Chapter 11: Transport



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Chapter 11: Transport

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11 Transport

11.1 Executive Summary

- 11.1.1 Appin Wind Farm (hereafter referred to as 'the Proposed Development') will lead to temporary increased traffic volumes on a number of roads in the vicinity of the Site during the construction phase.
- 11.1.2 The peak of construction activity is expected to occur in month four when there will be a total of 4,946 vehicle movements, which equates to 226 vehicle movements per day, comprising 166 two-way Heavy Goods Vehicle (HGV) movements and 60 two-way car / Light Goods Vehicle (LGV) movements.
- 11.1.3 It should however be noted that the above is based on the assumption that 100% of aggregate materials would be imported to the Site from nearby quarries and should therefore be considered a significant over-estimate of the number of HGV movements that will travel to and from the Site during the peak month of activity. As detailed in **Technical Appendix 11.1**, the borrow pit assessment undertaken has confirmed that the volume of material suitable to be used on Site is in excess of the volume of material required, with a surplus of aggregate material estimated to be in the order of 12,258 m³. If all aggregate is sourced on Site there would be a total of 98 vehicle movements per day, comprising 38 two-way HGV movements and 60 two-way car / LGV movements.
- 11.1.4 A review of the theoretical road capacity was undertaken for the study area which showed that with the addition of construction traffic associated with the Proposed Development, there was significant spare capacity within the road network.
- 11.1.5 A sensitivity review was undertaken to identify other relevant schemes in the area which, if they were to be constructed concurrently with the Proposed Development, would impact the study area. The review found that there would be more than sufficient spare road capacity to accommodate all of the identified schemes being constructed at the same time. It is proposed that any effects of all the sites being constructed at the same time would be mitigated through the use of an overarching Traffic Management and Monitoring Plan, which would be co-ordinated with Dumfries and Galloway Council (DGC) and the other projects.
- 11.1.6 With the implementation of appropriate mitigation, no significant residual effects are anticipated in respect of traffic and transport issues. The residual effects are all assessed to be minor and will occur during the construction phase only; they are temporary and reversible.
- 11.1.7 Traffic levels during the operational phase will be up to two vehicles per week for maintenance purposes. Traffic levels during the decommissioning of the Proposed Development are expected to be lower than during the construction phase as some elements are likely be left in situ and others broken up on-site.
- 11.1.8 The movement of Abnormal Indivisible Load (AIL) traffic will require small scale and temporary remedial works at a number of locations along identified delivery route.

11.2 Introduction

- 11.2.1 This Chapter provides an assessment of the potential effects of the Proposed Development on receptors along the transport routes resulting from vehicle movements required by the construction, operation and decommissioning of the Proposed Development.
- 11.2.2 The specific objectives of the Chapter are to:
 - review the relevant policy and legislative framework;
 - describe the baseline transport conditions;
 - describe the assessment methodology and significance criteria used in undertaking the assessment;
 - · describe the potential effects, including direct, indirect and cumulative effects;
 - describe the mitigation measures proposed to avoid, reduce and offset likely potential significant adverse effects; and
 - assess the significance of residual effects remaining following the implementation of mitigation.
- 11.2.3 The assessment has been carried out in accordance with the Institute of Environmental Assessment (now Institute of Environmental Management and Assessment (IEMA)) Guidelines for the Environmental Assessment of Traffic and Movement (2023). The document is referred to as 'the IEMA Guidelines' in this chapter.

11.2.4 This Chapter should be read in conjunction with **Technical Appendix 11.1**.



- 11.2.5 This chapter is supported by the following Figures:
 - Figure 11.1: Study Area;
 - Figure 11.2: Traffic Count Locations;
 - Figure 11.3: Personal Injury Accident Locations; and
 - Figure 11.4: Abnormal Indivisible Load Delivery Route.

11.3 Legislation, Policy and Guidelines

Legislation

11.3.1 The assessment has been undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. There is no legislation which is specific to transport that is required to be considered as part of this assessment.

Planning Policy

- 11.3.2 The following policy has been considered in the assessment:
 - National Planning Framework 4 (NPF4) (2023);
 - The Dumfries and Galloway Local Development Plan 2 (LDP2) (2019); and
 - LDP2 'Wind Energy Development: Development Management Considerations' Supplementary Guidance (2020).

Guidance

- 11.3.3 Cognisance has been taken of the following technical guidance in the preparation of the chapter:
 - Institute of Environmental Management and Assessment, Environmental Assessment of Traffic and Movement (2023);
 - Institute of Environmental Assessment, Guidelines for the Environmental Assessment of Road Traffic (1993);
 - Institution of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Impact Assessment' (2005);
 - LA104, Environmental assessment and monitoring, the Design Manual for Roads and Bridges (DMRB) (2020);
 - Table 2.2 of Volume 11, Section 2, Part 5 of the Design Manual for Roads and Bridges (DMRB) (2008);
 - Design Manual for Roads and Bridges, Volume 15, Part 5 "The NESA Manual" (2013);
 - Transport Assessment Guidance (2012);
 - Planning Advice Note 75 Planning for Transport (2005); and
 - Onshore Wind Turbines, Online Renewables Planning Advice (2014).

11.4 Consultation

11.4.1 **Table 11.1** provides details of consultations undertaken with relevant regulatory bodies, together with action undertaken by the Applicant in response to consultation comments.

Table 11.1 – Consultation

Consultee and Date	Scoping / Other Consultation	Consultation Response	Applicant Response
DGC (27 January 2023) ¹	Scoping Opinion	Routes leading to the Site 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	 As part of the Route Survey Report (RSR) which forms an annex to Technical Appendix 11.1, a weight review was undertaken via the Electronic Service Delivery for Abnormal Loads (ESDAL) contacts database.

¹ The DGC Roads Planning response to the EIA Scoping request was provided in January 2023 after the Scoping Opinion was issued by the Scottish Government Energy Consents Unit in June 2022. However, for ease, the DGC Roads Planning response is referred to as part of the Scoping Opinion within Table 11.1.



Consultee and Date	Scoping / Other Consultation	Consultation Response	Applicant Response
		require to get approvals and safe axle loadings (in respect of those structures) from the Council's Engineering Services (Bridges and Structures) unit.	 A further assessment in full consultation with DGC will be undertaken post consent following confirmation on the turbine manufacturer and appointment of a specialist haulage contractor.
DGC (27 January 2023)	Scoping Opinion	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.	 As part of the RSR which forms an annex to Technical Appendix 11.1, a weight review was undertaken via the ESDAL contacts database. A further assessment in full consultation with DGC will be undertaken post consent following confirmation on the turbine manufacturer and appointment of a specialist haulage contractor.
DGC (27 January 2023)	Scoping Opinion	There are a number of 'Core' paths including The Southern Upland Way that run through or adjacent to this Site and it would be appropriate that accommodations and mitigations be made to ensure the safety of walkers during construction works, and such accommodations and mitigations should meet with the approval of the Councils' Access Team.	 Noted, measures which could be included in an Outline Access Management Plan (OAMP) are presented as part of the mitigation section of this Chapter and Technical Appendix 4.5.
DGC (27 January 2023)	Scoping Opinion	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 outwith the public road boundary and a separate planning consent may be required in respect of these works).	 A Traffic Management Plan (TMP) will be provided post consent, secured by condition. The TMP will include a road condition survey for both pre-and post construction phases of the Proposed Development. This will be accompanied by an appropriate agreement between the DGC and the Applicant to ensure the delivery of any post-construction public road restoration that may be required.
DGC (27 January 2023)	Scoping Opinion	Proposals for access routes, site access and all accommodation works must be supported by swept path tracks.	 The RSR which forms an annex to Technical Appendix 11.1, includes swept path assessments at pinch points along the proposed AIL access route.
DGC (27 January 2023)	Scoping Opinion	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.	 Noted and would be undertaken at the appropriate time following the Proposed Development being consented. The requirement for these can be secured via an appropriately worded planning condition.
DGC (27 January 2023)	Scoping Opinion	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).	- Comment noted.
DGC (27 January 2023)	Scoping Opinion	The TMP should include a programme of delivery types/numbers by month, details of all proposed mitigation measures to minimise the impact on local communities and businesses, agreed and excluded access routes and details of measures that will be implemented to ensure that (a) no	 An Outline Construction Traffic Management Plan (CTMP) is provided as part of the proposed mitigation measures as part of this Chapter. The final TMP provided post consnet and secured by conditon will include the information set out within the standard

Consultee and Date	Scoping / Other Consultation	Consultation Response	Applicant Response
		stacking of delivery vehicles occur on any part of the public road network (b) the safety of the public using 'core' paths is maintained; and is to be agreed in writing with the Police, Transport Scotland and Dumfries and Galloway Council Roads Authority prior to any works commencing on site. Access and excluded routes should be identified and agreed for all types of vehicles and a system of visible vehicle tagging/badging employed to ensure compliance with agreed routes and driver behaviour standards which should be supported by a Driver Code of Conduct.	conditions for the Proposed Development.
DGC (27 January 2023)	Scoping Opinion	There is also the possibility of other unrelated wind farm 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.	 Noted. The Applicant is committed to working with other developers in the area in the event of more than one site being constructed at the same time. It is suggested this would be mitigated through the use of an overarching Traffic Management and Monitoring Plan (TMMP) for all of the sites and by introducing a phased delivery plan which would be agreed with DGC and any other eelvent stakeholders.
DGC (27 January 2023)	Scoping Opinion	Any future submission/ ES/TMP should also identify worst case scenario that 100% of the aggregate required for construction shall be imported to Site and identify the potential number of movements in that event so that the potential impact of importing aggregate from elsewhere via the public road network be assessed.	 Noted. The assessment has been undertaken in line with this requirement. Material assumptions are presented in Technical Appendix 11.1.
DGC (27 January 2023)	Scoping Opinion	Creation of wind farm access tracks and turbine placements will likely generate accelerated timber extraction. All extracted timber must only travel agreed haulage routes.	- Comment noted.
DGC (27 January 2023)	Scoping Opinion	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(s) during the construction period to minimise the cumulative impact on communities and road users	 Comment noted. Consultation with the relevant parties will be undertaken post consent and form part of the detailed CTMP.
DGC (27 January 2023)	Scoping Opinion	The developer will be held responsible for the immediate execution of any repairs and will be required to meet the cost of above average maintenance to the public road network arising from the concentration of heavy traffic associated with this development. This to be secured by legal agreement (Section 96).	 A TMP will be provided post consent, secured by condition. The TMP will include a road condition survey for both pre-and post construction phases of the Proposed Development. This will be accompanied by an appropriate agreement between the DGC and the Applicant to ensure the delivery of any post-construction public road restoration that may be required.
DGC (27 January 2023)	Scoping Opinion	The installation of the grid connection will have an impact upon public roads where the route follows a road, crosses a road or crosses a bridge on the road. The proposed grid connection has not been identified within the Scoping Report.	 The grid connection route would require statutory environmental impact assessment and a consent under Section 37 of the Electricity Act 1989, which will be submitted as a separate application and would be progressed by Scottish Power Energy Networks (SPEN).



