Chapter 10: Traffic and Transport

Contents

10 Traffic and Transport

10.1 Executive Summary

10.1.1 The following chapter of the EIA Report is concerned with the potential effects of the Proposed Development on traffic and transport. Due to the nature of the Proposed Development, there is potential for a significant increase of vehicle movements during the construction phase of the development. It is considered that during the operational phase of the project, traffic movements would be limited to regular maintenance and services. Given the uncertainty regarding traffic movements within the local area network in the future when the Proposed Development will be decommissioned, an assessment for this phase has not been included.

10.1.2 The Site will be accessed from the B836. Regular construction traffic, inclusive of Heavy Goods Vehicles (HGVs), will use the B836 to deliver the necessary turbine components to the Site. It is assumed that these components will be delivered to King George V Dock, Glasgow, and use the A82 to Tarbet, join the A815 and head southbound toward Dunoon towards Sandbank (north of Dunoon). Loads will join the B836 and head westbound for approximately 2 km and join the Site access junction.

10.1.3 Traffic counts of existing baseline traffic movements around the Proposed Development and proposed route to site have been sourced. The number of vehicle movements that would be generated by the construction phase of the Proposed Development has been estimated, following calculations of the required quantity of construction materials.

10.1.4 The increase in traffic generated by the constriction of the Proposed Development has been compared to the existing baseline conditions sourced. The effects of the additional traffic have been assessed in accordance with the guidance in the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement (2023).

10.1.5 The assessment has conservatively assumed that all Proposed Development construction traffic uses all Study Area roads. During the construction phase HGV traffic levels are expected to increase more than 90% on sections of the A815, and 70% on the B836. With mitigation measures in place during construction, residual effects on users will be minor to negligible and not significant.

10.1.6 It is proposed that a Construction Traffic Management Plan (CTMP) would be prepared for the Proposed Development. The CTMP would detail the measures required to manage vehicles traveling to and from the Site and would be updated through the planning and construction of the Proposed Development.

10.2 Introduction

10.2.1 This chapter considers how the delivery of construction materials, service vehicles and turbine components may have implications for the surrounding public road network for the proposed Giant's Burn Wind Farm ('the Proposed Development'). This assessment highlights the potential effects concerning traffic and transport associated with the construction of the Proposed Development and whether mitigation measures are required to minimise potential disruption.

10.2.2 The transport assessment covers the following key areas:

- Existing Access Network & Transport Baseline: Evaluates current road conditions, traffic volumes, and infrastructure surrounding the Proposed Development.
- Assessment Methodology & Significance Criteria: Defines the approach for assessing transport impacts, including criteria for determining significance based on factors like traffic flow.
- Potential Effects: Identifies direct and cumulative impacts of construction and operational traffic, considering road constraints and interactions with other developments.
- Mitigation Measures: Outlines strategies to minimise adverse effects, such as traffic management plans, infrastructure improvements, and route modifications.
- Residual Effects: Assesses the remaining impacts after mitigation, ensuring any effects are minimised, temporary, and reversible.

10.3 Legislation, Policy and Guidelines

Legislation

10.3.1 There is no legislation, which is specific to transport assessments, which is required to be considered as part of this assessment.

Planning Policy

10.3.2 This traffic and transport assessment has been undertaken in accordance with the policies outlined in the following.

- National Planning Framework 4 (NPF4) (2023); and
- Argyll and Bute Local Development Plan 2 (2024)

Guidance

10.3.3 Recognisance has been taken of the following best practice guidelines/guidance etc:

- Institution of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Impact Assessment' (2005);
- IEMA 'Environmental Assessment of Traffic and Movement' (2023);
- Transport Scotland, 'Transport Assessment Guidance' (2012);
- Onshore Wind Turbines, Online Renewables Planning Advice (May 2014);

10.4 Consultation

10.4.1 A Scoping Report, including a Transport and Access Chapter, was issued to all consultees prior to the assessment being finalised. Argyll and Bute Council were consulted as part of the scoping process although no response was received. No additional consultation with Argyll and Bute Council has been undertaken. The scoping comments received are noted in Table 10.1.

Table 10.1 – Consultation

Consultee and Date	Consultation Response	Applicant Response
Transport Scotland	Transport Scotland will require to be satisfied that the size of turbines and battery energy storage system (BESS) components proposed can negotiate the selected route and that their transportation will not have any detrimental effect on structures within the trunk road route path.	An Abnormal Indivisible Load (AIL) Route Survey Report (RSR) is provided as part of the EIA Report in Technical Appendix 11.1.
Transport Scotland	A full Abnormal Loads Assessment report should be provided with the Environmental Impact Assessment Report (EIAR) that identifies key pinch points on the trunk road network. Swept path analysis should be undertaken and details provided with regard to any required changes to street furniture or structures along the route.	An Abnormal Indivisible Load Route Survey Report (RSR) is provided as part of the EIA Report in Technical Appendix 11.1. It identifies key pinch points and swept path analysis where appropriate.
Transport Scotland	The SR states that the following sections will form the Study area for the assessment: A83(T) westbound up to the junction with the A815; A815 southbound towards the Site; A885 southbound towards Dunoon. This is considered acceptable, and Transport Scotland would add that traffic generation information should be used as a screening tool to determine whether there is a need to undertake a detailed assessment of potential environmental effects associated with increased traffic on the trunk road.	Covered within this chapter. See Section 11.8 Receptors Brought Forward to Assessment.

