Novar 1 Wind Farm Repowering

Chapter 11 - Traffic and Access

September 2026



11. Traffic and Access

11.1 Executive Summary

11.1.1 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 Proposed Development will be accessed from the B817 (Fyrish Crescent) via an existing simple priority junction, which currently provides access to the operational Novar 1 Wind Farm.

11.1.3 The peak of construction during typical on-Site construction activity occurs in month seven and eight when there would be a total of 2,569 vehicle movements per month, which equates to an average of approximately 118 vehicle movements per day, comprising 92 two-way HGV movements and 26 car/LGV movements. This would equate to an average of just under ten total movements or approximately seven Heavy Goods Vehicles (HGV) movements per hour, across a typical 12-hour day, assuming a flat traffic profile, where traffic arrived and departed the Site equally throughout the working day. This is in the scenario whereby 100% of aggregate materials for use on the Site is sourced from local suppliers.

11.1.4 In the scenario whereby 100% of aggregate material is sourced from the on-Site borrow pit and from the recycling and re-use of materials sourced from the decommissioning of the existing Novar 1 Wind Farm, which is considered to be a more realistic scenario, there would be a total of 1,061 vehicle movements per month in the peak, which equates to an average of approximately 50 vehicle movements per day, comprising 24 two-way HGV movements and 26 car/Light Goods Vehicle (LGV) movements.

11.1.5 Notwithstanding the above, there are currently no requirements to batch concrete on-Site and as such all concrete requirements would be met by ready-mix concrete supplied from local suppliers. Therefore, on those days on which turbine foundations would be poured, there would be a requirement for each base to be poured in a single, continuous operation, which would result in 310 HGV movements (155 inbound trips and 155 outbound trips) per turbine. In addition, there would be approximately two additional HGV movements associated with general deliveries on foundation concrete pour days. There would be 26 car/LGV movements associated with construction staff, resulting in a total of 338 two-way vehicle movements on turbine foundation concrete pour days. It has been assumed that one pour per week would be undertaken. During this time, this would equate to approximately 28 two-way total vehicle movements or 26 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. This scenario would only occur nine times during the construction phase.

11.1.6 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.

11.1.7 A sensitivity review was undertaken to inform The Highland Council (THC) 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 all 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 can be co-ordinated with THC.

11.1.8 With the implementation of appropriate mitigation, no significant residual effects are anticipated in respect of traffic and access issues. The residual effects are all assessed to

be negligible or minor and would occur during the construction phase only, and they would be temporary and reversible.

11.1.9 Traffic levels during the operational phase of the Proposed Development would be up to two vehicles per week for maintenance purposes. Traffic levels during the decommissioning of the repowered wind farm are expected to be lower than during the construction phase as some elements are likely be left in situ, for example lower sections of foundations, cable runs and sections of access tracks and others broken up on-Site.

11.1.10 The movement of Abnormal Indivisible Load (AIL) traffic would require small-scale and temporary remedial works at a number of locations along the identified delivery route.

11.2 Introduction

11.2.1 This chapter considers the likely significant effects on Traffic and Access associated with the decommissioning of the existing Novar 1 Wind Farm, and the construction, operation and decommissioning of the repowered wind farm.

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 prepared by Pell Frischmann Consultants Limited and carried out in accordance with the Institute of Sustainability and Environmental Professionals (ISEP) (formerly Institute of Environmental Management and Assessment (IEMA)) Guidelines for the Environmental Assessment of Traffic and Movement (2023)[1]. This document is referred to as the 'ISEP Guidelines' throughout this chapter.

11.2.4 This chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures
  - Figure 11.1: Study Area;
  - Figure 11.2: Traffic Count Locations;
  - Figure 11.3: Personal Injury Accident Plan; and
  - Figure 11.4: Abnormal Indivisible Load Route Plan.
- Volume 4: Technical Appendices
  - Technical Appendix 11.1: Transport Assessment.

11.2.5 Figures and technical appendices are referenced in the text where relevant.

11.3 Legislation, Policy and Guidance

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.

[1] Institute of Environmental Management and Assessment (IEMA) (2023), Environmental Assessment of Traffic and Movement.