Consultee and Date	Scoping / Other Consultation	Consultation Response	Applicant Response
Transport Scotland (14 April 2022)	Scoping Opinion	We note that baseline traffic count data will be obtained from a new Automatic Traffic Count (ATC) survey located on one or more appropriate locations on the local road network, once the proposed access route is defined. The SR states that further traffic data for the local road network will be obtained from UK Government Department for Transport (DfT) traffic count data, the Traffic Scotland database, or from specifically commissioned traffic surveys. We also note that National Road Traffic Forecasts (NRTF) Low Growth will be applied to obtain construction year base traffic. Transport Scotland is satisfied with the application of growth but would ask that all trunk road traffic data be sourced directly from Transport Scotland.	 Noted, the assessment has been undertaken on this basis.
Transport Scotland (14 April 2022)	Scoping Opinion	It is noted that any impacts associated with both the operational and decommissioning phases of the development are to be scoped out of the EIA. We would consider this to be acceptable in this instance.	 Comment noted.
Transport Scotland (14 April 2022)	Scoping Opinion	The SR states that detailed swept path analyses will be undertaken for the main constraint points on the route from the port of entry through to the site access junction to demonstrate that the turbine components can be delivered to Site and to identify any temporary road works which may be necessary. This will include an initial Electronic Service Delivery for Abnormal Loads (ESDAL) weight review for structures on the proposed access route from King George V Docks in Glasgow to the Site via the strategic trunk road and local road networks.	 The RSR which forms an annex to Technical Appendix 11.1, includes swept path assessments at appropriate locations of the proposed AIL access routes.
Transport Scotland (14 April 2022)	Scoping Opinion	It should be noted that Transport Scotland will require to be satisfied that the size of turbines proposed can negotiate the selected trunk road route and that transportation will not have any detrimental effect on structures within the trunk road route path. A full Abnormal Loads Assessment report should be provided that identifies key pinch points on the trunk road network. Details should be provided with regard to any required changes to trunk road street furniture or structures along the route.	 The RSR which forms an annex to Technical Appendix 11.1, includes swept path assessments at appropriate locations of the proposed AIL access routes.
Transport Scotland (14 April 2022)	Scoping Opinion	It should also be noted that any proposed changes to the trunk road network must be discussed and approved (via a technical approval process) by the appropriate Area Manager(s) prior to the movement of any abnormal load.	 Comment noted.
Tynron Community Council (May 2022)	Scoping Opinion	Noted that Tynron Community Council specifically requests that the Shinnel Glen Road is excluded from ALL access proposals for ANY traffic associated with the Proposed Development.	 Comment noted, Shinnel Glen Road will not be used in relation to the Proposed Development.
l ynron Community	Scoping Opinion	Stated that local surveys and knowledge must be included in the	- The Chapter has been undertaken in line with the appropriate guidance

Consultee and Date	Scoping / Other Consultation	Consultation Response	Applicant Response
Council (May 2022)		collation of information regarding traffic. Local core paths and the Southern Upland Way cross the footprint of the proposed wind farm, and so pedestrian, bike and horse traffic must also be factored in to the traffic assessment.	and consideration for those matters highlighted have been included within mitigation measures proposed.
Tynron Community Council (May 2022)	Scoping Opinion	Stated thatlocal timber traffic should be included in any assessments.	 Timer extraction associated with the Proposed Development has been included within the assessment. Cognisance will be given to the potential interaction with other
			timber felling activities post consent and form part of the detailed CTMP.
Tynron Community Council (May 2022)	Scoping Opinion	Stated that the use of Low National Road Traffic Forecasts (NRTF) not acceptable because of the use of the area as a recreational amenity by walkers, runners, holiday makers, cyclists, horse riders and local	 This Chapter has been undertaken in line the appropriate guidance and agreed methodology with both DGC and Transport Scotland. The use of NRTF Low growth
		residential, business and service providers' traffic. As the projected life time of the wind farm is 50 years, this data must be constantly reviewed.	factors has been agreed with both DGC and TS, to bring baseline vehicular traffic flows up to the assessment year. This has no bearing on cyclists, walkers, runners etc. which are captured separately in the assessment undertaken within the Chapter.
Tynron Community Council (May 2022)	Scoping Opinion	All traffic flows, including projected flows for repairs and servicing should be assessed. The ongoing timber traffic should be considered. Traffic flows from local businesses	 This Chapter has been undertaken in line the appropriate guidance and agreed methodology with both DGC and Transport Scotland.
			 Traffic flows in relation to the operational phase of the Proposed Development have been scoped out of the assessment with both DGC and TS. Operational traffic flows are significantly below existing daily variations in baseline traffic flows and potential impacts are negligible.
ScotWays (3 May 2022)	Scoping Opinion	Noted that there would be direct effects on Core Path 51 which is approached along a relatively narrow public road, so recreational impacts will need to be considered along that too. It may also be relevant to note	 Comment noted, measures which could be included in an OAMP (refer to Technical Appendix 4.5) are presented as part of the mitigation section of this Chapter.
		here that concerns have previously been raised with ScotWays about the impact of forestry traffic on the condition of this core path, with knock- on effects upon its accessibility for visitors and local residents alike. Reportedly, this is a popular route with the general public, so it would seem that there is a potential opportunity here to address any ongoing issues and prevent future problems as part of the wind farm development proposals.	 This Chapter provides an review on the available information on public recreational access both within the Site and the study area and where applicable these are included within the assessment on the significance of effects of the Proposed Development on transport.

11.5 Scope of Assessment

Statkraft

Effects Assessed In Full

- 11.5.1 This assessment focusses on the effects of construction of the Proposed Development upon those receptors identified during the review of desk-based information and field surveys (the extents of the study area are set out in the 'Study Area' section below).
- 11.5.2 The following potential effects were identified during Scoping for consideration in this assessment:
 - direct effects on road / path users during construction due to changes in traffic flows and transport
 of AILs in the surrounding study area; and

- direct effects on local residents as a result of increased traffic during construction.
- 15.5.3. The assessment scenarios used for this topic are as follows:
 - Future Baseline Flows (2029) which are estimated by applying a combination of NRTF Low growth factors to existing traffic flow information;
 - Future Baseline + Development Flows (2029) which are estimated by applying the distributed development trips to the future baseline traffic flow information; and
 - Future Baseline + Committed Development Flows + Development Flows (2029) which are estimated by applying the distributed development trips, plus committed development trips to the future baseline traffic flow information.

11.6 Assessment Methodology and Significance Criteria

- 11.6.1 The methodology adopted in this assessment involved the following key stages:
 - determine the baseline for traffic and transport;
 - review and identify potential impacts related to the construction of the Proposed Development;
 - evaluate significance of effects on receptors;
 - identify mitigation; and
 - assess residual effects.

Study Area

- 11.6.2 The study area includes local roads that are likely to experience increased traffic flows resulting from the construction of the Proposed Development. The geographic scope was determined through a review of Ordnance Survey (OS) plans and an assessment of the potential origin locations of construction staff and supply locations for construction materials. Locally sourced material will be used where feasible and traffic will avoid impacting on local communities as far as is possible.
- 11.6.3 Access to the Site will be taken from an existing junction on the C35S, which connects onto the B729 to the south. All vehicular traffic will use this access including AILs. Strategic access to the Site will be taken from the A713 which joins with the B729 to the west.
- 11.6.4 The likely Port of Entry (PoE) used for the discharging of turbine components will be King George V Docks in Glasgow. Full details of the AIL route are provided later in the report and within **Annex B** of **Technical Appendix 11.1**.
- 11.6.5 Based on the above, the study area for this assessment is as follows:
 - A713 between Dalmellington and St Johns Town of Dalry;
 - B741 between Dalmellington and New Cumnock;
 - B729 between Carsphairn and its junction with the C35S; and
 - C35S from the B729 to the Site access.
- 11.6.6 Effects associated with construction traffic generated by the Proposed Development would be most pronounced in close proximity to the Site access junction and on the final approaches to the Site. As vehicles travel away from the Proposed Development, they would disperse across the wider road network, thus diluting any potential effects. It is therefore expected that the effects relating to construction traffic are unlikely to be significant beyond the study area identified above.
- 11.6.7 The study area is shown in **Figure 11.1**.

Desk Study

- 11.6.8 To inform the baseline assessment and to establish the nature of the surrounding road and footway infrastructure, the following desktop reviews have been undertaken:
 - review of relevant transport planning policy;
 - consideration of potential origin locations of construction staff and potential supply locations for construction materials to inform extent of local area roads network to be considered in the assessment;
 - collection of existing traffic flow information;
 - review of the relevant roads hierarchy;
 - review of personal injury accident (PIA) data;



- identification of sensitive locations within study area (as defined by IEMA such as settlements, schools, tourist attractions etc.) using freely available online mapping;
- identification of any other traffic sensitive receptors in the area (Core Paths, routes, communities, etc.) using freely available online mapping and relevant agency websites;
- review of OS plans;
- review of cumulative development information DGC planning portal and the Scottish Government's Energy Consents Unit (ECU) portal; and
- identification of constraints to the movement of AILs through a Route Survey including swept path assessments – OS plans, video footage and Google Streetview.

Field Survey

- 11.6.9 The following field surveys were carried out to inform the assessment:
 - detailed site visits were undertaken to review the proposed access route and potential constraints for both general construction traffic and AILs; and
 - the collection of traffic flows and speed data was undertaken to establish a baseline on the local road network.

Assessment of Potential Effect Significance

11.6.10 The Institute of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Impact Assessment' (2005) notes that the separate IEMA Guidelines should be used for characterising the environmental traffic and transport effects (off-site effects) and the assessment of significance of major new developments. More recent guidance published by the IEMA, namely 'Environmental Assessment of Traffic and Movement' (2023) provides an update to the previously used guidance, 'Guidelines for the Environmental Assessment of Road Traffic' (1993) document, which should be used to characterise the environmental traffic and transport effects (off-site effects) and the assessment of significance of major new developments. The guidelines intend to complement professional judgement and the experience of trained assessors.

Criteria for Assessing Sensitivity of Receptors

- 11.6.11 In terms of traffic and transport impacts, the receptors are the users of the roads within the study area and the locations through which those roads pass.
- 11.6.12 The IEMA Guidelines include guidance on how the sensitivity of receptors should be assessed. Using that as a basis, professional judgement was used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This is summarised in **Table 11.2**.

Receptor	Sensitivity			
-	High	Medium	Low	Negligible
Users of Roads	Where the road is a minor rural road, not constructed to accommodate frequent use by HGVs. Includes roads with traffic control signals, waiting and loading restrictions, traffic calming measures	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there is some traffic calming or traffic management measures	Where the road is Trunk or A-class, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable for AILs and new strategic trunk road junctions capable of accommodating AILs.
Users / Residents of Location	Where a location is a large rural settlement containing a high number of community and public services and facilities	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services	Where a location is a small rural settlement, containing a few community or public facilities or services	Where a location includes individual dwellings or scattered settlements with no facilities

Table 11.2 – Classification of Receptor Sensitivity

11.6.13 It is acknowledged that there will be locations both in terms of users of roads or users / residents of locations that may not fit within one of the sensitivity classifications highlighted in **Table 11.2**. In these situations, professional judgement has been applied and justification for any changes provided.