10.5 Assessment Methodology and Significance Criteria

Study Area

10.5.1 The Study Area has been defined as the public road network in the vicinity of the Proposed Development, which vehicles may use to access the site concerning any construction activities. The following roads are captured within the Study Area.

Route to Site – Blade Load

- Kings Inch Drive
- Kings Inch Road
- M8
- M73

- M74
- M898
- A82
- A83
- A815
- B836

Route to Site – Non-Blade Load

10.5.2 It is proposed that non-blade loads will be delivered to Clydebank dock, encompassing the following additional receptors:

- Cart Street;
- Glasgow Road; and
- Duntocher Road (A8014).

10.5.3 It is proposed that the non-blade loads will leave the A8014 at Kilbowie Roundabout, taking the first exit to join the A82 heading west and will continue on the A82 to join the blade route to the site access junction.

10.5.4 The potential for increased traffic levels on the public road network within the Study Area has been considered. An assessment of vehicle movements attributed to the construction phase of the Proposed Development and associated traffic levels is detailed in Section 10.9.

Desk Study

10.5.5 The desk study reviews the following:

- relevant transport planning policy;
- collection of traffic flow data;
- sensitive locations, such as within built-up areas and at the site access junction;
- any other traffic sensitive receptors in the area (core paths, routes, communities, etc);
- OS plans;
- potential origin locations of construction staff and supply locations for construction materials to inform extent of local area roads network to be included in the assessment; and
- constraints to the movement of Abnormal Indivisible Loads (AIL) through a route survey including swept path assessments.

Route Survey

10.5.6 A route survey report (RSR) was undertaken to review the access route for AIL and to review potential access constraints and opportunities. The RSR is provided in Technical Appendix 10.1.

Assessment of Potential Effect Significance

Sensitivity

10.5.7 Sensitivity has been determined on the basis of the IEMA 'Guidelines for Environmental Impact Assessment' (2005). More recent guidance outlined in IEMA Guidelines (2023) is used for characterising the environmental traffic and transport effects (offsite effects) and the assessment of significance of major new developments.

10.5.8 Within the recent guidance published by 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, that should be used to characterise the environmental traffic and transport effects (offsite effects) and the assessment of significance of major new developments. The Guidance is intended to complement professional judgement and the experience of trained assessors.

10.5.9 In this Chapter, the term 'IEMA Guidelines' refers to the 'Environmental Assessment of Traffic and Movement' (2023) unless otherwise stated.

10.5.10 In terms of potential traffic and transport impacts, receptors are defined as the users of the roads within the Study Area and the locations through which those roads pass.

10.5.11 The IEMA Guidelines propose how the sensitivity of receptors should be determined. Using that as a guide, a classification of sensitivity for users, based on the characteristics of roads and locations has

been developed. This assessment methodology is reflective of industry best practice. This is summarised in Table 10.2.

Table 10.2 – Classification of Sensitivity

Sensitivity	Receptor Type Users of Road
High	Where the road is a minor rural road, not constructed to accommodate frequent use by Heavy Goods Vehicles (HGV's). Includes roads with traffic control signals, waiting and loading restrictions, traffic calming measure
Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there are some traffic calming or traffic management measures.
Low	Where the road is Trunk or A class, constructed to accommodate general and HGV traffic moving between primary destinations. Includes roads with little or no traffic calming or traffic management measures.
Negligible	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable for all construction traffic including Abnormal Indivisible Loads (AILs) and new strategic trunk road junctions capable of accommodating AILs.

Magnitude of Impact

10.5.12 The IEMA guidelines suggest two thresholds when considering predicted increase in traffic, whereby a full assessment of the impact is required:

- Include road links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and
- Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

10.5.13 Based on these guidelines and perceptions, the magnitude of traffic impacts can be estimated using the criteria in Table 10.3.

Table 10.3 – Magnitude of Impacts

Magnitude	Description
High	The proposals could result in a significant change in terms of length and / or duration to the present traffic routes, schedules, or activities, which may result in hardship. Generally, a rule of >90% (or >70% at sensitive receptors) change in traffic is a high magnitude.
Medium	The proposals could result in changes to the existing traffic routes or activities such that some delays or rescheduling could be required, which cause inconvenience. Generally, a rule of 60% - 90% (or 40%-70% at sensitive receptors) change in traffic is a medium-magnitude.
Low	The proposals could occasionally cause a minor modification to routes, or a very slight delay in present schedules, or on activities in the short term. Generally, a rule of 30 – 60% (or 10%-40% at sensitive receptors) change in traffic is a low magnitude.
Negligible	No effect on movement of road traffic above normal level. Generally, a rule of <30% change in traffic is negligible magnitude.

Significance

10.5.14 To determine the overall significance of the effects, the results from the receptor sensitivity and impacts magnitude assessment are correlated and classified using a scale set out in Table 10.4.