Policy

11.3.2 The following policy has been considered in the assessment:

- National Planning Framework 4 (NPF4) (2023)[2];
- The Highland Council (THC), Highland-wide Local Development Plan (LDP) (2012)[3]; and
- The Highland Council, The Inner Moray Firth Local Development Plan 2 (2024)[4];

Technical Standards and 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 (now ISEP), Environmental Assessment of Traffic and Movement (2023)5;
- Institute of Environmental Management and Assessment (now ISEP), Guidelines for the Environmental Assessment of Road Traffic (1993)[6];
- Institute of Environmental Management and Assessment (now ISEP) 'Guidelines for Environmental Impact Assessment' (2005)[7];
- LA104, Environmental assessment and monitoring, the Design Manual for Roads and Bridges (DMRB) (2020)[8];
- Table 2.2 of Volume 11, Section 2, Part 5 of the Design Manual for Roads and Bridges (DMRB) (2008)[9];
- Design Manual for Roads and Bridges, Volume 15, Part 5 "The NESA Manual" (2013)[10];
- Transport Scotland, Transport Assessment Guidance (2012)[11]; and
- Scottish Government, Planning Advice Note 75 – Planning for Transport (2005)[12].

11.4 Assessment Methodology

Overview

11.4.1 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;

[2] Scottish Government (2023), National Planning Framework 4. Available at: https://www.transformingplanning.scot/national-planning-framework/approved-npf4/

[3] The Highland Council (2012), Highland-wide Local Development Plan (2012). Available at: https://www.highland.gov.uk/info/178/development_plans/199/highland-wide_local_development_plan

[4] The Highland Council (2024), The Inner Moray Firth Local Development Plan. Available at: https://www.highland.gov.uk/info/178/development_plans/202/inner_moray_firth_local_development_plan

[5] Institute of Environmental Management and Assessment (2023), Environmental Assessment of Traffic and Movement.

[6] The Institute of Environmental Management and Assessment (1993), Guidelines for the Environmental Assessment of Road Traffic.

[7] The Institute of Environmental Management and Assessment (2005), Guidelines for Environmental Impact Assessment.

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

[9] Department for Transport (2008), DMRB, Table 2.2 of Volume 11, Section 2, Part 5.

[10] Department for Transport (2013), DMRB, Volume 15, Part 5 "The NESA Manual". Available at: http://www.sias.com/2013/TS/201303NesaManual.pdf

[11] 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

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

- Identify mitigation; and
- Assess residual effects.

11.4.2 The assessment is presented with reference to specific 'areas' of the Site. These areas comprise the Turbine Array and associated Access Route, as described in **Chapter 3: Site Description and Proposed Development (EIAR Volume 2)**.

11.4.3 Effects considered to be significant for the purposes of the EIA Regulations are those classified as being 'Major' or 'Moderate'.

Scope of Assessment

EIA Scoping Opinion

11.4.4 An EIA Scoping Report (presented in **Technical Appendix 1.3 Scoping Report (EIAR Volume 4)**) was submitted to the Energy Consents Unit (ECU) on 23rd January 2025 with a formal request for a Scoping Opinion on the proposed scope of the EIA and assessment methodologies. The ECU subsequently issued their Scoping Opinion on the proposed scope and methodology of the topics for assessment within the EIA on 23rd May 2025. A copy of ECU's Scoping Opinion is provided in **Technical Appendix 1.4 Scoping Opinion (EIAR Volume 4)**.

11.4.5 A summary of the key points raised in ECU's Scoping Opinion, relevant to Traffic and Access, are presented in Table 11.1 including a response as to where the comments have been addressed.

Table 11.1: Summary of ECU Scoping Opinion Comments

Summary of Comment	Response or location within the EIAR where comments are addressed
THC	
The Highland Council roads within the Study Area are B817 between Evanton and Alness and B9176 between the A9 and the B817. The Study Area should be expanded to cover any Highland Council roads that serve quarries and other suppliers of bulk materials and also the Port of Entry which is currently proposed to be Nigg. Although it is proposed to source aggregate on site, if no geotechnical evidence is submitted to support this proposal, as a worst-case scenario, any construction traffic forecasts should assess the impact of 100% of materials being imported into the site.	The Study Area includes those road links where traffic generated by the Proposed Development has the potential to result in likely significant environmental effects, as illustrated on **Figure 11.1 (EIAR Volume 3a).** The assessment has evaluated a precautionary worst-case scenario whereby 100% of construction materials are imported to Site as detailed within **Section 6** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**. Effects associated with construction traffic generated by the Proposed Development would be most pronounced close to the Main Vehicular Access Point and on the final approaches to the Site. While construction vehicles will travel across the wider road network, trips disperse rapidly away from the Site, diluting traffic volumes below standard ISEP screening thresholds beyond the defined Study Area. With regards to Abnormal Indivisible Loads (AILs), the environmental volume impact of these is low-frequency and negligible. The physical and operational feasibility of the route from the Port of Entry (PoE) (including swept path analysis