11.6.14 Where a road passes through a location, users are considered subject to the highest level of sensitivity defined by either the road or the location characteristics.



Criteria for Assessing Magnitude of Impact

- 11.6.15 Magnitude of impact has been assessed in accordance with the following rules which are outlined in the 2023 IEMA Guidelines, and are used as a screening exercise to determine which links within the study area are to be taken forward for detailed analysis in the assessment:
 - Rule 1 Include highway links where traffic flows will increase by more than 30% (or where the number of heavy goods vehicles (HGVs) is predicted to increase by more than 30%); and
 - Rule 2 Include any other specifically sensitive areas where total traffic flows are predicted to
 increase by 10 % or more.
- 11.6.16 Examples of sensitive areas are presented in the 2023 IEMA Guidelines as hospitals, churches, schools, historical buildings and tourist attractions etc. These locations are to be assessed in relation to "Rule 2".
- 11.6.17 The 2023 IEMA Guidelines identify the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development; the impacts and levels of magnitude are discussed below:
 - Severance the IEMA Guidance advises that, "The Department for Transport has historically set out a range of indicators for determining the significance of severance. Changes in traffic flow of 30 %, 60 % and 90 % are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. Although these thresholds no longer appear in Department for Transport guidance, they have not been superseded by subsequent changes to guidance and are established through planning case law. However, caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic." (Para 3.16). The Guidelines acknowledge that changes in traffic flows should be used cautiously, stating that "the assessment of severance should pay full regard to specific local conditions, e.g. sensitivity of adjacent land uses, prevalence of vulnerable people, whether or not crossing facilities are provided, traffic signal settings, etc." (Para 3.17).
 - Driver delay the IEMA Guidelines note that these delays are only likely to be "significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system" (Para 3.20).
 - Pedestrian delay (incorporating delay to all non-motorised users) the IEMA Guidance advises that "pedestrian delay and severance are closely related effects and can be grouped together. Changes in the volume, composition or speed of traffic may affect the ability of people to crossroads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development Site." (Para 3.24). Furthermore, the guidance advises that "...it is not considered wise to set down definitive thresholds. Instead it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect." (Para 3.26).
 - Non-motorised user amenity the IEMA Guidance advises that, "The 1993 Guidelines suggest that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) is halved or doubled. Although these thresholds no longer appear in Department for Transport guidance, they have not been superseded by subsequent changes to guidance and are established through planning case law." (Para 3.30).
 - Fear and intimidation there are no commonly agreed thresholds for estimating levels of fear and intimidation, from known traffic and physical conditions. However, as the impact is considered to be sensitive to traffic flow, changes in traffic flow of 30%, 60% and 90% are regarded as producing minor, moderate and substantial changes respectively in the guidelines. (Para 2.19). As such, this has been used to assess the potential impacts associated with construction activities around fear and intimidation on people in close proximity to the Proposed Development.
 - Road safety professional judgement would be used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents. In line with the IEMA Guidance, those areas of collision clusters would be subject to detailed review.
 - Road safety audits It would be proposed to undertake any necessary Road Safety Audits (RSA) post consent and it is considered that this can be secured via a planning condition.
 - Large loads The movement of the AILs associated with the construction of the Proposed Development have been considered in full, within a separate route survey assessment (see Annex B of Technical Appendix 11.1), which identifies physical mitigation measures required to accommodate the predicted loads. Additional mitigation in terms of addressing potential impacts on sensitive receptors are included as standard within Mitigation During Construction sub-section.



- 11.6.18 While not specifically identified, as a more vulnerable road user, cyclists are considered in similar terms to pedestrians.
- 11.6.19 Table 3.7 of LA104 Environmental Assessment Methodology of the Design Manual for Roads and Bridges (DMRB) sets out four levels against which the magnitude of these impacts should be assessed major, moderate, minor and negligible. The impacts and levels of magnitude are discussed below in **Table 11.3**.

Table 11.3 – Magnitude of Impacts

Magnitude	Description
Major	These effects are considered to be material in the decision-making process.
Moderate	These effects may be important but are not likely to be material factors in decision making. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a receptor.
Minor	These effects may be raised as local factors. They are unlikely to be critical in the decision-making process but are important in improving the subsequent design of the project.
Negligible	No effects or those that are imperceptible.

Criteria for Assessing Effect Significance

11.6.20 The predicted significance of the effect was determined through a standard method of assessment based on professional judgement, considering both sensitivity of the receptor and magnitude of impact as detailed in **Table 11.4** below.

Table 11.4 – Classification of Effect Significance

Receptor Sensitivity	Magnitude of Impact				
	Major	Moderate	Minor	Negligible	
High	Major	Major / Moderate	Moderate / Minor	Minor	
Medium	Major / Moderate	Moderate	Minor	Minor / Negligible	
Low	Moderate/Minor	Minor	Minor	Minor / Negligible	
Negligible	Minor	Minor	Minor / Negligible	Negligible	

- 11.6.21 Effect significance is categorised as **major**, **moderate**, **minor** or **negligible**. Effects judged to be of **major** or **moderate** significance are considered to be significant in the context of the EIA Regulations and require mitigation.
- 11.6.22 In some cases, where an effect could be one of major / moderate or moderate / minor significance, professional judgement is used to determine which option should be applicable. In other cases, an 'intermediate' effect between either major / moderate or moderate / minor is considered appropriate. Effects judged to be of minor or negligible significance are considered not significant in the context of EIA Regulations

Requirements for Mitigation

11.6.23 If significant likely potential effects are identified, appropriate mitigation will be implemented to remove and reduce the significance of the effects where possible.

Assessment of Residual Effect Significance

11.6.24 Residual effects will be assessed following the methodology described above, taking into consideration the identified mitigation.

Cumulative Assessment

Onshore Wind Farm and Energy Related Planning Applications

- 11.6.25 A review of DGC's online planning portal and Scottish Government's ECU portal was undertaken to identify any consented developments within the vicinity of the Proposed Development which would generate significant traffic within the same study area and should be included within the assessment.
- 11.6.26 Transport Assessment Guidance advises that only those projects with extant planning permission or local development plan allocations within an adopted or approved plan require to be included in any assessment. Those projects in scoping or at the application stage should not be included in cumulative assessments as they have yet to be determined. When considering traffic impacts specifically in relation to the construction phase of a project, the potential traffic impact is highly speculative and as such, cannot be included in the assessment.
- 11.6.27 **Technical Appendix 11.1** includes a full review of consented schemes in the area which required consideration, including justification on whether these should be included within the cumulative assessment. Those included within **Table 11.5** are those schemes deemed applicable for inclusion within the assessment.



Table 11.5 – Committed Developments

Planning	Scheme Name	Status	Included as Committed
Reference			Development
PPA-170-2179	Manquhill Wind Farm (12 month construction phase)	Consented at Appeal 8 July 2024 – Commencement of development no later than five years from the date of consent.	Yes – Potential for construction phases to overlap if construction commences at the end of the commencement period and the Proposed Development is consented and begins construction in 2029.
PPA-170-2153 PPA-170-2178 (Combined due to falling within same site boundary)	Margree Area Wind Farm (12 month construction phase) Divot Hill Wind Farm (12 month construction phase)	Consented at Appeal on 21 March 2022 – Commencement of development no later than three years from the date of consent. Consented at Appeal on 10 July 2024 respectively – Commencement of development no later than five years from the date of consent.	Yes – Potential for construction phases to overlap if construction commences at the end of the commencement period and the Proposed Development is consented and begins construction in 2029.
ECU00000735	Shepherds' Rig Wind Farm (21 month construction phase)	Consented 21 August 2023 – Commencement of development no later than five years from the date of consent.	Yes – Potential for construction phases to overlap if construction of the Proposed Development is consented and begins construction in 2029 or soon thereafter. It is also noted that a revised application will be made in relation to varying the consented scheme.

11.6.28 The review did not identify any other significant traffic generating developments in the study area that may occur during the peak construction phase associated with the Proposed Development, which should be considered as part of any cumulative assessment of construction effects within this Chapter.

Other Planning Applications

- 11.6.29 A review of the DGC online planning portal was also undertaken for other developments with planning consent, which should be considered within this assessment. The review examined consented developments whose trips are considered significant in scale (i.e., has associated traffic impact of over 30%).
- 11.6.30 The review did not identify any other significant traffic generating developments in the study area that may occur during the construction phase associated with the Proposed Development.
- 11.6.31 It should be noted that the use of NRTF growth assumptions has provided a basis for general local development growth within the study area

Assessment Assumptions

- 11.6.32 The following main assumptions have informed the assessment of effects in this Chapter:
 - A construction programme of 18 months has been assumed.
 - The year of construction is assumed to be 2029 and has been used for the basis of the assessment within this Chapter.
 - At the request of DGC, for the purposes of the assessment within the Chapter, it has been assumed that 100% of aggregate materials will be imported to the Site, with no material sourced from on-site borrow pits. In reality this will not be the case, as the borrow-pit assessment has confirmed that the proposed borrow pits would be able to provide material in excess of the Site requirements, with the surplus estimated to be in the order of 12,258 m³.
 - Concrete will be batched on-site meaning only raw materials to prepare the concrete i.e. cement powder, water and sand / aggregates will be imported.

Limitations to Assessment

- 11.6.33 Limitations to the assessment are as follows:
 - The assessment is based upon average traffic flows in one month periods. During the month, activities at the Site may fluctuate between one day and another. It is not possible to fully develop a day by day traffic flow estimate as no Balance of Plant (BoP) contractor has been appointed and external factors can impact upon activities on a day by day basis (weather conditions, availability of materials, time of year, etc).
 - Assumptions on the original points for materials have been made to provide a worst-case assessment scenario. Should these origin points change, the effects on the study area may alter to those presented in the assessment.

- Construction material estimates set out in **Technical Appendix 11.1** are based on what is likely to be required for a project of this size and are considered to be appropriate for enabling a robust assessment of effects to be made.
- There will be a requirement for timber felling and extraction associated with the construction of the Proposed Development. It is currently estimated that there will be in the order of 62.52 hectares (ha) of timber to be felled. It has been assumed that the felling will commence in month one of the construction programme and will occur over a period of four months. Note this is subject to change following the preparation of a detailed felling plan.
- 11.6.34 It is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant environmental effects on traffic and transport.