Table 10.4 – Significance of Effects

Sensitivity	Magnitude of Impact		
	High	Medium	Low
High	Major	Major	Moderate
Medium	Major	Moderate	Minor
Low	Moderate	Minor	Minor

10.5.15 Significance is categorised as major, moderate, minor or negligible. Effects judged to be major or moderate significance are considered to be significant within the context of the EIA Regulations and require mitigation.

Requirements for Mitigation

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

Assessment of Residual Effect Significance

10.5.17 Residual effects are assessed following the methodology described above, taking into consideration the identified mitigation.

Cumulative Assessment

10.5.18 Traffic data from existing wind farms and ongoing developments that utilise the road network has been gathered from the Department for Transport (DfT) database of count sites. A cumulative assessment includes developments with impacts on the Study Area during construction, assuming their peak construction period aligns with the Proposed Development. Relevant traffic flow data is extracted from the planning application documentation for these developments. Projects in scoping should not be included in cumulative assessments as their application has not yet been made.

Limitations to Assessment

10.5.19 Traffic flow data has been sourced via the Department of Transport. Only manual data counts have been selected which may not be the most recently published data counts. Regardless, data counts for each road receptor have been reviewed, with the included manual counts not considered atypical of representative conditions.

10.6 Baseline Conditions

Active Travel Network

10.6.1 B836/National Cycle Route 75 – A review of Sustrans National Cycle Network Map notes that the B836 forms part of the National Cycle Route 74. The B836 forms part of the AIL Route to Site. The entrance to the Proposed Development is located off the B836.

10.6.2 Core Path C223(c) – Dunans loop to Invereck and Loch Lomond & The Trossachs National Park (LLTNP) boundary intersects the Site Boundary. It is anticipated that part of the Core path will be used to access Proposed Development.

10.6.3 The forestry tracks and other recreational receptors in the area of the Proposed Development are open to recreational use and interactions between traffic associated with the Proposed Development and other path users may occur. The recreational receptors are as follows:

- Core path C11(b) – Ardnadam heritage Trail Loop;
- Core Path C223(a) and 9c) – Dunans Loop to Invereck and Loch Lomond and the National Parks Boundary;
- Heritage path SA/HP416/1;
- Right of Way SA/SA37/1;
- Scottish Hill Track SA/HT94/2; and
- National Cycle Route 75 – Dunoon to Portavadie
- A further discussion of recreational receptors and how the safe and continuous use of these receptors can be provided is included within Appendix 10.2: Outline Access Management Plan. Figure 10.2 shows the recreational receptors in relation to the Proposed Development.

Road Access

10.6.4 M8 - It connects the country's two largest cities, Glasgow and Edinburgh, and serves other large communities including Airdrie, Coatbridge, Greenock, Livingston and Paisley. The motorway is 60 miles (97 km) long.

10.6.5 M73 - The M73 motorway in Glasgow and North Lanarkshire, Scotland, spans 7 miles (11 km), linking the M74 and M80 motorways as an eastern bypass for Glasgow. A short section between junctions 1 and 2 is part of the unsigned E05 international E-road network, which continues along the M8 through Glasgow and the M74 to the south.

10.6.6 M74 In Scotland, the M74/A74(M) provides a connection between Glasgow and Gretna Green. The M74/A74(M) comprises three lanes in each direction which are separated by a central reserve and is the responsibility of Transport Scotland. The M74 runs from Glasgow to Junction 13 at Abington, where it then becomes the A74(M) connecting to the A701 at Junction 15. South of the English border, the motorway is designated as the M6 and is the responsibility of National Highways.

10.6.7 M898 - The M898 motorway in Renfrewshire, Scotland, is a 1-mile (1.6 km) spur from the M8, leading to the Erskine Bridge. It lacks hard shoulders and terminates at a junction with the A726 road to the north.

10.6.8 A82 - The A82 is a trunk road which runs from Glasgow to Inverness via Fort William. The A82 is a single carriageway road approximately 6 m wide and is subject to a 60 mph speed limit outwith settlements, where it generally reduces to 30 mph. The A82 is maintained by Transport Scotland and appears to be in good condition

10.6.9 A83 - The A83 (T) forms part of the trunk road network which runs from Campbeltown to Arrochar. The road is maintained by BEAR Scotland, on behalf of TS. The A83 (T) is mainly subject to the national speed limit, which reduces when travelling through towns and villages.

10.6.10 A815 - The A815 is a 35.7mile (57.5 km) major road on the Cowal peninsula in Argyll and Bute, Scotland. It runs from the A83 near Cairndow in the north to Toward in the south, passing alongside three lochs before following the Firth of Clyde on its final stretch.

10.6.11 B836 – The B836 runs east to west through Argyll, running round the northern edge of Loch Striven, starting in Dalinlongart, a mile north of Sandbank to Auchenbreck. The B836 spans 10.5 miles (16.9 km) in length.

Traffic Data

10.6.12 Baseline traffic flows indicate the baseline and projected two-way Average Annual Daily Traffic Flows (AADF) for the routes within the Study Area and the percentage of traffic which is classified as HGVs and total vehicles. The data was sourced from the DfT[1].

