personal Injury Accident
PoE	Port of Entry



12. Access Traffic and Transport

12.1 Introduction

12.1.1 This chapter assesses the potential 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 Proposed Development.

12.1.2 The key objectives of this chapter are to:

- Describe the assessment methodology and significance criteria used in completing the assessment;
- Describe the current access, traffic and transport conditions;
- Identify and assess the potential environmental effects associated with increased traffic;
- Identify and describe the mitigation measures proposed to address potential significant environmental effects; and
- Assess residual effects post mitigation implementation.

12.1.3 This chapter has been prepared by SYSTRA Ltd (SYSTRA), who have extensive experience in the preparation of Traffic and Transport Environmental Impact Assessment Report (EIAR) Chapters. SYSTRA's EIA team has produced Traffic and Transport EIAR Chapters and Abnormal Loads Assessment reports for numerous wind farm developments across Scotland and for several windfarm developments within the Dumfries and Galloway administrative area.

12.1.4 This chapter has been reviewed by Alan DeVenny BEng, PhD, CEng, MICE who is a Projects Director with SYSTRA. Alan has 25 years' experience working in traffic and transport consultancy and over 17 years' experience of working on wind farm projects. Alan has advised on over 200 energy developments delivering EIAR chapters, access assessments, abnormal load assessments, infrastructure design and traffic management plans.

12.1.5 This chapter is supported by the following figures as contained within Volume 3a: Figures:

- Figure 12.1: Study Area;
- Figure 12.2: Traffic Counter Locations; and
- Figure 12.3: Abnormal Loads Route.



12.1.6 The chapter is supported by a Technical Appendix (as set out within Volume 4: Technical Appendices) comprising:

- Technical Appendix 12.1: Abnormal Loads Assessment
- Technical Appendix 12.2: Access Junction Design Drawings

12.2 Legislation, Planning Policy and Guidance

12.2.1 This assessment is informed by the following additional policy documents, data sources and guidelines:

- National Planning Framework 4 (NPF4, Scottish Government 2023);
- Planning Advice Notice (PAN) 75 – ‘Planning for Transport’ (Scottish Government 2005);
- Guidelines for Traffic Impact Assessment, (Chartered Institution of Highways & Transport CIHT 1998);
- Institute of Environmental Management and Assessment (IEMA) publication - “Environmental Assessment of Traffic and Movement”, 2023 (“the IEMA Guidelines”); and
- Department for Transport (DfT) publication “Design Manual for Roads and Bridges” (DMRB, DfT 2013).

Consultation

Table 12.1: Consultation Responses

Consultee	Summary of Response	Where addresses in this report
Dumfries and Galloway Council	No details have yet been provided in respect of the anticipated trip generation by construction traffic or predicted number of Abnormal Indivisible Loads (AILs) and it is anticipated that these details will be supplied in full to support any future application and transport assessment.	Predicted construction traffic generation including AIL’s are set out in Table 12.8.
	No specific detail has provided with regards the general construction or AIL access to the proposed development site. However, submitted site plans indicate the site access is off the U284a public road. It would be inferred from the proposed access that any access route for AIL would therefore be via the M74 Motorway to junction 17, the B7076, C97a, U401a to U284a.	Construction traffic routes to site are detailed in section 1.5 Baseline Conditions.



Consultee	Summary of Response	Where addresses in this report
	Both the U284a and U401a are structurally weak with soft verges, poor horizontal and vertical alignment, locally restricted forward visibility and restricted in width and geometry, with limited passing opportunities. I would not be in favour of any access via this route without substantial improvements to the U401a and the U284a public roads.	Noted.
	It should be noted that the proposed construction access for the previously considered under 09/C/4/0011 (for Newfield Windfarm) was off the C81a near Corsehill. Other windfarms within the general vicinity (Little Hartfell and Crossdykes) propose to utilise a similar route (in part) for AIL, namely via the M74 Motorway to junction 17, the B7076, C97a, B723, C81a. Confirmation of access route arrangements and detailed proposals for any site accesses will require to be submitted as part of any future application.	This is now the proposed access route rather than access from the south. Further details provided in section 11.5.
	Routes leading to the site may cross a number of bridges/structures, many of which may be unsuitable for heavy HGVs and larger AILs, and that have limitations on safe axle loadings and/or restricted parapet widths. Where a proposed access route crosses bridges and culverts, the applicant will require to get approvals and safe axle loadings (in respect of those structures) from the Council's Engineering Services (Bridges and Structures) unit.	Noted.
	The Council's Bridges and Structures unit have advised that Abnormal Loads require to be assessed on an individual basis, proposed axle load configurations should be supplied and agreed at earliest opportunity. Any proposal or requirement to carry out amendments to any bridge or culvert will require to be addressed via an AIP process.	Noted
	It would be appropriate that any future application confirm the access route(s) and 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 route(s) necessary to permit 2-way construction traffic and the passage of cranes and component delivery vehicles (this may require land	Full access route provided in section 11.5 Baseline Conditions.



Consultee	Summary of Response	Where addresses in this report
	outwith the public road boundary and a separate planning consent may be required in respect of these works).	
	Proposals for access routes, site access and all accommodation works must be supported by swept path tracks.	Swept paths are provided in Technical Appendix 12.1: Abnormal Loads Assessment. Site access design including swept paths is provided in Technical Appendix 12.2: Access Junction Design.

12.3 Scope of Assessment

Abnormal Loads

12.3.1 The most identifiable transport and access characteristic associated with wind farm developments is the need to transport the wind turbine components to the site. Turbine components will be delivered to an appropriate Port of Entry (PoE) and then transported as abnormal loads, given their size and weight, from the selected PoE via the public road network.