11.7 Baseline Conditions

Active Travel Network

- 11.7.1 There are no dedicated pedestrian facilities (e.g. footways, crossing points etc.) in the immediate vicinity of the Site, reflecting its rural setting. Further away from the Proposed Development in the wider study area, there are pedestrian facilities within the larger settlements like Cumnock and Ayr, and some of the smaller settlements, including Dalmellington, Carsphairn and New Cumnock.
- 11.7.2 The level of pedestrian infrastructure in the immediate vicinity of the Site is commensurate with the scale of the local settlements and their rural setting.
- 11.7.3 A review of the DGC Core Path Map indicates a number of Core Paths in the immediate vicinity of and within the Site, which are provided below:
 - Southern Upland Way (SUW) (Section 4: Dalry to Sanquhar) (UNNO/504/14 and UNNO/504/15). The SUW is approximately 340 km in length and routes from Portpatrick on the west coast to Cockburnspath in the east. Within the Site, the SUW crosses an existing forestry access track which will also be used by the Proposed Development and then runs parallel to the existing forestry access track for approximately 1.5 km at Craigencarse.
 - Manquhill Hill (CARS/216/3, CARS/216/4, CARS/216/5, and CARS/216/6). This path is a popular
 route on a well surfaced track along Manquhill Hill which leads directly on to the SUW. The path is
 located outside the Site boundary.
 - Benbrack (GLEN446/1). This is an arduous hill path which is approximately 14 km in length and crosses over Benbrack mountain and connecting to the SUW. The path is located outside the Site boundary.
 - Cairnhead to Blackmark Hill (GLEN/52/1, GLEN/52/2, GLEN/52/3, GLEN/52/4, GLEN/52/5, GLEN/52/6 and GLEN/52/7). This is an arduous hill path which routes from Cairnhead to Blackmark Hill. The Proposed Development access track will cross the Core Path to the south-west of Little Dibbin Hill at one location at GLEN/52/6.
 - Benbuie to Troston Hill (GLEN/51/3, GLEN/51/4, GLEN/51/6, TYNR/51/7, TYNR/51/8 and TYNR/51/10). This is an arduous hill and forest path which leads to Striding Arches and which will be used to access the Site.
- 11.7.4 The Core Path Network within the vicinity of the Site as detailed above can be seen in **Figure 8** in **Technical Appendix 11.1**.
- 11.7.5 A review of the Sustrans National Cycle Network (NCN) map indicates that there are no NCN routes within the vicinity of the Proposed Development.

Road Access

<u>A713</u>

- 11.7.6 The A713 is a major road of approximately 64 km in length and 6.5 m in width. It is a two-way single carriageway road and runs through Dumfries and Galloway, connecting Ayr and Castle Douglas. The road is generally subject to a 60miles per hour (mph) speed limit, reducing through settlements, with speeds ranging from 30mph, 40mph and 50mph. The A713 in the vicinity of the Site, between Castle Douglas and Loch Muck is maintained by DGC, while the northern section is maintained by the Ayrshire Roads Alliance (ARA).
- 11.7.7 As shown in **Figure 11.1** the study area includes a 31 km section of the A713 between St John's Town of Dalry and Dalmellington.

B729

11.7.8 The B729 is a 46 km road linking with the A713 in the vicinity of Carsphairn to the west, with the A76 at Holywood in the south-east. The road is a single carriageway road of varying widths through its length.

From its junction with the A713 through to the proposed Site access, the road is a single track road with passing places and a 60 mph speed limit in place. The road is maintained by DGC and appears to be in a mostly reasonable condition, however there are locations where deterioration is present.

11.7.9 As shown in **Figure 11.1** the study area includes an 8 km section of the B729 between Carsphairn and the C35S.

<u>B741</u>

- 11.7.10 The B741 is a two-way single carriageway B-road through East Ayrshire approximately 50 km in length. It starts at a junction on the A76 in New Cumnock and ends at a T-junction on the A77 north of Girvan. The B741 within the study area is maintained by the ARA and appears to be in a mostly reasonable condition. The road is subject to a 60mph speed limit in rural areas, reducing to 30 mph in settlements.
- 11.7.11 As shown in **Figure 11.1** the study area includes a 17 km section of the B741 between Carsphairn and the C35S.

<u>C35S</u>

- 11.7.12 The C35S is a single-track road with passing places of varying widths through its length. The road has been subject to improvements works, including widening, associated with other wind farm developments in the area. It is approximately 10 km in length routing from the B729 near Smitton Bridge to Lorg Bridge and is subject to a 60 mph speed limit. The road is maintained by DGC within the study area.
- 11.7.13 As shown in **Figure 11.1** the study area includes a 4.6 km section of the C35S between the B729 and the Site access junction.

Road Condition and Existing Use

- 11.7.14 The Agreed Timber Route Map has been developed by The Timber Transport Forum who are a partnership of the forestry and timber industries, local government, national government agencies, timber hauliers and road and freight associations. One of the key aims of the forum is to minimise the impact of timber transport on the public road network, on local communities and the environment and a way of achieving this is to categorise the roads leading to forest areas in terms of their capacity to sustain the likely level of timber haulage vehicles i.e. HGVs. The routes are categorised into four groups, namely; 'Agreed Routes', 'Consultation Routes', 'Severely Restricted Routes' and 'Excluded Routes'.
- 11.7.15 'Agreed Routes' are categorised as routes used for timber haulage without restriction as regulated by the Road Traffic Act 1988. A-roads are classified as 'Agreed Routes' by default unless covered by one of the other road classifications. Those links classed as 'Consultation Routes' are categorised as a route which is key to timber extraction, but which are not up to 'Agreed Route' standard. Consultation with the local authority is required, and it may be necessary to agree limits of timing, allowable tonnage etc. before the route can be used. B-roads are classified as 'Consultation Routes' by default unless covered by one of the other classifications. 'Severely Restricted Routes' are not normally to be used for timber transport in their present condition. These routes are close to being Excluded Routes. Consultation with the local authority is required prior to use. Finally, 'Excluded Routes' should not be used for timber transport in their present condition. These routes are either formally restricted, or are close to being formally restricted, to protect the network from damaging loads.
- 11.7.16 Roads within the study area form part of the route network used for the extraction of timber and are therefore regularly used by HGV traffic. This includes sections of the A713 which is an 'Agreed Route' and the C35S, B741 and a section of the B729 which are 'Consultation Routes'.

Existing Traffic Conditions

- 11.7.17 To assess the impact of development traffic on the study area, baseline traffic data has been used from a combination of Automatic Traffic Counts (ATCs) undertaken for the Proposed Development and from the Department for Transport (DfT) database, with 2023 data utilised.
- 11.7.18 The traffic count sites used are as follows (illustrated **on Figure 11.2**):
 - 1. The C35S, within the vicinity of the Site access (Commissioned ATC Survey);
 - 2. B729 between the A713 and C35S (Commissioned ATC Survey);
 - 3. A713, between Dalmellington and Carsphairn (Commissioned ATC Survey, 2024);
 - 4. A713, north of Dalmellington (Commissioned ATC Survey, 2024);
 - 5. A713, at St John's Town of Dalry (DfT Count Site: 30886, 2023); and
 - 6. B741, east of Dalmellington (Commissioned ATC Survey, 2024).

- 11.7.19 The traffic counters allowed the traffic flows to be split into vehicle classes and the data has been summarised into cars / LGVs and HGVs (all goods vehicles >3.5 tonnes gross maximum weight).
- 11.7.20 A NRTF growth factor was applied to the 2024 ATC survey data and 2023 DfT survey data to bring the traffic data up to the base year of 2025. NRTF Low Growth factors have been applied to the surveyed traffic data. The NRTF Low Growth factor for 2023 to 2025 is 1.011 and 2024 to 2025 is 1.005.
- 11.7.21 These sites were identified as being areas where sensitive receptors on the access route would be located. The locations of the traffic sites are illustrated in **Figure 11.2**, while **Table 11.6** summarises the Annual Average Daily Traffic (AADT) traffic data collected and used in this assessment.

Site ID	Survey Location	Cars & LGVs	HGVs	Total
1	The C35S, within the vicinity of the Site access	35	1	36
2	B729 between the A713 and C35S	104	5	109
3	A713, between Dalmellington and Carsphairn	1,716	77	1,793
4	A713, north of Dalmellington	3,822	103	3,925
5	A713, at St John's Town of Dalry	2,387	317	2,704
6	B741, east of Dalmellington	881	33	914

Please note minor variances due to rounding may occur.

11.7.22 The ATC survey locations which provided traffic volume data were also used to obtain speed statistics (DfT count sites do not provide speed information). The two-way seven-day average and 85th percentile speeds observed at the count sites are summarised in **Table 11.7**.

Table 11.7 – Speed Summary Table

Site ID	Survey Location	Mean Speed (mph)	85%ile (mph)	Speed Limit (mph)
1	The C35S, within the vicinity of the Site access	27.7	32.6	60
2	B729 between the A713 and C35S	31.7	37.1	60
3	A713, between Dalmellington and Carsphairn	42.4	49.3	60
4	A713, north of Dalmellington	55.5	63.4	60
6	B741, east of Dalmellington	37.8	45.3	60

Speed data obtained 2024 and 2025

11.7.23 The speed survey data indicates that for the most part, speed limits are being adhered to, with the exception of a section of the A713 north of Dalmellington, where the 85th percentile speed exceeds the speed limit by approximately 5%.

Personal Injury Accident Review

- 11.7.24 PIA data for the five-year period commencing 01 January 2019 through to the 31 December 2023 was obtained from the online resource CrashMap which uses data collected by the police about road traffic crashes occurring on British roads, where someone is injured.
- 11.7.25 TA Guidance requires an analysis of the accident data on the road network in the vicinity of any development to be undertaken for at least the most recent three-year period, or preferably a five-year period, particularly if the site has been identified as being within a high accident area. Whilst the study area has not been identified as having a high accident rate, a five-year review has been undertaken to ensure a comprehensive assessment has been undertaken.
- 11.7.26 The statistics are categorised into three categories, namely "Slight" for damage only incidents, "Serious" for injury accidents and "Fatal" for accidents that result in a fatality.
- 11.7.27 The locations and severity of the recorded accidents within the study area are summarised in **Table 11.8** while **Figure 11.3** shows their locations.

Table 11.8 – Personal Injury Accident Summary

Road Link	Slight	Serious	Fatal	HGV
A713 between Dalmellington and Carsphairn	2	6	1	1
A713 between Carsphairn and St John's Town of Dalry	1	1	0	0
B729 between the A713 and C35S	0	1	0	1
B741 between Dalmellington and New Cumnock	3	0	0	0
C35S between the B729 and the Site access	0	0	0	0
Total	6	8	1	2
Percentage of total accidents	40%	53%	7%	-

11.7.28 A general summary of the accidents is as follows:

<u>A713</u>

• There were a total of 11 PIAs recorded on the A713 within the five year period between 2019 and 2023. Of these, three were "slight", seven were "serious" and there was one fatality.