Table 10.5 - Average Annual Daily Traffic Flows

Road	AADF Total (2022)	HGV Total	% HGV
M8 E	43575	1530	3.5
M8W	34023	1106	3.3
M73 N	44867	4075	9.1
M73 S	49145	4895	10.0
M74 E	21926	1765	8.0
M74 W	23034	2168	9.4
M898 W	22720	882	3.9
M898 S	23830	1041	4.4
A82 E	23999	788	3.3
A82 W	23760	752	3.2
A83 E	2127	191	9.0
A83 W	2008	194	9.7
A815 E	928	84	9.1
A815 W	949	74	7.8
A814 E	8184	133	1.6
A814 W	7558	131	1.7
A8014 N	6532	88	1.3
A8014 S	7226	96	1.3

10.6.13 The B836 forms part of the proposed route to Site. It should be noted that AADF data is not available for B836. Using experience and professional judgment, the B836 will be accounted for within the traffic increase assessment.

Abnormal Indivisible Load Route to Site

10.6.14 This section assesses the types of vehicles that are expected to use the access route for the Proposed Development. Specifically, the transportation of turbine components, which often involves AIL, needs to be accommodated.

10.6.15 AILs are vehicles that typically meet the following criteria:

- A weight exceeding 44,000 kilograms.
- An axle load surpassing 10,000 kilograms for a single non-driving axle and 11,500 kilograms for a single driving axle.
- A width wider than 2.9 meters.
- A rigid length longer than 18.5 meters

10.6.16 The AIL Route to site is shown in Figure 10.1

[1] Department for Transport (2024). Road traffic statistics. Available at: https://roadtraffic.dft.gov.uk/#6/55.254/-6.053/basemap-regions-countpoints. Accessed April 2025.

10.7 Embedded Mitigation

10.7.1 It is appreciated that a CTMP will be prepared for the Proposed Development, outlining the measures that will be implemented to ensure construction traffic is suitably controlled. The production of a CTMP can be made a condition during planning consent for the Proposed Development.

10.8 Receptors Brought Forward for Assessment

10.8.1 A review of sensitive receptors has been undertaken within the study area. Table 10.6 details the receptors and their sensitivities for use within the following assessment. A justification for the sensitivity has been provided based on the details contained in Table 10.2.

Table 10.6 - Summary of Sensitive Receptors

Receptor	Sensitivity	Justification
M8 (E & W)	Negligible	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.
M73 (N & S)	Negligible	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.
M74 (E & W)	Negligible	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable trunk road junctions capable of accommodating AILs
M898 (W & S)	Negligible	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable trunk road junctions capable of accommodating AILs
A82 (E & W)	Low	Where the road is Trunk or A class, constructed to accommodate general and HGV traffic moving between primary destinations. Includes roads with little or no traffic calming or traffic management measures.
A83 (E & W)	Low	Where the road is Trunk or A class, constructed to accommodate general and HGV traffic moving between primary destinations. Includes roads with little or no traffic calming or traffic management measures.
A815 (E & W)	Low	Where the road is Trunk or A class, constructed to accommodate general and HGV traffic moving between primary destinations. Includes roads with little or no traffic calming or traffic management measures.
B836	Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there are some traffic calming or traffic management measures.
B814	Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there are some traffic calming or traffic management measures.
A814 (E & W)	Low	Where the road is Trunk or A class, constructed to accommodate general and HGV traffic moving between primary destinations. Includes roads with little or no traffic calming or traffic management measures.

10.8.2 Based on the indicators which are stated within the IEMA Guidelines, the following location are identified as sensitive receptors in this assessment:

- Users of the B836

10.9 Potential Effects

10.9.1 Table 10.7 below details the increase in total construction vehicle levels and total HGV levels along road links within the Study Area as a result of the Proposed Development. The worst-case construction month for the Proposed Development has been assessed below.

Construction

Construction traffic attributed to the Proposed Development will be comprised of the following seven sources:

- Delivery of site compound, welfare and office establishment;
- Deliveries of aggregate for the site access tracks and crane hardstandings;
- Deliveries of concrete for the foundation pours;

- Deliveries of reinforcement steel and cabling;
- Delivery of the turbine components and cranes (blades, tower sections and turbine nacelles);
- Delivery of BESS components; and
- Personal trips to and from the site.

10.9.2 These deliveries will facilitate the construction of access tracks, hardstandings and turbine foundations, as well as the site compound and the erection of the turbines themselves. Table 10.7 gives an indicative estimate of the volumes of traffic likely to be involved during the construction phase. The volumes of traffic would be confirmed in the Construction Traffic Management Plan produced to discharge any pre-commencement planning conditions.

Table 10.7 - Construction Traffic Movements

Construction Activity	Month Number																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Mobilisation & compounds	6	6																
Forestry	118	117																
Access & Site Tracks		252	252	252	252	252	252											
Crane Hardstanding			328	328	328	328	328	328	328									
Turbine Foundations				117	117	117	117	117	117	117								
On-site Cabling																		
Substation civils work		9	9	9														
Substation construction				5	5	5	5	5	5	5	5	5	5	5				
Turbine Delivery										26	26	26	26					
Turbine Erection													18	18	18	18	18	
Commissioning & Testing																11	11	11
Site Reinstatement																26	26	26
Personal and Small Deliveries	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264
Total (One-way trips)	505	766	853	975	966	966	966	714	714	412	295	295	313	287	282	319	319	301
Total (Two-way trips)	1010	1532	1706	1950	1932	1932	1932	1428	1428	824	590	590	626	574	564	638	638	602
Working Days	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Average Movements per Day	36	60	78	89	88	88	88	65	65	37	27	27	28	26	26	29	29	27

10.9.3 Table 10.7 above shows the worst-case construction month for HGV movements to be Month 4, with 1,686 two-way trips.