12.3.2 The Department for Transport (DfT) website defines an abnormal load as a vehicle that is;

“a weight of more than 44,000 kilograms; an axle load of more than 10,000 kg for a single non-driving axle and 11,500 kilograms for a single driving axle, a width of more than 2.9m; a length of more than 18.75m” (DfT, October 2012).

12.3.3 King George V (KGV) Docks in Glasgow has been identified as the most suitable PoE for shipping of the turbine components with the blade components representing the worst case in terms of the length and width combination. The preferred abnormal loads route assessed is as follows:

- Exit KGV Docks continuing east on to Kings Inch Drive;
- Turn left onto the M8 towards junction 25A;
- Merge onto the M74;
- Exit the A74(M) at Junction 17, turning left onto the B7068;
- At the roundabout turn left onto the B7076 heading north;
- Turn right onto the link road and then right again to turn onto Breckenry Road;
- At Boreland continue straight ahead from the B723 onto the Unclassified Road (C81a); and



- Turn right onto site access track (to be constructed utilising existing forestry tracks where possible).

12.3.4 A full assessment of the preferred abnormal loads route is contained within Technical Appendix 12.1. The preliminary design for the access junction including swept paths is provided within Technical Appendix 12.2. It is noted that the access junction is an existing junction which will be upgraded to serve the Proposed Development.

General HGV's

12.3.5 There is also a need to bring general construction materials (concrete, aggregates, pipes, cabling, etc.) to the site in standard Heavy Goods Vehicles (HGVs). During the construction stage there 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.

Staff Vehicles

12.3.6 A small amount of traffic will be generated by construction workers commuting to/from the site during the construction stage in private car or works minibus.

Potential Effects Scoped Out

12.3.7 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

12.3.8 Once the Proposed Development is operational, the amount of traffic associated with a wind farm is minimal, relating to maintenance of the turbines only. It is estimated that on average there will be just single 4x4s accessing the Proposed Development from time to time.

12.3.9 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

12.3.10 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.

- 12.3.11 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

- 12.3.12 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 & Beyond the Study Area

- 12.3.13 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.
- 12.3.14 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 (see below for definition of the study area) as the effects of traffic are diluted with increasing distance from the point of origin.

12.4 Assessment Methodology & Significance Criteria

Assessment of Effects

- 12.4.1 The assessment of effects is based on the project description as outlined in Chapter 3: Description of Development.
- 12.4.2 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
- 12.4.3 There are no hazardous loads associated with the Proposed Development.



- 12.4.4 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.
- 12.4.5 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.
- 12.4.6 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.

Assessment of Significance

- 12.4.7 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.

Sensitivity

- 12.4.8 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.
- 12.4.9 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 change in traffic levels will be considered to be high.
- 12.4.10 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.



12.4.11 The criteria that have been used to make judgements on the sensitivity of the receptor(s) are presented in Table 12.2.

Table 12.2: Framework for Determining Sensitivity of Receptors

Sensitivity	Description
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character or is of international or national importance. Local residents whose daily activities depend upon unrestricted movement within their environment. Receptors such as schools, colleges, hospitals, and accident hotspots.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character; is of low/local importance. Areas such as trunk road or A class roads constructed to accommodate significant HGV volumes.
Negligible	Users not sensitive to transport effects. Includes very small settlements and roads with no significant settlements including new strategic trunk roads or motorways.

Magnitude

- 12.4.12 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).
- 12.4.13 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 the IEMA Guidelines and professional judgement.
- 12.4.14 Consideration is given to the composition of the traffic on the road network, under both existing and proposed conditions. For example, 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.
- 12.4.15 The criteria that have been used to make judgement on the magnitude of the effect on the receptor(s) is presented in Table 12.3.



Table 12.3: Framework for Determining Magnitude of Effects

Magnitude	Description
Major	Total loss of, or major/substantial alteration to, key elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed. Generally, a rule of >90% (or >70% at sensitive receptors) change in traffic is considered to be a major magnitude.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed. Generally, a rule of 60% - 90% (or 40% - 70% at sensitive receptors) change in traffic is considered to be a moderate magnitude.
Minor	A minor shift away from baseline conditions. Change arising from the loss / alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation. Generally, a rule of 30 – 60% (or 10% - 40% at sensitive receptors) change in traffic is considered to be a minor magnitude.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation. Generally, a rule of <30% (or <10% at sensitive receptors) change in traffic is considered to be a negligible magnitude.

Significance

12.4.16 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 12.4. This is based on combining the magnitude of the effect with the receptor sensitivity.

Table 12.4: Significance Criteria Matrix

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

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



12.5 Baseline Conditions

Study Area

12.5.1 The study area for the assessment of transport and access has been identified using the thresholds within the IEMA Guidelines as an aide and is indicated by Figure 12.1. The study area has been based on the location of the Proposed Development access point and the public road routes that will be used to reach the access point. A comprehensive desk-based study has been undertaken to understand the surrounding road network. The study area (as shown in Figure 12.1) is therefore defined as:

- A74(M)
- B7068
- B7076
- Breckenry Road
- B723
- C81a

12.5.2 The village of Boreland on the B723 is identified as a sensitive receptor in this assessment based on the indicators stated in the IEMA guidelines. As such, this road link is subject to 'Rule 2' whereby a 10% increase in total traffic or HGV levels will require a full assessment of effects. All other road links within the study area are subject to IEMA Rule 1, whereby a 30% increase in HGV levels or total traffic will trigger the requirement for a detailed assessment of the potential environmental effects.

Abnormal Loads Route

12.5.3 The turbine components will be brought into KGV Docks in Glasgow. Operational windfarms in the Dumfries and Galloway area around the Proposed Development (including Crossdykes) have used KGV Docks and have brought abnormal loads in via the A74(M).

12.5.4 An Abnormal Loads Assessment complete with swept path plans for pinch points along the route from KGV Docks to the Site access point has been undertaken for an 81m long turbine blade. This provides a maximum worst case parameter. The Abnormal Loads Assessments can be found in Appendix 12-1.