- The single fatality was a single vehicle accident and involved a motorcycle. The accident occurred at a bend on the road, in the vicinity of Craig Bridge where the carriageway width narrows.
- There were two recorded accidents on the A713 all near a bend north of Eriff, in the vicinity of a junction to a private residence. One accident was "slight" and one was "serious". The "slight" accident was a single vehicle accident involving a car, while the "serious" accident involved a car and a motorcycle.
- A total of four recorded accidents on the A713 involved a motorcycle, three "serious" and one "fatal".
- One recorded accident involved a young driver (under 25), which was a "serious" and occurred on a bend and involved a total of four vehicles.
- One recorded accident involved a pedestrian and was classed as "serious" this occurred to the west of Dalmellington on a section of road where there is no footway.
- There were no accidents involving cyclists on the A713.

<u>B729</u>

• There was only one recoded accident on the B729 and it was classified as "serious". The accident involved a car and an HGV and occurred on a bend.

<u>B741</u>

- There were three recorded accidents on the B741 in the five-year period between 2019 and 2023. All of these accidents were recorded as being "slight".
- All of the accidents were single vehicle accidents involving a car, one of which had a young driver (under 25).
- There were no child, cyclist or pedestrian casualties involved and none of the incidents involved an HGV or motorcycle.

<u>C35S</u>

• There were no recorded accidents on the C35S².

PIA Summary

- 11.7.29 The analysis indicates that there were a total of 15 PIA incidents within the five year period between 2019 and 2023. Most recorded accidents are categorised as being "serious" (53%), with 40% of accidents being recorded as "slight" and 7% recoded as "fatal".
- 11.7.30 In general, there are no clusters of PIAs at any location in the assessed area or high numbers of accidents involving HGVs for example. The majority of PIAs recorded occurred at or on approach to junctions / access to properties, where there is an increased interaction between vehicles and on bends.
- 11.7.31 Based on the information available, it has been established that there are no specific road safety issues within the immediate vicinity of the Proposed Development or within the study area that currently require to be addressed or would be exacerbated by the construction of the Proposed Development.

Future Baseline

- 11.7.32 Construction of the Proposed Development is anticipated to commence in 2029 if consent is granted and is expected to last approximately 18 months.
- 11.7.33 To assess the likely effects during construction, base year traffic flows were determined by applying a NRTF low growth factor to the surveyed traffic flows. The NRTF low growth factor for 2025 to 2029 is 1.020. This factor was applied to the 2025 traffic data presented in Table 2 to estimate the 2029 Base traffic flows presented in **Table 11.9**.

Table 11.9 – 24-Hour Two Way Average Traffic Data (2029)

Site ID	Survey Location	Cars & LGVs	HGVs	Total
1	The C35S, within the vicinity of the Site access	36	1	37
2	B729 between the A713 and C35S	106	5	111
3	A713, between Dalmellington and Carsphairn	1,750	79	1,829
4	A713, north of Dalmellington	3,898	105	4,003

² Whilst not included in the PIA assessment, which only includes the most up to date information available from CrashMap, the Applicant is aware of an accident which occurred on the C35S in July 2024. From the available information, the accident occurred as a result of temporary works on the C35S in relation to the Windy Rig Wind Farm. The Applicant will ensure cognisance of this is given within the CTMP for the Proposed Development.



Site ID	Survey Location	Cars & LGVs	HGVs	Total
5	A713, at St John's Town of Dalry	2,435	324	2,759
6	B741, east of Dalmellington	899	34	933

Please note minor variances due to rounding may occur.

11.8 Summary of Sensitive Receptors

11.8.1 A review of sensitive receptors has been undertaken within the study area. **Table 11.10** details the receptors and their sensitivities for use within the following assessment. A justification for the sensitivity has been provided, based upon the details contained in **Table 11.2**.

Table 11.10 – Receptor Sensitivity Summary

Receptor	Sensitivity	Justification
C35S Users	High	Where the road is a minor rural road, not constructed to
		accommodate frequent use by HGVs.
B729 Users	High	Where the road is a minor rural road, not constructed to
	-	accommodate frequent use by HGVs.
A713 Users	Medium	Where the road is a local A or B class road, capable of regular use
		by HGV traffic.
B741 Users	Medium	Where the road is a local A or B class road, capable of regular use
		by HGV traffic.
Residents along C35S	Negligible	Where a location includes individual dwellings or scattered
		settlements with no facilities.
Residents along B729	Negligible	Where a location includes individual dwellings or scattered
		settlements with no facilities.
Residents along A713	Negligible	Where a location includes individual dwellings or scattered
		settlements with no facilities.
Residents along B741	Negligible	Where a location includes individual dwellings or scattered
		settlements with no facilities.
Residents in Dalmellington	Medium	Where a location is an intermediate sized rural settlement,
		containing some community or public facilities and services.
Residents in Carsphairn	Low	Where a location is a small rural settlement, few community or public
		facilities or services.
Residents in St John's Town of	Medium	Where a location is an intermediate sized rural settlement,
Dalry		containing some community or public facilities and services.
Residents in New Cumnock	Medium	Where a location is an intermediate sized rural settlement,
		containing some community or public facilities and services.
Core Path / Path Network	Medium	At locations where users are required to cross roads within the study
		area to use the paths.

- 11.8.2 As previously noted in the 'Criteria for Assessing Magnitude of Impact' section, examples of sensitive areas are presented in the IEMA Guidelines as locations which include hospitals, churches, schools, historical buildings tourist attractions for example. Based on these indicators which are stated within the IEMA Guidelines, the following locations within the study area have been identified as sensitive areas in this assessment:
 - Dalmellington (church, schools, tourist attractions and health centre);
 - New Cumnock (church, schools, tourist attractions and health centre);
 - Carsphairn (church and tourist attraction); and
 - St John's Town of Dalry (church, schools, tourist attractions and health centre).
- 11.8.3 These locations are therefore subject to 'Rule 2' of the IEMA Guidelines which requires a full assessment of effects if the locations are subject to a total traffic increase of 10 % or more. All other locations within the study area are subject to 'Rule 1' and are assessed if total traffic flows (or HGV flows) on highway links increase by more than 30%.

11.9 Implications of Climate Change for Existing Conditions

- 11.9.1 It is considered that climate change projections will not have a discernible impact on the baseline conditions for road traffic within the timescales of the Proposed Development.
- 11.9.2 It is assumed that, at regional level, appropriate measures will be put in place to ensure flood risk is managed and does not have long term effects on transport infrastructure.

11.10 Future Baseline in the Absence of the Proposed Development

11.10.1 As noted above, the assessment has been undertaken on the basis of a future baseline of conditions in 2029, with growth factors applied. In the absence of the Proposed Development, it is anticipated that traffic growth will occur throughout the study area as a result of other development pressures, tourism and population flows.



11.11 Embedded Mitigation

- 11.11.1 The Site layout includes the use of three on-site borrow pits to provide material for the creation of the access tracks, hardstandings and compound bases etc. The borrow pit assessment undertaken has confirmed that the volume of material suitable to be used on-site is in excess of the volume of material required, with a surplus of material estimated to be in the order of 12,258 m³.
- 11.11.2 Batching of concrete for use on-site is considered feasible and economic and facilities to enable this are being provided at the Proposed Development. The assessment, has, however, taken into consideration the importation of concrete batching materials, including cement, water and aggregates.

11.12 Scope of the Assessment

Effects Assessed In Full

- 11.12.1 As previously noted, the following potential effects were identified for consideration in this assessment:
 - Direct effects on road / path users during construction due to changes in traffic flows and transport of AILs in the surrounding study area; and
 - Direct effects on local residents as a result of increased traffic during construction.
- 15.5.3. The assessment scenarios used for this topic are as follows:
 - Future Baseline + Development Flows (2029) which are estimated by applying a combination of NRTF Low growth factors to existing traffic flow information to determine future baseline, and then adding the distributed development trips; and
 - Future Baseline + Committed Development Flows + Development Flows (2029) which are estimated by applying the distributed development trips, plus committed development trips to the future baseline traffic flow information.

Effects Scoped Out

- 11.12.2 On the basis of the desk and field survey work undertaken, the professional judgement of the EIA team, experience from other relevant projects, policy guidance or standards, and feedback received from consultees, the following topic areas have been 'scoped out' of detailed assessment, as proposed in the Scoping Report:
 - Operational Phase: Once operational, it is envisaged that the level of traffic associated with the
 Proposed Development will be minimal. Regular visits would be made to the wind farm for
 maintenance checks, in the order of two per week. The vehicles used for these visits are likely to be
 4x4 vehicles and there may also be the occasional need for an HGV to access the wind farm for
 specific maintenance and/or repairs. It is considered that the effects of operational traffic would be
 negligible and therefore no detailed assessment of the operational phase of the development is
 proposed. As such, the effects during the operational phase are scoped out of the assessment.
 - Decommissioning Phase: The traffic effects during the decommissioning phase can only be fully assessed closer to that period, 50 years on from the completion of the Site. As elements of the Proposed Development are likely to remain in-situ, the traffic flows associated with the decommissioning works will be lower than those associated with the construction phase. The construction phase therefore represents a worst-case assessment and as such, no further assessment of the decommissioning phase has been considered and has been scoped out of the assessment. Furthermore, it is not possible to estimate future year baseline traffic flows for the time periods proposed for the operational life of the Proposed Development and as such no assessment can be undertaken.

11.13 Assessment of Effects

Potential Construction Effects

- 11.13.1 The assessment is based upon the construction effects that may occur within the study area during the 18-month construction phase. To assess the effects, it is necessary to determine the likely traffic generation associated with the Proposed Development during the peak construction month.
- 11.13.2 During the 18-month construction phase, the following traffic will require access to the Site:
 - Staff transport, in either cars or staff minibuses;
 - Construction equipment and materials, deliveries of machinery and supplies such as concrete materials and crushed rock;
 - · Components relating to the substation and associated infrastructure; and