10.9.4 Table 10.7 shows the worst-case construction month for total vehicle movements to be Month 4, with 1,950 two-way trips.

Construction Traffic Components

10.9.5 The following sections provide further details of typical vehicle activity that would be required throughout the construction and operational phases of the development.

Turbine Delivery Vehicles

10.9.6 A number of abnormal loads will be needed to deliver the components of the seven turbines to site, specifically:

- The longest loads are the turbine blades with a total vehicle length of up to 86 m, including load overhang.
- The widest loads are the turbine generators with a maximum width of approximately 6 m.
- The tallest loads are the tower section with a maximum height of approximately 5 m.

10.9.7 These dimensions are subject to confirmation at the detailed design stage.

10.9.8 Due to these dimensions, the access route and third-party land need a minimum clearance width of 7 m and height of 6 m and the ability to withstand a maximum axle load of 12 tonnes and a maximum gross weight of 180 tonnes. The transport vehicles involved require a minimum ground clearance of 100 mm.

Cranes

10.9.9 Two cranes are required to lift the turbine components into place on-site, typically a 750-tonne capacity main crane and a 200-tonne capacity support crane. The largest crane proposed to be used on site is the Liebherr LG 1,750 mobile crane which is 19.3 m long, 4 m high, and 3 m wide when fully

disassembled for travel. The crane has 8 axles, with axle loads up to 12 tonnes; and a total vehicle transport weight of 96 tonnes.

Site Construction Plant

10.9.10 This is anticipated to include:

- Two tracked excavators;
- Two dumpers; and
- One heavy vibrating roller

10.9.11 Deliveries of these would be likely to take place over the course of one or two days, arriving in the morning hours. The only additional deliveries to site would be site cabins/welfare facilities, occasional hire equipment and small material deliveries (e.g., rolls of geotextile/drainage pipe spares) which could occur at any hour during the working day.

10.9.12 These vehicles will access the site via the B836 and A815 however, this will be dependent on where the plant is dispatched from. A finalised access route will be confirmed by the civil contractor appointed to produce the CTMP.

Construction Materials for Access Tracks and Hardstanding Areas

10.9.13 The Proposed Development entails the construction of 6,381 m of new access tracks and hardstandings and 3,841 m of upgraded access tracks, giving a total of approximately 10,322 m of site tracks to facilitate the access of the turbines to their sitting positions. Approximately 138,000 tonnes of aggregate will be required, which would result in approximately 4,313 HGV deliveries.

Construction Materials for Turbine Foundations

10.9.14 The preparation of each foundation will require six HGV deliveries of reinforcement steel, an HGV with a foundation anchor ring and up to five concrete wagons to pour a blinding layer. After these deliveries, steel fixers normally take about two weeks to fix the reinforcement steel.

10.9.15 For the main pour at each foundation, it is estimated that approximately 102 deliveries of concrete would be required. Concrete wagons will be of standard sizes (8 m^3).

10.9.16 The exact access route of concrete vehicles is dependent on the batching plant used, which will be finalised by the civils contractor appointed following a tender process.

10.9.17 The concrete deliveries would be scheduled to arrive at steady intervals, up to 12 per hour, over a one-day period. At worst, an increase in traffic of a single wagon every 5 minutes, would have minimal effect on the local road network. Traffic management would involve spacing deliveries such that there is a sufficient and consistent supply of concrete. But would avoid unnecessary impact on the public road.

Personnel/Small Deliveries

10.9.18 In addition to the traffic described above, during all phases of construction, there will be between 6-12 vehicles per day carrying personnel to the site. These will be light vehicles – cars, minibuses, or vans arriving and exiting the site during the morning and afternoon peak hours. In addition, throughout the project, there may be occasional Sunday deliveries and visitors, such as fuel bowsers, survey equipment, testing subcontractors, etc. These movements will not require any particular traffic management provisions beyond the route management plan.

Forestry

10.9.19 Forestry felling and extraction is expected before the construction phase. Vehicle numbers will not exceed those expected during the peak construction month. Since this assessment assumes a worst-case scenario during construction, forestry movements have not been further assessed.

Commissioning and Connection Works

10.9.20 This stage of the work requires eight or nine deliveries of standard HGVs and will have almost no effect on the road network, any traffic that may be required is likely to be light commercial vehicles required at low volume and frequency. As such, no traffic management is proposed.

Heavy Goods Vehicles

10.9.21 Using an indicative construction programme, the number of HGV deliveries anticipated at the Proposed Development per month of the construction period has been calculated as illustrated in Table 10.8.