General Construction Traffic Routes

- 12.5.5 All general construction traffic (HGVs, abnormal loads, cars, and LGVs) will access the site via an access track taken directly from the C81a road. The C81a leads southeast from Boreland on the A723. A preliminary design has been undertaken for the access junction and a set of drawings (including visibility splay plans) are included in Technical Appendix 12.2.
- 12.5.6 General construction HGVs, cars, and LGV traffic will use a single access route to the site. The route leaves the A74(M) at Junction 17 turning left onto the B7068. At the roundabout the construction vehicles will turn left onto the B7076 heading north. The vehicles will then turn right onto the link road and then right again to turn onto Breckenry Road and then continue onto the B723. At Boreland, the vehicles will continue straight ahead from the B723 onto the C81a. After approximately 2km the vehicles will turn right onto the site access and follow the existing access track up to the turbine track and a new network of access tracks linking the turbines.
- 12.5.7 This is the same route to be used by abnormal load vehicles and avoids the routing of any construction traffic through the centre of Lockerbie.
- 12.5.8 Specific routes from further afield will be determined following confirmation of the Principal Contractor for the Proposed Development and will be based on a number of factors including supply locations and depot locations.

Desk Based Research and Data Sources

- 12.5.9 Traffic count information has been obtained to represent the baseline traffic flows for the road links within the study area.
- 12.5.10 Data for the A74(M) has been sourced from 24-hour ATC surveys obtained from the Transport Scotland National Traffic Data System (NTDS) database for 2024. Traffic flows for Breckenry Road and the C81a have been collected through ATC surveys carried out in October 2024. Traffic counts for the B723 have been obtained from measured data contained within the Department for Transport (DfT) database.
- 12.5.11 Traffic flows have been factored up where necessary to represent the current baseline (2024) and anticipated year of construction (2027) using National Road Traffic Forecast (NRTF) “low growth” factors. The anticipated year of construction is provided for the purpose of traffic assessment in this chapter however this is subject to consenting timelines.

Study Area Road Links

- 12.5.12 The following paragraphs detail the baseline conditions of the road links identified as being within the study area.



A74(M)

- 12.5.13 The A74(M) / M74 is a trunk road and a major motorway in Scotland connecting the M8 motorway in central Glasgow to the M6 at Gretna. The road is designated as the M74 from Glasgow as far south as Junction 13 at Abington, where it changes to the A74(M).
- 12.5.14 In the vicinity of the Proposed Development, the A74(M) is typically a two-way, three lane carriageway, with each carriageway approximately 11m in width. The road is subject to the national speed limit.
- 12.5.15 Junction 17 of the A74(M) provides both northbound and southbound entry to/from the A74(M) and is located to the north of the town of Lockerbie.

B7068

- 12.5.16 The B7068 is a two way single carriageway road which leads east and then south from Junction 17 of the A74(M) into the centre of Lockerbie. In the vicinity of Junction 17, the road is approximately 8m in width and features street lighting on both sides of the road. East of Junction 17 the road connects to the B7076 at a roundabout.
- 12.5.17 The section of the B7068 which forms part of the proposed route to site is less than 400m in length and as such the B7068 is not considered in isolation in this assessment, however Breckenry Road will be used as a proxy for the assessment of any effects on the B7068.

B7076

- 12.5.18 The B7076 runs in a north south direction, generally parallel to the A74(M), and routes from the A701 in the north, just south of Beattock, to Gretna.
- 12.5.19 The road is a two way single carriageway of approximately 6.5m in width and is subject to the national speed limit.
- 12.5.20 In the context of the study area, the B7076 routes from the B7078, just east of the A74(M) Junction 17, north for approximately 2.2km to Breckenry Road. As with the B7068, Breckenry Road will be used as a proxy for assessment of any effects on the B7076.

Breckenry Road

- 12.5.21 Breckenry Road is a rural two way single carriageway road which routes in a south west to north east direction, passing over the A74(M). The road continues north east for approximately 3.9km from the A74(M) where it joins the B723. Breckenry Road is approximately 6m in width and is subject to the national speed limit.



B723

- 12.5.22 The B723 generally routes in a north-south direction from Annan in the south to Eskdalemuir in the north and is the main route through the centre of Lockerbie. The road is a two-way single carriageway of approximately 7m in width and is subject to the national speed limit, which reduces to 20/30mph through residential areas such as Lockerbie.
- 12.5.23 In the context of the Proposed Development, the B723 routes through the village of Boreland and provides a link to the C81a road. All construction traffic will travel to site via the B723.
- 12.5.24 Boreland is a small village in Dumfries and Galloway with approximately 60 dwellings and some local facilities such as a primary school. There are footways and street lighting provided within Boreland on the B723. Boreland will therefore be considered as a sensitive receptor in this assessment.

C81a

- 12.5.25 The C81a routes for 10.5km between the B723 at Boreland and the B7068 at Paddockhole. The C81a is a single track road of approximately 4-5m in width with passing places and is subject to the national speed limit.
- 12.5.26 The Proposed Development is accessed from an existing track leading from the C81a. All construction traffic associated with the Proposed Development would utilise the C81a to route to the site access point.

Baseline Traffic Flows

- 12.5.27 Table 12.5 indicates the two-way Average Daily Traffic (ADT) in the study area and the percentage of traffic which is classified as HGVs. The source of the data is also stated.