Statkraft

- · AILs consisting of the turbine sections and heavy lift cranes.
- 11.13.3 Average monthly traffic flow data was used to establish the construction trips associated with the Proposed Development, and these are detailed in **Technical Appendix 11.1.** The trip estimates have been based upon first principle estimates of traffic movements to and from the Site, having established the likely volumes of construction materials, resources and components.
- 11.13.4 Except for the turbine components, most traffic will be HGVs and normal construction plant, including grading tractors, excavators, high-capacity cranes, forklifts and dumper trucks. Most will arrive at the Site access junction on low loaders.
- 11.13.5 The turbines are delivered in component sections for transport and will be assembled within the turbine array. The nacelle, hub, drive train, blade, tower sections are classified as AILs due to their weight and/or length, width and height when loaded. The components can be delivered on a variety of transport platforms with typical examples illustrated in **Technical Appendix 11.1**.
- 11.13.6 In addition to the turbine deliveries, up to two high-capacity erection cranes will be needed to offload components and erect the turbines. The cranes are likely to be mobile cranes with a capacity up to 1,000 tonnes that will be escorted by boom and ballast trucks to allow full mobilisation on-site. A smaller erector / assist crane will also be present to allow the assembly of the main cranes and to ease overall erection of the turbines.
- 11.13.7 The resulting traffic generation profile is presented in **Technical Appendix 11.1**. The peak of construction activity is expected to occur in month four when there will be a total of 4,946 vehicle movements, which equates to 226 vehicle movements per day, comprising 166 two-way HGV movements and 60 two-way car / LGV movements.
- 11.13.8 This would equate to approximately 19 two-way total vehicles movements or 14 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.
- 11.13.9 At the request of DGC, this has been based on the assumption that 100% of aggregate materials are brought to the Site from nearby quarries, when in fact this would not be the case, with the on-site borrow pits being sufficient to provide the necessary aggregate materials.
- 11.13.10 In the actual scenario whereby the on-site borrow pits are used to provide the on-site aggregate materials, with the exception of sand aggregates to be used within the concrete batching, the peak of construction activity would still occur in month four, when there will be a total of 2,118 vehicle movements, which equates to 98 vehicle movements per day, comprising 38 two-way HGV movements and 60 two-way car / LGV movements.
- 11.13.11 This would equate to approximately eight two-way total vehicles movements or approximately three HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day. This would equate to a reduction in 2,828 total vehicle movements in the peak month, or 128 per day.
- 11.13.12 A full comparison between both scenarios and details on traffic generation for the Proposed Development with 100% of aggregate materials being imported to the Site and the use of on-site borrow pits is included in **Section 7** of **Technical Appendix 11.1**. For the purposes of the assessment of the potential impacts of the Proposed Development on the local road network within this Chapter, this has been done in line with the Scoping requirements set out by DGC.
- 11.13.13 The distribution of development traffic on the network will vary depending on the types of loads being transported, however it will generally originate from the north and south, joining the study area on the A713. The assumptions for the distribution of construction traffic during the peak month are presented in **Technical Appendix 11.1**.
- 11.13.14 All AlL traffic will access from the PoE at King George V Docks in Glasgow, utilising sections of proven AlL routes used during the construction of other wind farms in the area. For the purposes of preparing this Chapter and **Technical Appendix 11.1**, it has been assumed that all AlL traffic will access the Site via the following route:
 - loads would depart the King George V Docks and proceed to exit the roundabout onto Kings Inch Drive;
 - at the roundabout loads would take the second exit and stay on Kings Inch Drive;
 - loads would merge onto the M8 via the ramp to Glasgow;
 - blade loads will continue east on the M8 / M74 before departing at Junction 4 and continue northbound on the M73, continuing to Junction 8 between the M73 and M8;
 - at Junction 8, the loads will circumnavigate the roundabout, before rejoining the M73 southbound;

- loads will then rejoin the M74 at Junction 4 continuing westbound. They will travel west before joining the southbound carriageway of the M77 at Junction 22 of the M8;
- non-blade loads will use the Seaward Street Interchange to U turn and access the M77 from the M8;
- loads will continue south on the M77 / A77 to Bankfield Roundabout to the east of Ayr, taking the first exit and joining the A713;
- loads would proceed southbound on the A713 to Carsphairn;
- at Carsphairn, blade loads would make use of the existing blade transfer point to the east of Carsphairn, with blades transferred from Superwing Carrier / blade dolly trailer to the blade lifting trailers, before exiting the transfer point and turning left on to the B729;
- all other loads would exit the A713 east of Carsphairn, turning left onto the B729; and
- at the junction between the B729 and B700, all loads will keep left continuing on the B729 to its junction with the C35S, where they will continue on to the proposed Site access junction.
- 11.13.15 The above AIL route is shown in Figure 11.4.
- 11.13.16 Following the distribution and assignment of traffic flows to the study area network for the scenario whereby 100% of aggregate materials are imported to the Site, the resultant daily traffic during the peak of construction in month four, is summarised in **Table 11.11**.

Table 11.11 – Peak Construction Traffic (month four) – 100% Import of Materials

Site ID	Survey Location	Cars & LGVs	HGVs	Total
1	The C35S, within the vicinity of the Site access	60	166	226
2	B729 between the A713 and C35S	60	166	226
3	A713, between Dalmellington and Carsphairn	42	162	204
4	A713, north of Dalmellington	36	12	48
5	A713, at St John's Town of Dalry	18	154	172
6	B741, east of Dalmellington	6	150	156

Please note minor variances due to rounding may occur.

11.13.17 The construction traffic was compared against the future baseline traffic to estimate the increase in traffic associated with this phase of the Proposed Development for the scenario whereby 100% of aggregate materials are imported to the Site. **Table 11.12** illustrates the potential traffic impact at the peak of construction activity during month four.

Site ID	Survey Location	Cars & LGVs	HGV	Total Traffic	% Increase Cars & LGVs	% Increase HGV	% Increase Total Traffic
1	The C35S, within the vicinity of the Site access	96	167	263	168.07%	16,274.51 %	615.47%
2	B729 between the A713 and C35S	166	171	337	56.56%	3,254.90%	203.27%
3	A713, between Dalmellington and Carsphairn	1,792	241	2,033	2.40%	205.24%	11.15%
4	A713, north of Dalmellington	3,934	117	4,051	0.92%	11.48%	1.20%
5	A713, at St John's Town of Dalry	2,453	478	2,931	0.74%	47.56%	6.24%
6	B741, east of Dalmellington	905	184	1,089	0.67%	443.42%	16.72%

Please note minor variances due to rounding may occur.

- 11.13.18 The total traffic movements are predicted to increase by a maximum of 615.47% on the C35S in the vicinity of the Site access, where all vehicular traffic travelling through to the Site will travel. On the rest of the study area, the highest total traffic increase is 203.27%, which occurs on the B729 between the A713 and C35S.
- 11.13.19 **Table 11.12** shows that highest HGV traffic movements increase will occur on the C35S in the vicinity of the Site access, where it is estimated to increase by 16,274.51%. Whilst this increase is statistically high, this is due to the low level of HGVs currently using this road, with only one HGV being recorded. To put the increase into perspective, the C35S will see an additional 166 HGV movements per day or approximately 14 HGV movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.
- 11.13.20 The next highest HGV traffic movement increase would occur on the B729 between the A713 and C35S, where it is estimated to increase by 3,254.90%. Whilst this increase is statistically high, this is

due to the low level of HGVs currently using this road, with only five HGV being recorded. To put the increase into perspective, the B729 will see an additional 166 HGV movements per day or approximately 14 HGV movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.

11.13.21 A review of existing theoretical road capacity has been undertaken using The NESA Manual, formerly part of the Design Manual for Roads and Bridges, Volume 15, Part 5. The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the study area. The results are summarised in **Table 11.13**.

Table 11.13 – 2029 Peak Traffic Flow Capacity Review – 100% Import of Materials

Site ID	Survey Location	2029 Baseline Flow	2029 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road
1	The C35S, within the vicinity of the Site access	37	263	3,360	92.2%
2	B729 between the A713 and C35S	111	337	3,360	90.0%
3	A713, between Dalmellington and Carsphairn	1,829	2,033	21,600	90.6%
4	A713, north of Dalmellington	4,003	4,051	21,600	81.2%
5	A713, at St John's Town of Dalry	2,759	2,931	21,600	86.4%
6	B741, east of Dalmellington	933	1.089	19.200	94.3%

Please note minor variances due to rounding may occur.

11.13.22 The results indicate there are no road capacity issues with the addition of construction traffic associated with the Proposed Development and significant spare capacity exists within the trunk and local road network to accommodate all construction phase traffic.

- 11.13.23 In accordance with the IEMA Guidelines Rules 1 and 2, detailed assessments have been undertaken on the following receptors within the study area:
 - C35S Users (High Sensitivity);
 - B729 Users (High Sensitivity);
 - A713 Users (Medium Sensitivity);
 - B741 Users (Medium Sensitivity);
 - Residents along C35S (Negligible Sensitivity);
 - Residents along B729 (Negligible Sensitivity);
 - Residents along A713 (Negligible Sensitivity);
 - Residents along B741 (Negligible Sensitivity);
 - Residents in Dalmellington (Medium Sensitivity);
 - Residents in Carsphairn (Low Sensitivity);
 - Residents in St John's Town of Dalry (Medium Sensitivity);
 - Residents in New Cumnock (Medium Sensitivity); and
 - Core Path Network Users (Medium Sensitivity).
- 11.13.24 The significance of the potential effects on the above receptors has been determined using the rules and thresholds previously outlined in the Criteria for Assessing Significance. **Table 11.14** summarises the significance of the effect on the receptors for the construction phase.
- 11.13.25 Note, for the purposes of undertaking the assessment, where both the users of a road and residents in the vicinity of the road require to be assessed, these have been done together to avoid repetition.

Receptor	Severance	Driver Delay	Pedestrian Delay	Non- motorised user Amenity	Fear & Intimidation	Road Safety	Large Loads
C35S Users / Residents	Major / Moderate	Minor	Moderate / Minor	Major / Moderate	Major / Moderate	Moderate / Minor	Major



Receptor	Severance	Driver Delay	Pedestrian Delay	Non- motorised user Amenity	Fear & Intimidation	Road Safety	Large Loads
B729 Users / Residents	Major / Moderate	Minor	Moderate / Minor	Major / Moderate	Major / Moderate	Moderate / Minor	Major
A713 Users / Residents	Minor / Negligible	Minor / Negligible	Minor	Moderate	Major / Moderate	Minor / Negligible	Major / Moderate
B741 Users / Residents	Moderate	Minor	Minor	Moderate	Moderate	Minor	N/A
Residents in Dalmellington	Minor / Negligible	Minor / Negligible	Minor	Moderate	Major / Moderate	Minor / Negligible	Major / Moderate
Residents in Carsphairn	Minor / Negligible	Minor / Negligible	Minor	Minor	Moderate / Minor	Minor / Negligible	Moderate / Minor
Residents in St John's Town of Dalry	Minor / Negligible	Minor / Negligible	Minor	Minor	Minor / Negligible	Minor / Negligible	N/A
Residents in New Cumnock	Moderate / Minor	Minor	Moderate / Minor	Major / Moderate	Minor	Moderate / Minor	N/A
Core Path Network Users	Major / Moderate	N/A	Major / Moderate	Major / Moderate	Major	Minor	Major

11.13.26 The assessment of significance suggests that the following receptors are considered likely to experience significant effects in accordance with the EIA Regulations, prior to the application of mitigation measures:

- C35S Users;
- B729 Users;
- A713 Users;
- B741 Users;
- Residents along C35S;
- Residents along B729;
- Residents along A713;
- Residents along B741;
- Residents in Dalmellington;
- Residents in Carsphairn;
- · Residents in New Cumnock; and
- Core Path Network Users.
- 11.13.27 It should be noted that the impacts relate solely to the peak of construction activities and that the construction phase is short lived (18 months) and the effects are temporary in nature.