Likely Significant Effects

10.9.22 Table 10.8 below details the increase in total construction vehicle levels and total HGV levels along road links within the Study Area as a result of the Proposed Development. The worst-case construction month for the Proposed Development has been assessed below.

Table 10.8 - Worst-Case Construction Traffic Network Impact

Column Title	Giants Burn Daily Traffic Flows	Giants Burn Daily HGV Traffic Flows	AADF Total	HGV Total	% Increase in Total Traffic	% Increase in HGVs
	Month 4	Month 4				
M8 E	89	77	43575	1530	0.2	5.0
M8W	89	77	34023	1106	0.3	7.0
M73 N	89	77	44867	4075	0.2	1.9
M73 S	89	77	49145	4895	0.2	1.6
M74 E	89	77	21926	1765	0.4	4.4
M74 W	89	77	23034	2168	0.4	3.6
M898 W	89	77	22720	882	0.4	8.7
M898 S	89	77	23830	1041	0.4	7.4
A82 E	89	77	23999	788	0.4	9.8
A82 W	89	77	23760	752	0.4	10.2
A83 E	89	77	2127	191	4.2	40.3
A83 W	89	77	2008	194	4.4	39.7
A815 E	89	77	928	84	9.6	91.7
A815 W	89	77	949	74	9.4	104.1
A814 E	89	77	8184	133	1.1	57.9
A814 W	89	77	7558	131	1.2	58.8
A8014 N	89	77	6532	88	1.4	87.5
A8014 S	89	77	7226	96	1.2	80.2

10.9.23 The highest total traffic movement increase within the study area is along the A815, with a total traffic increase of 9.6% (east) and 9.4% (west). The total increase along the other links within the study area is less than 30%, which is considered to be within daily flow variations.

10.9.24 The total HGV traffic movements are expected to increase by up to 91.7% (east) and 104.1% (west) (77 two-way HGV movements) on the A815.

10.9.25 It should be noted that the construction phase is temporary in nature, and the peak of construction activities is short-lived, occurring over a relatively short timeframe when taking account of the whole construction programme.

10.9.26 Table 10.8 summarises the potential effects (as identified in the IEMA Guidelines) and predicted magnitude of the impact from increases in traffic movements on the M8, M74, M73, M898, A83, A82, A815, B836, A814 and A8014 with no additional mitigation in place.

Table 10.9 - Construction Traffic Effects

Receptor	Sensitivity	Magnitude of Impact	Significance of Effect
M8 E	Negligible	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**
M8W	Negligible	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**
M73 N	Negligible	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**
M73 S	Negligible	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**.
M74 E	Negligible	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**.
M74 W	Negligible	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**.
M898 W	Negligible	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**
M898 S	Negligible	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**
A82 E	Low	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**.
A82 W	Low	Negligible	The change in total traffic is not anticipated to exceed 30% and is therefore assessed as **negligible.**
A83 E	Low	Low	The change in total traffic is assumed to be between 30% - 60%. The impacts on road and pedestrian users are deemed to be low. The significance is assessed as **minor.**
A83 W	Low	Low	The change in total traffic is assumed to be between 30% - 60%. The impacts on road and pedestrian users are deemed to be low. The significance is assessed as **minor.**
A815 E	Low	High	The change in total traffic is assumed to be above 90%. The impacts on road and pedestrian users are deemed to be High. The significance is assessed as **moderate**

Receptor	Sensitivity	Magnitude of Impact	Significance of Effect
A815 W	Low	High	The change in total traffic is assumed to be above 90%. The impacts on road and pedestrian users are deemed to be High. The significance is assessed as **moderate**
B836	Medium	High	The change in total traffic is assumed to be above 70% (sensitive receptor). The impacts on road and pedestrian users are deemed to be High. The significance is assessed as **major**.
A814 E	Low	Low	The change in total traffic is assumed to be between 30% - 60%. The impacts on road and pedestrian users are deemed to be low. The significance is assessed as **minor.**
A814 W	Low	Low	The change in total traffic is assumed to be between 30% - 60%. The impacts on road and pedestrian users are deemed to be low. The significance is assessed as **minor.**
A8014 N	Low	Medium	The change in total traffic is assumed to be between 60% - 90%. The impacts on road and pedestrian users are deemed to be low. The significance is assessed as **minor**.
A8014 S	Low	Medium	The change in total traffic is assumed to be between 60% - 90%. The impacts on road and pedestrian users are deemed to be low. The significance is assessed as **minor**.

10.9.27 The IEMA guidelines show that in areas of negligible to low sensitivity with an increase of less than 30% in traffic flow (M8, M73, M74, M898, A82), will be considered to have a negligible magnitude of impact and overall negligible significance under the EIA Regulations. Therefore, it can be concluded that the effects of construction traffic on the local road network (M8, M73, M74, M898, A82) will not be significant in EIA terms.

10.9.28 The IEMA guidelines show that in areas of low sensitivity with an increase of between 30% - 60% (A83 & A814), will have a low magnitude of impact and overall minor significance under the EIA Regulations. Therefore, it can be concluded that the effects of construction traffic on the local road network (A814 & A83) will not be significant in EIA terms.