Table 12.5: Study Area Baseline Traffic Flows

Counter Location	Source	Base 2024 ADT	Base 2024 HGV	2027 ADT	2027 HGV	Percentage HGV
1. A74(M) North of Lockerbie	Transport Scotland National Traffic Data System (NTDS)	35,194	11,368	35,742	11,545	32.3%
2. A74(M) South of Lockerbie	Transport Scotland National Traffic Data System (NTDS)	34,804	11,503	35,346	11,682	33.1%
3. Breckenry Road	October 2024 ATC Survey	756	158	768	160	20.9%



Counter Location	Source	Base 2024 ADT	Base 2024 HGV	2027 ADT	2027 HGV	Percentage HGV
9.5	Department for Transport Data	739	138	751	141	18.7%
5. C81a	October 2024 ATC Survey	63	9	64	9	14.3%

12.5.28 For the remainder of this chapter, count location 3 on Breckenry Road is also used as a proxy for assessment of the B7068 and B7076. Baseline traffic flows on these two roads links are assumed to be equal to or higher than on Breckenry Road and therefore providing a robust assessment of effects as a higher baseline traffic flow will result in a lower impact of development traffic.

Road Safety

12.5.29 Accident data has been obtained from Transport Scotland for the trunk road link within the study area (A74(M)) for the five year period September 2019 to September 2024.

12.5.30 The Crashmap website has been interrogated to determine the number of accidents that have occurred along the remaining road links within the identified study area, using the most recent available data which covers the period 2018 to 2022. The results of this investigation are indicated by Table 12.6 with additional commentary provided on serious and fatal accidents where applicable.

Table 12.6: Accident Statistics

Study Area Road Link	Slight	Serious	Fatal	Comments
A74(M) from Beattock to Kirkpatrick Fleming	19	17	1	One fatal accident in July 2021 near Kirtlebridge involving a minibus and a goods vehicle resulting in five casualties.
B7068 / B7076 / Breckenry Road	-	-	-	No accidents recorded.
B723 from the B7068 to Boreland	1	1	-	One slight accident just south of Boreland in 2019 involving one vehicle and one casualty.
C81a	-	-	-	No accidents recorded.

12.5.31 Table 12.6 indicates there have been one slight and one serious accident recorded on the B723 in period 2018 to 2022.



- 12.5.32 While there are a number of recorded accidents along the A74(M) and within the study area, the levels of accidents are typical of trunk roads of this rural nature carrying high volumes of traffic.
- 12.5.33 There are no identified locations on the trunk or local road network where it would be considered that special consideration would be required in relation to this application.

12.6 The 'Do Nothing' Scenario

- 12.6.1 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.

12.7 Identification and Evaluation of Key Effects

Construction Programme

- 12.7.1 The construction traffic associated with the Proposed Development will comprise construction workers, HGVs / LGVs carrying construction materials & plant and abnormal loads carrying the main wind turbine components.
- 12.7.2 Construction of the Proposed Development is estimated to take 12 months. General working hours are expected to be between 07:00 and 19:00 on weekdays and 07:00 and 13:00 on Saturdays which means that staff will predominantly arrive and depart outside the peak hours associated with the surrounding road network.
- 12.7.3 Turbine delivery, erection and commissioning activities may also take place outwith these hours depending on weather conditions.
- 12.7.4 The potential number of traffic movements that will result from the Proposed Development are set out in Table 12.7 whilst Table 12.8 indicates the distribution of traffic movements across the construction programme.
- 12.7.5 At the request of Dumfries and Galloway Council (DGC) (as stated in their scoping response) and for the purpose of providing a worst case assessment, it is assumed that 100% of the stone estimated to be required to construct the Proposed Development would be sourced from off-site locations thus the assessment undertaken represents a very conservative and robust approach as it is anticipated that a large percentage of the stone requirements will be sourced from on-site borrow pits.
- 12.7.6 It has been assumed that concrete will be imported rather than there being any form of on-site batching.



12.7.7 Estimated movements include HGV and abnormal loads. The movements are noted in line with an approximate 12-month construction programme and general assumptions around the composition and dimensions of associated infrastructure.

Table 12.7: Construction HGV Movements

Construction Task	Vehicle Type	Approximate Number of Loads
Site Establishment / Demobilisation	Low Loader and Dump Truck	100
General site deliveries	Low Loader and Dump Truck	100
Imported stone (access roads, crane hardstanding areas, other hardstanding areas)	Dump Truck	1773
Reinforcement	Low Loader	22
Foundations	Concrete Wagon	1610
Cabling deliveries and sand	Low Loader	280
Geotextile separators	Low Loader	100
Delivery of HV electrical items	Dump Truck	28
Delivery of BESS Components	Various	70
Construction of Sub-station	Various	45
Cranes and related lifting equipment	Crane Vehicle	40
Erection of turbines	Abnormal Loads	70
Site reinstatement and restoration	Various	60
Total (one-way trips)		4,298
Total (two-way trips)		8,596

*Assuming that at a worst case, 100% of stone will be imported

12.7.8 It is anticipated that the abnormal loads will require car or LGV escort vehicles whilst transporting the turbines. This would equate to approximately seven vehicles per week when transporting the abnormal loads. This impact is considered to be negligible and not significant and has therefore not been assessed further.

12.7.9 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 12.8.

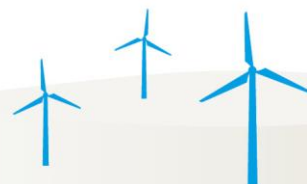


Table 12.8: Construction HGV Movements per Month

Task	1	2	3	4	5	6	7	8	9	10	11	12	Total
Site Establishment / Removal	34	33	33										100
General site deliveries	14	14	8	8	5	5	5	5	8	8	10	10	100
Imported stone*	372	372	372	372	285								1,773
Reinforcement				6	6	5	5						22
Foundations				402	402	403	403						1,610
Cabling deliveries and sand							56	56	84	84			280
Geotextile separators				25	25	25	25						100
Delivery of HV electrical items						14	14						28
Delivery of BESS Components						25	25	20					70
Construction of Sub-station					15	15	15						45
Cranes and related lifting equipment					16	4					4	16	40
Erection of turbines (abnormal loads)							18	18	17	17			70
Site reinstatement and restoration											18	42	60
Total (one-way trips)	420	419	413	813	754	496	566	99	109	109	32	68	4,298
Total (two-way trips)	840	838	826	1626	1508	992	1132	198	218	218	64	136	8,596

*Assuming that at a worst case, 100% of stone will be imported



- 12.7.10 As Table 12.8 indicates, the predicted peak of HGV movements to and from the site will be during month four of the construction programme, with a total of 1,626 two-way HGV movements.
- 12.7.11 If an average four-week month is considered, this will equate to 407 two-way weekly HGV movements. If a 5.5 working day week is considered, this will equate to a total of 74 two-way daily HGV movements during month four of the delivery programme.