Committed Additional Mitigation

Construction Traffic Management Plan (CTMP)

- 11.13.28 During the construction phase, the project website will be regularly updated and consideration will be given to communicating with local residents via text message, to provide the latest information relating to traffic movements associated with vehicles accessing the Site. This would be agreed with DGC.
- 11.13.29 The following measures will be implemented during the construction phase through the CTMP:
 - Agree AIL route modifications and improvements with DGC and TS. Works which will be required to facilitate turbine deliveries are outlined in the RSR, which is presented in **Annex B** of **Technical Appendix 11.1**.
 - Where possible, the detailed design process will minimise the volume of material to be imported to Site to help reduce HGV numbers.
 - A Staff Travel Plan, including transport modes to and from the worksite (including pick up and drop off times).
 - A Transport Management Plan for AIL deliveries.
 - All materials delivery lorries (dry materials) will be sheeted to reduce dust and stop spillage on public roads.



- Specific training and disciplinary measures will be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway.
- Wheel cleaning facilities may be established at the Site entrance and blade transfer area, depending on the views of DGC.
- Normal Site working hours will be limited to between 07:00 and 19:00 Monday to Friday and 07:00 and 16:00 on Saturdays though component delivery and turbine erection may take place outside these hours i.e. depending on when police escort is available.
- Appropriate traffic management measures will be put in place on the A713, B729 and C35S leading through to the Site, to avoid conflict with general traffic, subject to the agreement of DGC. Typical measures will include HGV turning and crossing signs and / or banksmen at the Site access and warning signs.
- Provide construction updates on the project website and via text message to residents within an agreed distance of the Site.
- Adoption of a voluntary reduced speed limits, for example on the B729 and C35S and at other locations to be agreed with DGC.
- All drivers will be required to attend an induction to include:
 - A toolbox talk safety briefing;
 - The need for appropriate care and speed control;
 - A briefing on driver speed reduction agreements (to slow Site traffic at sensitive locations through the villages); and
 - Identification of the required access routes and the controls to ensure no departure from these routes.

Off-site Mitigation

- 11.13.30 As part of the CTMP which will be provided post consent and secured by condition, an agreement to cover the cost of abnormal wear on the local road network will be required by DGC. Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route will be recorded to provide a baseline of the condition of the road prior to any construction work commencing. This baseline will inform any change in the road condition during the construction phase. Any necessary repairs will be coordinated with DGC's roads team. Any damage caused by traffic associated with the Proposed Development during the construction phase that would be hazardous to public traffic will be repaired immediately.
- 11.13.31 Damage to road infrastructure caused directly by construction traffic will be repaired and street furniture that is removed on a temporary basis will be fully reinstated.
- 11.13.32 There will be a regular road review and any debris and mud will be removed from the carriageway using an on-site road sweeper to ensure road safety for all road users.

Specific Abnormal Load Mitigation

- 11.13.33 There are a number of traffic management measures that can help reduce the effect of abnormal load convoys.
- 11.13.34 All abnormal load deliveries will be undertaken at appropriate times (to be discussed and agreed with DGC, Transport Scotland and police) with the aim to minimise the effect on the local road network. It is likely that the abnormal load convoys would travel in the early morning periods, before peak times while general construction traffic would generally avoid the morning and evening peak periods.
- 11.13.35 The majority of potential conflicts between construction traffic and other road users will occur with abnormal load traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.
- 11.13.36 Potential conflicts between the abnormal loads and other road users can occur at a variety of locations and circumstances:
 - on sections of single carriageway road or narrow road sections, for example on the A713, B729 and C35S;
 - at locations where there are significant changes in the horizontal alignment of the carriageway, requiring the loads to use the full carriageway width;
 - where traffic turns at a road junctions, requiring other traffic to be restrained on other approach arms; and
 - in locations where high speeds of general traffic are predicted.



- 11.13.37 Advance warning signs will be installed on the approaches to the affected road network. Information signage could be installed to help improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist).
- 11.13.38 The location and numbers of signs will be agreed post consent and would form part of the wider traffic management proposals for the Proposed Development.
- 11.13.39 Information on the turbine convoys will be provided to local media outlets such as local papers and local radio to help assist the public. Information will relate to expected vehicle movements from the PoE through to the Site access junction. This will assist residents becoming aware of the convoy movements and may help reduce any potential conflicts.

AIL Transport Management Plan

- 11.13.40 An Abnormal Load Transport Management Plan will be prepared to cater for all movements to and from the Proposed Development. This will include:
 - Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay over areas to allow overtaking.
 - A diary of proposed delivery movements to liaise with the communities to avoid key dates such as local events.
 - A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic.
 - Proposals to establish a construction liaison group to ensure the smooth management of the project / public interface with the Applicant, the Contractor, the local community, and if appropriate, the police forming the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

Public Information

- 11.13.41 Information on the turbine convoys will be provided to local media outlets such as local papers and local radio to help assist the public.
- 11.13.42 Information will relate to expected vehicle movements from the PoE through to the Site access junction. This will assist residents in understanding the timing of the convoy movements and may help reduce any potential conflicts.

Convoy System

- 11.13.43 A police escort will be required to facilitate the delivery of the predicted AILs. The police escort will be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort will warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy will remain in radio contact at all times where possible.
- 11.13.44 The AIL convoys will be no more than three AILs vehicles long, or as advised by the police, to permit safe transit along the delivery route, and to allow limited overtaking opportunities for following traffic where it is safe to do so.
- 11.13.45 The times in which the convoys will travel will need to be agreed with Police Scotland who have sole discretion on when loads can be transported.

Staff Travel Plan

- 11.13.46 A Staff Travel Plan will be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport, especially car-sharing. A package of measures could include:
 - appointment of a Travel Plan Coordinator (TPC);
 - provision of public transport information;
 - mini-bus service for transport of Site staff;
 - promotion of a car sharing scheme;
 - car parking management; and
 - restrictions on parking, for example on the public road network and verges in the vicinity of the Site entrance.



Outline Access Management Plan (OAMP)

- 11.13.47 Within the Site, consideration has been given to pedestrians and cyclists alike due to potential interactions between construction traffic and users of Core Paths, paths, cycle routes and public roads. An Outline Access Management Plan (OAMP) will be developed and secured via a planning condition.
- 11.13.48 Users of paths and Core Paths etc. will be separated from construction traffic wherever possible. Crossing points will be provided where required, with path users having right of way and temporary diversions will be provided where necessary. Appropriate Traffic Signs Manual Chapter 8 compliant temporary road signage will be provided to assist at these crossings for the benefit of all users.
- 11.13.49 The Contractor will ensure that speed limits are always adhered to by their drivers and associated subcontractors. This is particularly important within close proximity to the forest paths and at crossing points. Advisory speed limit signage will also be installed on approaches to areas where path users may interact with construction traffic.
- 11.13.50 Signage will be installed on the Site exits that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians and cyclists in the area. This will also be emphasised in the weekly toolbox talks.
- 11.13.51 A scoping response has not been received from The British Horse Society (BHS); however consideration will be given to measures implemented on similar schemes as part of the Proposed Development. These measures are predominantly focused around the interactions between HGV traffic and horses. Horses are normally nervous of large vehicles, particularly when they do not often meet them. Horses are flight animals and will run away in panic if really frightened. Riders will do all they can to prevent this but, should it happen, it could cause a serious accident for other road users, as well as for the horse and rider.
- 11.13.52 The main factors causing fear in horses in this situation are:
 - something approaching them, which is unfamiliar and intimidating;
 - a large moving object, especially if it is noisy;
 - lack of space between the horse and the vehicle;
 - the sound of air brakes; and
 - anxiety on the part of the rider.
- 11.13.53 The BHS has previously recommended the following actions that will be included in the Site training for all HGV staff:
 - on seeing riders approaching, drivers must slow down and stop, minimising the sound of air brakes, if possible;
 - if the horse still shows signs of nervousness while approaching the vehicle, the engine should be shut down (if it is safe to do so);
 - the vehicle should not move off until the riders are well clear of the back of the HGV;
 - if drivers are wishing to overtake riders, please approach slowly or even stop in order to give riders time to find a gateway or lay by where they can take refuge and create sufficient space between the horse and the vehicle. Because of the position of their eyes, horses are very aware of things coming up behind them; and
 - all drivers delivering to the Site must be patient. Riders will be doing their best to reassure their horses while often feeling a high degree of anxiety themselves.

Residual Construction Effects

- 11.13.54 This section considers the assessment of traffic impacts following the incorporation of the identified mitigation measures. An evaluation of the potential effects of the increase in traffic on the study area roads used for construction traffic was undertaken. The summary of this assessment is provided in **Table 11.17**.
- 11.13.55 Following the implementation of a comprehensive CTMP, together with on-site route signage and an OAMP, all effects will be **minor** and not significant. The traffic effects are transitory in nature and appropriate mitigation measures are proposed to reduce the potential impacts. No long-term detrimental transport or access issues are associated with the construction phase of the Proposed Development.

11.14 Cumulative Assessment

Potential Cumulative Effects

- 11.14.1 As detailed in **Technical Appendix 11.1** and **Section 11.6** of this Chapter, there are three consented onshore wind farms, which could potentially impact the roads within the study area, namely Manquhill Wind Farm, Margree Wind Farm and Shepherds' Rig Wind Farm.
- 11.14.2 The peak traffic flows for the three schemes were obtained from their respective planning application documents (see **Table 11.15**: 2029 Daily Traffic (12hr) Construction Traffic Summary) and then compared to the future baseline year (2029) on **Table 11.16**.

Table 11.15 – 2029 Dail	v Traffic (12h	r) Construction	Traffic Summary)
	,		

Site ID	Survey Location	Proposed Development		Manquhill Wind Farm		Margree Wind Farm		Shepherds' Rig Wind Farm	
		Cars & LGVs	HGVs	Cars & LGVs	HGVs	Cars & LGVs	HGVs	Cars & LGVs	HGVs
1	The C35S, within the vicinity of the Site access	60	166	0	0	0	0	0	0
2	B729 between the A713 and C35S	60	166	50	25	0	0	52	16
3	A713, between Dalmellington and Carsphairn	42	162	50	25	50	31	52	16
4	A713, north of Dalmellington	36	12	0	0	50	31	52	16
5	A713, at St John's Town of Dalry	18	154	50	25	100	62	0	0
6	B741, east of Dalmellington	6	150	0	0	0	0	0	0

Please note minor variances due to rounding may occur.

Table 11.16 – 2029 Combined Scheme Sensitivity Traffic Impact Summary (2029)

Site ID	Survey Location	Cars & LGVs	HGV	Total Traffic	% Increase Cars & LGVs	% Increase HGV	% Increase Total Traffic
1	The C35S, within the vicinity of the Site access	96	167	263	168.07%	16,274.51%	615.47%
2	B729 between the A713 and C35S	268	212	480	152.71%	4,058.82%	331.89%
3	A713, between Dalmellington and Carsphairn	1,944	313	2,257	11.09%	296.46%	23.40%
4	A713, north of Dalmellington	4,036	164	4,200	3.54%	56.43%	4.92%
5	A713, at St John's Town of Dalry	2,603	565	3,168	6.90%	74.43%	14.83%
6	B741, east of Dalmellington	905	184	1,089	0.67%	443.42%	16.72%

Please note minor variances due to rounding may occur.