10.9.29 The IEMA guidelines show that in areas of low sensitivity which have an increase of between 60% - 90%, (A8014), will have a medium magnitude of impact and overall minor significance under the EIA Regulations. Therefore, it can be concluded that the effects of construction traffic on the local road network (A8014) will not be significant in EIA terms.

10.9.30 The IEMA guidelines show that in areas of low sensitivity which have an increase above 90% (A815), will have a high magnitude of impact and overall moderate significance under the EIA Regulations. Mitigation options are detailed in Section 10.10.

10.9.31 The IEMA guidelines show that in areas of medium sensitivity (B836), an increase above 70% (sensitive receptor) will have a high magnitude of impact and overall major significance under the EIA Regulations. Mitigation options are detailed in Section 10.10**.**

Decommissioning

10.9.32 For this assessment, any decommissioning phase impacts resulting from the Proposed Development are anticipated to be similar to construction phase impacts. The significance of effect for each receptor during the decommissioning phase is anticipated to be the same as or similar to the anticipated significance of effect during the construction phase.

10.10 Additional Mitigation

10.10.1 During the construction phase HGV traffic levels are expected to increase by more than 90% on sections of the A815, and 70% on the B836. The following mitigation measures are proposed to mitigate the effects of the increase in construction traffic and reduce the significance of effect. The methods listed below help manage traffic flow, minimise disruptions and ensure safety during the construction phase.

Construction Phase

10.10.2 The following are general traffic management measures which will be employed. The site manager will deal with non-compliance, with disciplinary actions taken at their discretion. The following issues will be captured in the CTMP.

Site Access

10.10.3 Preferred routes for heavy goods vehicles (HGVs) to and from the Site will be agreed with the local authorities.

Hours of Deliveries

10.10.4 Typically, deliveries will fall between the construction hours of 07:00 to 19:00 on Monday to Friday, Saturdays between 07:00 and 13:00 and at no time on Sundays and Bank Holidays (unless agreed with Argyll and Bute Council). The availability of Police Scotland will govern turbine component deliveries and may take place outside these times. Care will be taken to avoid local refuse collection, school bus movements, and events where practicable to minimise the impact on the local road network.

Community Liaison Group

10.10.5 GB Wind Ltd ('the Applicant') will establish a Community Liaison Group (CLG) to facilitate dialogue between communities and the Project Team, for its construction sites. The CLG operates throughout the construction phase. The purpose is for the Applicant and its contractors to provide updates on construction, minimise disruption and enable community representatives to ask questions and raise any issues

Loading and Unloading of Vehicles

10.10.6 Where possible all loading and unloading of vehicles will take place within the site boundary. There will be no requirement to use the highway at any point for loading/unloading.

Temporary Warning Signage

10.10.7 On-site signage will consist of construction site signage at the Site entrance displaying the name of the site and contractor. Temporary warning signage will be placed on the public road near the site entrance to warn road users, cyclists, pedestrians, and equestrians of the nearby construction works.

Traffic Control at Site

10.10.8 A one-way system will be constructed at the triangular area incorporating the B836/Core Path C223 (Access Track) to enable all vehicles to be forward-facing when exiting the Site and re-joining the public highway.

Debris/Dust Control

10.10.9 All vehicles exiting the Site shall be checked for excess dirt and where necessary, wheels will be hand cleaned. The adjacent road shall be periodically inspected for debris on the public highway. Should a surplus of debris be noted, the contractor will endeavour to actively clean the road to ensure that the carriageway is kept clear throughout construction. If excessive quantities of dust are consistently arising from the development, water will be sprayed over the working areas to keep the dust down.

Monitoring

10.10.10 The local road network shall be monitored throughout construction; where road sweeping is required it shall be undertaken, as necessary. Should issues with the condition of the road be noted, the Local Roads Authority shall be notified, and an agreement struck on how best to proceed.

Roadworthiness

- All vehicles will be kept in safe and efficient operational order, complying with the Roads Traffic Act Construction and Use Regulations. Special attention should be paid to the following requirements:
- All lights must function correctly and be clean, including indicators, brake lights, flashing beacons, reversing lights (and alarms where fitted).
- Steering and brakes must operate correctly and efficiently.
- Tyres must be undamaged and have adequate tread depth remaining.
- All mirrors must be correctly fitted, adjusted and unbroken.
- Suspension is maintained to a standard where noise (particularly when travelling empty) is minimised.
- Exhaust emissions should comply with all legal requirements.
- The vehicle is to be kept clean by regular washing.

10.10.11 Vehicles should contain a first aid kit and fire extinguisher at all times.

10.10.12 Any escort vehicles are to carry 6 x cones, 2 x emergency triangles and beacons. The regional police, who are anticipated to escort blades, nacelle and towers, will also have a provision of lights and cones in case of an accident.

Road Improvements and Reinstatement Works

10.10.13 Any damage to public roads will be mitigated through a suitable agreement relating to Section 96 of the Roads (Scotland) Act and appropriate planning legislation - including the provision of an appropriate Road Bond or similar security (known as a Wear and Tear Agreement) may be required. The detail would be finalised in the CTMP.

10.10.14 Additionally, damage to road infrastructure caused directly by construction traffic would be made good and street furniture that is removed on a temporary basis would be fully reinstated.