Abnormal Loads Movements

- 12.7.12 With regard to the movement of abnormal load vehicles, Table 12.8 indicates that abnormal loads will only be transported over four months of the 12-month construction period. Assuming 26 inbound abnormal load vehicle trips per month, this equates to approximately 5 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 5 inbound abnormal load trips plus 5 outbound HGV trips per week.
- 12.7.13 The movement of abnormal loads may be spread out evenly across the days 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 possible.
- 12.7.14 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.

Staff Vehicle Trips

- 12.7.15 With regards to staff movements, it is estimated that there will be approximately 20 staff members on site on an average day which could result in approximately 40 two-way daily private car/LGV trips to the site associated with construction staff/welfare. This equates to a maximum of 20 arrivals and 20 departures at the start and end of the working day. This is considered a 'worst case' scenario as it is likely that staff would car share in private or contractor vehicles. 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.



Traffic Distribution

- 12.7.16 At this stage, the source of the construction materials is unknown, although it is anticipated that the majority of construction vehicles will arrive via the A74(M), from either the north or south. From the A74(M), a single route for construction traffic has been identified.
- 12.7.17 Based on this assumption, 100% of construction traffic and staff trips has been applied to all road links in the study area. It is important to note that this represents a worst-case scenario for the A74(M) as this impact would not occur in reality as the total traffic distribution between the A74(M) north and south of Lockerbie could not exceed 100 %.

Construction Traffic Impact

- 12.7.18 Table 12.9 details the daily percentage increases in average daily traffic (ADT) flows associated with the construction of the Proposed Development at the traffic counters within the Study Area during the worst-case month in the anticipated year of construction (2027). The location of the traffic counters is illustrated in Figure 12.2.

Table 12.9: Construction Traffic Effect on Routes within Study Area

	1.A74(M) North of Lockerbie	2. A74(M) South of Lockerbie	3. Breckenry Road	4. B723	5. C81a
2027 ADT	35742	35346	768	751	64
2027 HGV	11545	11682	160	141	9
2027 % HGV	32%	33.1%	20.9%	18.7%	14%
Month 4 daily HGV	74	74	74	74	74
Month 4 daily staff trips	40	40	40	40	40
2027 ADT + Month 4 total traffic	35856	35460	882	865	178
2027 HGV + Month 4 HGV traffic	11619	11756	234	214	83
Percentage increase in total traffic due to the Proposed Development	0.3%	0.3%	15%	15%	178%
Percentage increase in HGV traffic due to the Proposed Development	0.6%	0.6%	46%	53%	809%

- 12.7.19 As stated previously, IEMA Guidelines Rules 1 and 2 are used as thresholds to determine the requirement for a full assessment of effects in relation to an increase in traffic flows associated with the construction of the Proposed Development.



- 12.7.20 The main sensitive receptors to increased traffic levels and associated environmental effects are likely to be residents of the village of Boreland and isolated dwellings along the B723, and those who use the route to site for leisure and recreational purposes (cyclists etc). Therefore, the B723 will be assessed using IEMA 'Rule 2' and the threshold of 10% increase will apply.
- 12.7.21 Table 12.9 indicates that for Count Locations 1 and 2 on the A74(M), the temporary increase in total traffic levels associated with the Proposed Development will increase the total and HGV traffic flow by a negligible amount (<10%) and no further assessment of the A74(M) road links is required in line with IEMA guidance.
- 12.7.22 Table 12.9 indicates that for Count Locations 3 and 4, Breckenry Road and the B723, total traffic levels will increase by 15%, and HGV levels will increase by 46% and 53% respectively during the worst-case month during the construction period.
- 12.7.23 At count location 5 on the C81a, temporary total traffic levels will increase by 178%, and HGV levels will increase by 809% during the worst-case month.
- 12.7.24 The level of increase on links 3,4 and 5 is unsurprising, given that baseline total traffic and HGV levels are relatively low on these links, particularly the C81a. Notwithstanding this, the increase in HGV traffic exceeds the 30% increase in HGV traffic as stated in the IEMA Guidelines for 'Rule 1' (and 10% threshold for Rule 2 on the B723) therefore triggering the need for a detailed assessment of potential environmental effects on Breckenry Road, the B723 and C81a which is detailed below.

12.8 Detailed Assessment of Effects

Severance of Communities

- 12.8.1 The IEMA Guidelines advise that *"Severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure"*.
- 12.8.2 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.
- 12.8.3 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.



- 12.8.4 With reference to Table 12.3, the magnitude of the change in HGV levels along Breckenry Road and the B723 is considered to be minor (30-60%), and on the C81a it is considered to be major (>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, 74 total (inbound plus outbound) HGV movements per day equates to only six additional HGVs per hour over the course of a day.

Breckenry Road

- 12.8.5 The sensitivity of link 3 Breckenry Road to an increased severance effect is considered to be low in accordance with Table 12.2 due to its nature as a rural road link with very few isolated properties along the route. Combining the minor magnitude of change with the low sensitivity of the receptor equates to a likely significance of effect which is classed as minor and **Not Significant** as per the EIA Regulations.