- 11.14.3 **Table 11.16** shows the total traffic movements are predicted to increase by a maximum of 615.47% on the C35S in the vicinity of the Site access for the Proposed Development. This is as per the assessment undertaken for the Proposed Development, as none of the other schemes are using this road. Whilst this increase could be considered statistically high, it is caused by the relatively low vehicular traffic at this location. On the rest of the study area, the highest total traffic increase is 331.89%, which occurs on the B729 between the A713 and C35S.
- 11.14.4 **Table 11.16** shows that highest HGV traffic movements increase will occur on the shows that highest HGV traffic movements increase will occur on the C35S in the vicinity of the Site access, where it is estimated to increase by 16,274.51%. As above, this is as per the assessment undertaken for the Proposed Development, as none of the other schemes are using this road. Whilst this increase is statistically high, this is due to the low level of HGVs currently using this road.
- 11.14.5 The next highest HGV traffic movement increase would occur on the B729 between the A713 and C35S, where it is estimated to increase by 4,058.82%. To put the increase into perspective, the B729 will see an additional 207 HGV movements per day or approximately 17 HGV movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.
- 11.14.6 Based on the road capacity results shown in **Table 11.16** there would still be no road capacity issues should the Proposed Development and other schemes be constructed at the same time, with ample spare capacity within the study area road network to accommodate construction phase traffic.

- 11.14.7 Cumulative traffic will dilute the impact of the Proposed Development traffic on the study area and as such no increase in the significance of effect is anticipated. Furthermore, it is not predicted that the potential traffic flow increases could ever occur within the study area for the following reasons:
 - It is extremely unlikely that the peak traffic conditions would occur at the same time due to differences in construction programmes, material supplies and developer resources; and
 - All abnormal load deliveries cannot occur at four separate sites on the same day due to restrictions on the numbers of loads moving on the network at the same time set by Police Scotland.
- 11.14.8 Should the above or any other schemes be consented and constructed at the same time as the Proposed Development, the Applicant would welcome the opportunity to engage with other developers in consultation with DGC to ensure appropriate traffic management measures would be implemented to minimise any cumulative impacts. In the event of all the sites being constructed at the same time it is suggested this would be mitigated through the use of an overarching TMMP for all of the schemes and by introducing a phased delivery plan which would be agreed with DGC and Police Scotland.
- 11.14.9 Furthermore, it is not predicted that the potential traffic flow increases would ever occur on the study area, as it is extremely unlikely that the peak traffic conditions will occur at the same time due to differences in construction programmes, material supplies and developer resources. In addition, those schemes already consented will likely begin construction prior to the Proposed Development gaining planning consent.

11.15 Interrelationship Between Effects

11.15.1 The IEMA guidelines also refer to interrelationships with traffic and transport effects in relation to amenity including visual effects, noise and hazardous loads. Visual effects and noise are addressed in **Chapter 5** and **Chapter 10** respectively.

11.16 Further Survey Requirements and Monitoring

- 11.16.1 The Site entrance road will be maintained and monitored during construction, operation and decommissioning of the Proposed Development. With regards to the construction phase, this will be done as part of the CTMP and will involve monitoring the Site access junction and public road network in the vicinity of the Site to ensure mud and debris from construction activities are not tracked on to the road network. Furthermore, monitoring of the public road network will be undertaken as part of the road conditions surveys, that will likely be required as part of the planning conditions attached to the consent.
- 11.16.2 During the operational life of the Proposed Development, regular maintenance will be undertaken to keep the Site access track drainage systems fully operational and to ensure there are no run-off issues onto the public road network.

11.17 Summary of Effects

- 11.17.1 The Proposed Development will lead to increased traffic volumes on a number of roads in the vicinity of the Site during the construction phase. These will be of a temporary timescale and transitory in nature.
- 11.17.2 The peak of construction activity is expected to occur in month four when there will be a total of 4,946 vehicle movements, which equates to 226 vehicle movements per day, comprising 166 two-way HGV movements and 60 two-way car / LGV movements. This would equate to approximately 19 two-way total vehicles movements or 14 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.
- 11.17.3 It should be noted that the Proposed Development's trip generation assumes that 100% of all aggregate materials would be imported to the Site from nearby quarries and should therefore be considered an over-estimate of the number of HGV movements that will travel to and from the Site during the peak month of activity. As previously noted, the borrow pit assessment undertaken has confirmed that the volume of material suitable to be used on-site is in excess of the volume of material required, with a surplus of material estimated to be in the order of 12,258 m³. Should that be the case there would be a total of 102 vehicle movements per day, comprising 38 two-way HGV movements and 60 two-way car / LGV movements.
- 11.17.4 In addition, a review of the theoretical road capacity was undertaken for the study area which showed that with the addition of construction traffic associated with the Proposed Development, there was significant spare capacity within the road network.
- 11.17.5 A sensitivity review was undertaken to inform DGC of possible issues with other relevant schemes in the area, whose construction traffic would impact the study area, should they be constructed concurrently. The review found that there would be more than sufficient spare road capacity to accommodate the schemes assessed in the cumulative assessment being constructed at the same

time. It is proposed that any effects of all the sites being constructed at the same time would be mitigated through the use of an overarching TMMP, which can be co-ordinated with DGC.

- 11.17.6 With the implementation of appropriate mitigation, no significant residual effects are anticipated in respect of traffic and transport issues. The residual effects are all assessed to be minor and will occur during the construction phase only, they are temporary and reversible.
- 11.17.7 Traffic levels during the operational phase of Proposed Development will be up to two vehicles per week for maintenance purposes. Traffic levels during the decommissioning of the Proposed Development are expected to be lower than during the construction phase as some elements are likely be left in situ and others broken up on-site.
- 11.17.8 The movement of AIL traffic will require small scale and temporary remedial works at a number of locations along identified delivery route.
- 11.17.9 As required by any future consent or to address consultation responses to the EIA Report, the Applicant is committed to engaging with the relevant stakeholders to minimise disruption, and to explore delivery routes, timescales and means of delivery of AIL to the Proposed Development.

Predicted Effects	Significance	Committed Additional	Significance of
C35S Users / Residents	Major - Significant	Implementation of CTMP,	Minor - Not Significant
	, ,	Staff Travel Plan, AIL	Ū
		Transport Management Plan,	
		provision of construction	
		traffic road signage, convoy	
		and provision of localised	
		road improvement works.	
B729 Users / Residents	Major - Significant	Implementation of CTMP,	Minor - Not Significant
		Staff Travel Plan, AIL	
		Transport Management Plan,	
		traffic road signage convoy	
		escorts for AIL movements	
		and provision of localised	
		road improvement works.	
A713 Users / Residents	Major / Moderate - Significant	Implementation of CTMP,	Minor - Not Significant
		Stall Travel Plan, AlL	
		provision of construction	
		traffic road signage and	
		convoy escorts for AIL	
		movements.	
B741 Users / Residents	Moderate - Significant	Implementation of CTMP,	Minor - Not Significant
		Staff Travel Plan and	
		traffic road signage	
Residents in Dalmellington	Major / Moderate - Significant	Implementation of CTMP.	Minor - Not Significant
······		Staff Travel Plan, AIL	
		Transport Management Plan,	
		provision of construction	
		traffic road signage, convoy	
		escons for AIL movements	
		road improvement works.	
Residents in Carsphairn	Moderate / Minor - Significant	Implementation of CTMP,	Minor - Not Significant
		Staff Travel Plan, AIL	3
		Transport Management Plan,	
		provision of construction	
		traffic road signage, convoy	
		and provision of localised	
		road improvement works.	
Residents in New Cumnock	Major / Moderate - Significant	Implementation of CTMP,	Minor - Not Significant
		Staff Travel Plan and	_
		provision of construction	
Coro Doth / Doth Matwork	Mojor Significant	traffic road signage	Minor Not Significant
Lisers	wajor - Significant	Staff Travel Plan All	winor - Not Significant
		Transport Management Plan	
		provision of construction	
		traffic road signage, convoy	
		escorts for AIL movements	

Table 11.17 – Summary of Significant Effects

Predicted Effects	redicted Effects Significance		Significance of Residual Effect	
		and implementation of an OAMP.		

11.18 References

Scottish Government (2022), National Planning Framework 4. Available at: https://www.transformingplanning.scot/national-planning-framework/approved-npf4/

Scottish Government (2005), Planning Advice Note (PAN) 75. Available at: https://www.gov.scot/publications/planning-advice-note-pan-75-planning-transport/

Transport Scotland (2012), Transport Assessment Guidance. Available at: https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-__development_management__dpmtag_ref__17__-_transport_assessment_guidance_final_-_june_2012.pdf

Scottish Government (2014), Onshore Wind Turbines; Renewables Planning Advice. Available at: https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/

Institute of Environmental Assessment (2023), Environmental Assessment of Traffic and Movement.

The Institution of Environmental Management and Assessment (2005), Guidelines for Environmental Impact Assessment.

The Institution of Environmental Management and Assessment (1993), Guidelines for the Environmental Assessment of Road Traffic.

Dumfries and Galloway Council (2019), Local Development Plan - The Local Development Plan 2 (LDP2). Available at: https://www.dumfriesandgalloway.gov.uk/planning-building/planning/planning-policy/local-development-plan

Dumfries and Galloway Council (2020), The "Wind Energy Development: Development Management Considerations" Supplementary Guidance (SG) for the Dumfries and Galloway Local Development Plan 2 (LDP2). Available at: https://www.dumfriesandgalloway.gov.uk/planning-building/planning-policy/local-development-plan

Dumfries and Galloway Council Core Path Plan. Available at: https://new.dumgal.gov.uk/leisure-sportculture/parks-outdoor-spaces/core-paths [Accessed April 2025]

Dumfries and Galloway Council Planning Portal. Available at: https://eaccess.dumgal.gov.uk/online-applications/spatialDisplay.do?action=display&searchType=Application [Accessed April 2025]

Scottish Government, Energy Consents Unit Ports. Available at: https://www.energyconsents.scot/ApplicationSearch.aspx?T=1 [Accessed April 2025]

Highways England, Transport Scotland, Welsh Government & Department for Infrastructure (2020), LA104, Environmental assessment and monitoring, the Design Manual for Roads and Bridges (DMRB)

The Timber Transport Forum, 'Agreed Timber Route Map'. Available at: https://timbertransportforum.org.uk/maps/agreed-routes [Accessed April 2025]

Department for Transport (2013), Design Manual for Roads and Bridges, Volume 15, Part 5 "The NESA Manual". Available at: http://www.sias.com/2013/TS/201303NesaManual.pdf

CrashMap accident data. Available at: https://www.crashmap.co.uk/ [Accessed April 2025]

Google Maps. Available at: https://www.google.co.uk/maps [Accessed April 2025]

Department for Transport, traffic count data. Available at: https://roadtraffic.dft.gov.uk/#6/55.254/-6.053/basemap-regions-countpoints [Accessed April 2025]

Sustrans (2025), Map of the National Cycle Network. Available at: https://www.sustrans.org.uk/national-cycle-network/ [Accessed April 2025]