Driver Conduct

10.10.15 The Road Traffic Regulations and the advice given in the Highway Code will be included within site health and safety documentation and distributed to all parties. A summary of key aspects is given below:

- Driving to conditions. Speed will always be adjusted to varying road and weather conditions. Allowance will also be made for the potential of poor driving standards of other road users.
- Speed. Under no circumstances will the speed limit be exceeded. Extra care should be taken when passing villages and built-up areas. To further minimise the impact of heavy vehicles on the local population, speed restrictions on the site should be adhered to.
- Driving etiquette. Care will be taken to drive considerately, minimising impact on other road users.
- Convoying. Where practicable grouping of HGVs will be avoided to ensure room for smaller vehicles to overtake easily without having to pass multiple vehicles at once.
- Reduce Noise. Efforts will be made to minimise noise from engines, suspensions and tipper bodies, particularly in villages and built-up areas, and especially in the early morning and late at night. Tailgate should be locked when running empty.
- Parking. Overnight parking will be off public highways so it does not inconvenience members of the general public.
- Work Legally. All drivers shall adhere to Hours Legislation and with the Tacho-graph Regulations.
- Routing. Approved routes to and from the delivery point will be used, and the use of narrow and hilly routes which are unsuitable for large vehicles should be avoided where practicable. Where the route restrictions are breached, penalties shall be applied at the site manager's discretion.
- Safety. Reflective high-visibility jackets/waistcoats will be worn at all times at the site, at delivery points, or at the scene of a vehicle accident/breakdown.
- Accidents and Breakdowns. Site and delivery vehicles will carry details of breakdown procedures, and contacts to be used in the event of an emergency. At the scene of a road traffic accident (or vehicle breakdown), wherever possible, approaching traffic should be warned of the potential danger by use of warning triangles and traffic cones. Details (names and addresses) of any witnesses will be obtained and emergency services should be contacted.

Emergency Services

10.10.16 Throughout the construction programme, the site manager will ensure access to the Site is not impeded and congestion does not occur. This will ensure traffic is not backed onto the main road and access is kept clear for emergency service use.

Access Management Plan

10.10.17 An Outline Access Management Plan (OAMP) (Appendix 10.2) outlines measures to manage interactions between construction traffic, pedestrians, and cyclists within the site. The OAMP will evolve into an Access Management Plan (AMP), implemented through a planning condition.

AIL Route Survey Report

10.10.18 The AIL RSR highlights a number of pinch points on the proposed access route, which have been assessed within the report using swept path assessment software. The locations of the pinch points and the swept path drawings are included in Appendix 10.1.

10.10.19 The RSR identifies key issues along the route requiring mitigation works, including the temporary removal of street furniture, lighting columns, traffic signals, road signs, bollards, fences, and utility poles. Proposed measures also include traffic management, such as parking suspensions, vegetation trimming, load-bearing surfaces, and land profiling for potential tar wedges. Additionally, an upgraded access junction will be provided, subject to agreement with the road authorities and stakeholders.

10.10.20 AIL mitigation works can be designed to be temporary in nature to enable the restoration to their original condition (if required by the Council).

10.11 Residual Effects

Construction

10.11.1 With mitigation measures in place during construction, residual effects on users will be minor to negligible and not significant. These effects will be temporary and reversible, applicable to the A815 and B836.

Operation

10.11.2 No residual effects are anticipated during the operational phase.

10.12 Cumulative Assessment

10.12.1 The potential for a cumulative impact in respect of the traffic and transport effects has been considered for other operational, consented and in-planning developments within the surrounding 10 km Study Area that would potentially utilise the same road network as the Proposed Development during the construction period.

10.12.2 Within the vicinity of the Proposed Development, it is noted that the Inverchaolain Wind Farm has been proposed to the west of the Proposed Development and access to this site is proposed via the A83. Other developments located along the A83 may also come forward into the planning system during the consideration of this application.

10.12.3 Should the Proposed Development be undergoing construction at the same time as any other development using the same transport routes, it is acknowledged that this would require coordination between developers and contractors in order to mitigate any transport effects. Mitigation measures for this eventuality would be contained within the CTMP, expected to be agreed, via condition, with Argyll and Bute Council and Transport Scotland prior to the commencement of construction.

10.13 Summary

10.13.1 A suitable route to Site has been identified and assessed for the construction period of the Proposed Development. It has been determined that the turbine components can be safely delivered to Site and that suitable management plans will be enacted in agreement with the local planning authority and other key stakeholders, following grant of the consent.

10.13.2 The assessment has conservatively assumed that all Proposed Development construction traffic uses all Study Area roads. In addition, the construction vehicle forecast makes no allowance for the potential use of on-site or local borrow pits for aggregate, or on-site concrete batching plant. Both of which could potentially reduce Proposed Development construction traffic on public roads. Peak construction activity occurs in month 4 of the proposed construction timetable with an estimated 1,950 HGV movements.

10.13.3 During the construction phase HGV traffic levels are expected to increase more than 90% on sections of the A815 and 70% on the B836. With mitigation measures in place during construction, residual effects on users will be minor to negligible and not significant.

10.14 References

Guidance

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