B723

- 12.8.6 The village of Boreland which has a primary school located on the B723 has been identified as a sensitive receptor and therefore the sensitivity of link 4 to an increased severance effect is considered high. Assessment of the B723 does not include the section through the centre of Lockerbie as this does not form part of the construction route. Combining the minor magnitude of change with the high sensitivity of the receptor in accordance with Table 12.4 equates to a likely significance of effect which is classed as moderate and **Significant** as per the EIA Regulations and mitigation will be required.

C81a

- 12.8.7 The sensitivity of the C81a to an increased severance effect is considered moderate due to the location of a church along the route which may generate a limited number of pedestrian movements. Combining the major magnitude of change with the moderate sensitivity of the receptor equates to a likely significance of effect which is classed as major/moderate and **Significant** as per the EIA Regulations and mitigation is required.

Road Vehicle Driver and Passenger Delay

- 12.8.8 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”*.
- 12.8.9 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.

12.8.10 It is noted that there are no significant areas of congestion within the Study Area at this point in time. With reference to Table 12.3 the magnitude of change in HGV levels along Breckenry Road and the B723 is considered to be minor (30-60%), and on the C81a it is considered to be major (>90%).

12.8.11 Assuming the Proposed Development would generate 74 trips per day during the peak month of construction this would equate to 6 HGV trips per hour.

Breckenry Road

12.8.12 The sensitivity of link 3 Breckenry Road to an increased road vehicle driver and passenger delay effect is considered to be low as there are few junctions and therefore potential areas for the delay of other road users by turning HGVs. Furthermore, the ADT on this road link is low, hence, there is sufficient available capacity to accommodate additional vehicle movements without causing delay to other road users. Combining the minor magnitude of change with the low sensitivity of the receptor equates to a likely significance of effect which is classed as minor and **Not Significant** as per the EIA Regulations.

B723

12.8.13 Whilst Boreland is identified as a sensitive receptor, it is considered that an additional 6 HGV trips per hour during the peak months of construction would not have a discernible effect on driver delay. The sensitivity of the receptor is therefore considered moderate rather than high. Combining the minor magnitude of change with the moderate sensitivity of the receptor equates to a likely significance of effect which is classed as moderate/minor and **Not Significant** as per the EIA Regulations.



C81a

- 12.8.14 Although the percentage increase in total and HGV traffic along the C81a is major in terms of magnitude, it must be noted that this is because the C81a is a very lightly trafficked road (64 vehicles per day) with a few isolated properties. Nevertheless, the sensitivity of link 5 (C81a) to an increased road vehicle driver and passenger delay effect is considered to be moderate, as a single track road there is potential for delay to existing road users. Combining the major magnitude of change with the moderate sensitivity of the receptor equates to a likely significance of effect which is classed as major/moderate and **Significant** as per the EIA Regulations and mitigation is required.

Non-Motorised User Delay and Amenity

- 12.8.15 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”*.
- 12.8.16 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.
- 12.8.17 With reference to Table 12.3, the magnitude of the change in HGV levels along Breckenry Road and the B723 is considered to be minor (30-60%), and on the C81a it is considered to be major (>90%).

Breckenry Road

- 12.8.18 The sensitivity of the Breckenry Road to an increased pedestrian delay and reduced pedestrian amenity effect is considered to be negligible as there are no pedestrian footways and no amenities which would generate pedestrian movements. Combining the minor magnitude of the change with the negligible sensitivity of the receptor equates to an effect which is classed as negligible and **Not Significant** as per the EIA Regulations.

B723

- 12.8.19 The sensitivity of the B723 to an increased pedestrian delay and reduced pedestrian amenity effect is considered to be high due to the location of the village of Boreland at the northern extent of the Study Area. Given a footway extends through the village leading to a bus stop just north of the junction with the C81a, it is likely that there would be pedestrian activity in this area. It is noted that Hutton Primary School in Boreland has been closed for four years and is unlikely to reopen. Combining the minor magnitude of the change with the high sensitivity of the receptor equates to an effect which is classed as Moderate and **Significant** as per the EIA Regulations and mitigation will be required.



C81a

- 12.8.20 The sensitivity of the C81a to an increased pedestrian delay and reduced pedestrian amenity effect is considered to be moderate as there are no pedestrian footways, however, a church is located along the route which may generate a small number of pedestrian trips in addition to any movements by recreational users. Combining the major magnitude of the change with the low sensitivity of the receptor equates to an effect which is classed as major/moderate and **Significant** as per the EIA Regulations and mitigation is required.

Fear and Intimidation on and by Road Users

- 12.8.21 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.

Breckenry Road

- 12.8.22 The sensitivity of Breckenry Road to an increased fear and intimidation effect is considered to be negligible as there is unlikely to be any pedestrian activity along this road link due to the lack of footways present and no amenities which would generate pedestrian movement. The magnitude of change due to the increase in construction traffic during the worst-case month of construction is deemed to be minor. When the negligible sensitivity is combined with the minor magnitude, the effect is assessed as negligible and **Not Significant**.

B723

- 12.8.23 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 area of Boreland on the A723 is assessed to have a level of fear and intimidation classed as ‘small’, which is the lowest level. The magnitude of change due to the increase in construction traffic during the worst-case month of construction is deemed to be minor. When the small sensitivity is combined with the minor magnitude, the effect is assessed as minor and **Not Significant**.



C81a

- 12.8.24 Using the IEMA weighting system to help quantify the likelihood and level of pedestrian fear and intimidation the C81a is assessed to have a level of fear and intimidation classed as 'small', which is the lowest level. The magnitude of change due to the increase in construction traffic during the worst-case month of construction is deemed to be major. When the small/low sensitivity is combined with the major magnitude, the effect is assessed as moderate and **Significant** during the peak traffic generating months of the construction phase and mitigation will be required.

Road User and Pedestrian Safety

- 12.8.25 The most recently available accident data for the road links within the Study Area has been summarised in Table 12.6. The data from 2018 to 2022 (the most recent available data) indicates that one slight and one serious accident have occurred on the B723 in the study area.
- 12.8.26 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)).
- 12.8.27 For the purpose of this calculation, it has been assumed that the length of road is 4.6 km for Breckenry Road (which includes the B7076 and B7068), 6.7 km for the B723 and 1.7 for the C81a making a total of approximately 13 km, which can be generally classified as 'rural typical single carriageway' in accordance with the criteria set out within DMRB.
- 12.8.28 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.
- 12.8.29 Assuming a two-way trip on the 13 km route for each of the 4,227 vehicles during the construction period (as set out in Table 12.8), a total distance of 109,902 km is obtained. Based on the rate above; this suggests 0.0209 accidents during the construction period associated with the additional traffic.
- 12.8.30 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

- 12.8.31 There are no hazardous loads associated with the Proposed Development.



12.8.32 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 12.8 and equates to five abnormal loads per week over months 7 to 10 of the construction programme. This impact is considered to be negligible and **Not Significant**.

12.9 Cumulative Impacts and Interaction of Effects

Cumulative Impacts

12.9.1 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. Table 12.10 summarises the potential cumulative developments and the possibility of a cumulative transport effect.

Table 12.10: Potential Cumulative Impact Developments

Site Name	Status	Turbine Count	Cumulative Effect
Hopsrig	Consented	12	No cumulative effect
Revised layout	In planning	12	
Bloch Wind Farm	In planning	21	No cumulative effect
Little Hartfell	Consented	12	Possible cumulative effect
Revised layout	Currently awaiting appeal decision	9	
Loganhead	Consented	8	No cumulative effect
Callisterhall Wind Farm	Currently awaiting appeal decision	7	No cumulative effect
Scoop Hill Wind Farm	Currently awaiting appeal decision	60	Possible cumulative effect

Hopsrig Wind Farm

12.9.2 Hopsrig Wind Farm gained planning consent at appeal in 2019 to develop a 12 turbine wind farm with maximum tip heights of 140 metres near Langholm in Dumfries and Galloway. A revised application was submitted in November



2021 for 13 turbines up to 200m tip height on the same site, with the layout further amended and reduced to 12 turbines in 2024.

- 12.9.3 The scoping report for Hopsrig indicates that abnormal load deliveries may utilise a similar route as the Proposed Development via King George V Docks in Glasgow, M74 and A74 (M), exiting at Junction 17 to route via Boreland on the B723 and then to Eskdalemuir. A second option route for abnormal loads is provided with a different final stage via the C81a which also overlaps with the Proposed Development. Abnormal load deliveries would be managed and co-ordinated through the use of a Construction Traffic Management Plan (CTMP) for each relevant development and therefore no cumulative effect of abnormal loads is possible. The route to site for general construction traffic is given as via the A7 and B709; there are no potential cumulative effects with the Proposed Development.

Bloch Wind Farm

- 12.9.4 The proposed Bloch Wind Farm comprises 21 wind turbines and a 45MW battery storage facility near Langholm to the east of the Proposed Development. Both general construction traffic and abnormal loads deliveries will route to site via the A7 therefore resulting in no cumulative effects.

Little Hartfell Wind Farm

- 12.9.5 Little Hartfell Wind Farm gained consent in June 2020 for a 12 turbine development which is accessed via the C81a at Corrie Common, approximately 5 km south of the Proposed Development access. The main construction traffic route to site is the same to the Proposed Development although the Little Hartfell site can also be accessed via the B7076 and C81a from the south.
- 12.9.6 Information from the Traffic and Transport chapter for Little Hartfell suggests at the peak month of construction the development would contribute 48 daily trips on the B723 and C81a.
- 12.9.7 A subsequent application was submitted in 2020 for nine larger turbines (up to 190m tip height) which would replace the consented 12 turbine (160m tip height) development. The application was referred to the Planning and Environmental Appeals Division (DPEA) who have issued a report, and a decision from Ministers is awaited.
- 12.9.8 It is unlikely that the peak months of construction would coincide with the Proposed Development as both developments are at different stages of the planning process, nevertheless, both developments would implement a CTMP, which would ensure that deliveries are scheduled appropriately to minimise the impact to the public road network and ensure that discernible cumulative effects are avoided.



Callisterhall Wind Farm

12.9.9 An application for seven turbines on land approximately 7.5 km to the west of Langholm was refused in December 2022. The application was referred to the DPEA, a report has been issued and a decision from Ministers is awaited. The traffic and transport EIA chapter states the site is accessed from the B7048 and the route to site for general construction traffic as via the B7068 and B722 or via the A7 so there is no overlap with the Proposed Development and no cumulative effects.

Scoop Hill

12.9.10 The Scoop Hill Community Wind Farm proposals were reduced from 75 turbines to 60 turbines and the application has been referred to the DPEA, a report has been issued and a decision is awaited from Ministers. The site is located to the north of the Proposed Development and the traffic and transport EIA chapter for the development indicates three potential routes to site:

- Via the B7076 northbound from the A74(M) to Nether Murthat;
- Via the B7076, Breckenry Road, the B723 and C102a (left turn before Boreland); and
- Via the B7076, Breckenry Road, the B723 and turn left before Sandyford Water treatment plant, at the entrance to Silton Forestry.

12.9.11 These routes to site could result in a cumulative impact on the B7076, Breckenry Road and the B723. Temporary traffic increase associated with the construction period is stated as 104 daily trips on Breckenry Road and the B7068.

Loganhead Wind Farm

12.9.12 Loganhead Wind Farm gained consent in 2019. The development is located to the east of the Proposed Development and general construction traffic will route to the site via the B7068 east of Lockerbie towards Langham therefore resulting in no cumulative effect. Abnormal loads deliveries will route to the site via the B7076 and B723 however as discussed previously these deliveries will be scheduled to avoid any cumulative effects.

Summary

12.9.13 Whilst some of the developments identified in Table 12.10 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 associated with abnormal load movements.



- 12.9.14 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.
- 12.9.15 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.

12.10 Mitigation Measures

- 12.10.1 The assessment predicts that, prior to mitigation measures, the effect of severance, driver delay, pedestrian delay and amenity, and fear and intimidation as a result of increased levels of HGVs associated with the Proposed Development would be **Significant** along road links within the Study Area. Therefore, in accordance with the EIA Regulations mitigation is required to address these potential effects. It is therefore proposed to prepare and implement a comprehensive Construction Traffic Management Plan (CTMP) which is intended to mitigate the identified effects by ensuring that they are minimised as far as possible within the Study Area to a level which is considered to be **Not Significant**. It is expected that a suitably worded Planning Condition will be applied to any consent for the Proposed Development for the CTMP to be prepared and approved by Dumfries and Galloway Council post consent and prior to commencement of construction works.
- 12.10.2 The CTMP will identify measures to reduce the number of construction vehicles as well as identifying measures to mitigate the impact of vehicles. The CTMP will identify the programme of works, the agreed routes to site and details of a Site Liaison who would have responsibilities for managing traffic and transport impacts and effects. The CTMP will also identify measures to reduce and manage construction staff travel by private car, particularly single occupancy trips. The CTMP would include the following measures as a minimum:



- Immediately upon commencement, all deliveries, operatives, and visitors to the site will report to the security gate. This will be communicated to all early works contractors at their pre-start meeting.
- The main contractor will develop a logistics plan highlighting the access point for the project, loading bay, pedestrian / vehicular segregation, welfare, storage, security, and material handling that would be enforced following full site establishment.
- Approved haul routes will be identified to the site and protocols put in place to ensure that HGVs adhere to these routes and do not pass through areas to be avoided.
- All contractors will be provided with a site induction pack containing information on delivery routes and any restrictions on routes.
- Temporary construction site signage would be erected along the identified construction traffic routes to warn people of construction activities and associated construction vehicles.
- A construction traffic speed limit (for example, 20mph) where considered appropriate.
- The construction material 'lay down' areas will allow for a staggered delivery schedule throughout the day, avoiding peak 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 will 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 compliance monitoring therein will 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 will HGVs be allowed to lay-up in surrounding roads. All personnel in the team will be in contact with each other and with site management, who in turn will have mobile and telephone contact with the subcontractors.
- Roads will be maintained in a clean and safe condition.



- A wheel washing facility would be installed on-site during the construction period in order to reduce mud and debris being deposited onto the local road network.

12.10.3 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.

12.11 Residual Effects

12.11.1 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.

12.11.2 The residual effects of severance, driver delay, pedestrian delay and amenity after implementation of a CTMP are therefore considered to be minor and **Not Significant**.

12.12 Summary

12.12.1 This assessment has considered the effects on the local road network of HGV traffic associated with the construction phase of the Proposed Development.

12.12.2 The construction programme associated with the Proposed Development is anticipated to cover a 12-month period, during which 4,227 HGVs would access the site equating to 74 daily total HGV trips (37 inbound plus 37 outbound) during the busiest construction month (Month 4). The movement of abnormal loads is not anticipated to exceed 5 trips per week over the course of four months (with no overlap during the busiest construction months).

12.12.3 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:

- 0.3% at both assessed locations on the A74(M);
- 15% on Breckenry Road;
- 15% on the B723; and
- 178% on the C81a.



12.12.4 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:

- 0.6% at both assessed locations on the A74(M);
- 46% on Breckenry Road;
- 53% on the B723; and
- 809% on the C81a.

12.12.5 The impacts and effects of the Proposed Development represent a conservative approach assuming that 100% stone requirements are imported to the site, while it is anticipated that a proportion of stone may be won from on-site borrow pits. Furthermore, these increased traffic levels are temporary in nature and are likely to be lower during the other 12 months of construction.

12.12.6 The large increase in total and HGV traffic on the C81a is due to very low baseline levels of traffic using the road link rather than a large volume of construction traffic.

12.12.7 The significance of the predicted effects of the Proposed Development on the traffic and transport resource during the construction phase has been discussed in this chapter and is summarised in Table 12.11.

Table 12.11: Residual Effects

Predicted Effect	Significance	Mitigation	Significance of Residual Effect
Severance of Communities	Breckenry Road: Minor – Not Significant B723: Moderate – Significant C81a: Major/Moderate - Significant	CTMP	Minor – Not significant
Road Vehicle Driver and Passenger Delay	Breckenry Road: Minor – Not Significant B723: Moderate/ Minor – Not Significant C81a: Major/Moderate - Significant	CTMP	Minor - Not significant
Non-Motorised (Pedestrian) Delay and Amenity	Breckenry Road: Negligible – Not Significant B723: Moderate – Significant C81a: Major/Moderate - Significant	CTMP	Minor – Not significant
Fear and Intimidation	Breckenry Road: Negligible – Not Significant B723: Minor – Not Significant C81a: Moderate - Significant	CTMP	Minor - Not significant
Road User and Pedestrian Safety	Moderate/Minor – Not Significant	Not required	Not significant



Predicted Effect	Significance	Mitigation	Significance of Residual Effect
Hazardous and Large Loads	Negligible – Not Significant	Not required	Not significant

12.12.8 This chapter concludes that the environmental effects associated with increased traffic as a result of the Proposed Development are deemed to be **Not Significant** once mitigation is implemented. It is also noted that the increased traffic leads to potential effects that are temporary in nature, can be accommodated by the existing road network within the Study Area, and can be managed effectively by implementation of a Construction Traffic Management Plan.





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