Table 11.1: Summary of ECU Scoping Opinion Comments	
Summary of Comment	**Response or location within the EIAR where comments are addressed**
	and bridge structures) is assessed separately within the Route Survey Report (RSR), which is included in **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and managed via the AIL Transport Management Plan.
The proposal to undertake ATC surveys on the B9176 between the A9 and the B817 junction and at the access to the site on the B817 is acceptable. Surveys should be carried out in neutral months (April, May, September or October). The application of a low growth factor is also acceptable.	The Automatic Traffic Counts (ATCs) were undertaken in June and late November 2024. The ATCs were supplemented by traffic data sourced from the Transport Scotland (TS) database. Low growth factors have been applied to the surveyed data to bring it up to both base year and the assessment year.
To provide robust estimates of construction traffic, the following information should be compiled and provided within the assessment: ▪ An indicative site layout showing all of the hardstanding and access tracks ▪ An estimate of the length and area of new and upgraded access tracks and platforms required to construct the development ▪ Related to this an estimate of the volume of bulk materials required (roadstone and concrete) with details of how the estimate has been calculated ▪ Possible sources of the bulk materials required, i.e., existing quarries and/or whether a borrow pit might be available within or close to the site. ▪ A location plan showing the initial proposed HGV routing ▪ The maximum size of the proposed components such as turbines and blades and of the abnormal indivisible loads likely (width, height, length and weight).	Relevant details on this are included within **Section 6** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.
A Road Mitigation Schedule should be submitted with any future application setting out the physical road improvements required where the increase in HGVs will be significant (more than 10% increase) and where issues are identified in the road condition survey as set out in the Transport Assessment/Assessment Methodology attached at the end of this response.	The Applicant is willing to enter into a formal Wear and Tear agreement as required to assess the potential impact of the Proposed Development on THC infrastructure. It is considered that these can form part of a suitably worded planning condition.
It is recommended that the applicant consults as early as possible the Council's	An AIL RSR has been undertaken which includes an Electronic Service Delivery for

Table 11.1: Summary of ECU Scoping Opinion Comments	
Summary of Comment	**Response or location within the EIAR where comments are addressed**
Structures and Abnormal Loads Teams regarding affected Council maintained structures and restricted routes. It is likely that there are some structures on access routes that have not been assessed for abnormal loads and some structures may not be suitable for the increased intensity of HGV loadings.	Abnormal Loads (ESDAL) review in relation to structures on the proposed route to Site. As part of this review, the THC structures team was contacted regarding the Proposed Development. The AIL RSR is included as **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.
The Transport Planning Team note that traffic generation from the operational and decommissioning phases will be scoped out of any assessment.	Comment noted.
Maintenance Agreement and Bond – Notwithstanding the above requirements, there will remain a risk of damage to Council maintained roads from development traffic. In order to protect the interests of the Council as roads authority, 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 will therefore be required.	The Applicant would be willing in principle to enter into a Section 96 Agreement in the event that consent is granted.
Q10.1 Do consultees agree with the proposed Study Area? No: The Study Area must be expanded to include any Highland Council roads that serve locations of quarries and other suppliers that will be used during the construction period. Any Highland Council roads that serve the intended Port of Entry should also be included.	The Study Area includes those road links where traffic generated by the Proposed Development has the potential to result in likely significant environmental effects, as illustrated on **Figure 11.1 (EIAR Volume 4**. The assessment has evaluated a precautionary worst-case scenario whereby 100% of construction materials are imported to Site as detailed within **Section 6** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**. Effects associated with construction traffic generated by the Proposed Development would be most pronounced close to the Main Vehicular Access Point and on the final approaches to the Site. While construction vehicles will travel across the wider road network, trips disperse rapidly away from the Site, diluting traffic volumes below standard ISEP screening thresholds beyond the defined Study Area. With regards to AILs, the environmental volume impact of these is low-frequency and negligible. The physical and operational feasibility of the route from the PoE (including swept path analysis and bridge structures) is assessed separately within the RSR, which is included in **Annex B** of **Technical Appendix 11.1:**

Table 11.1: Summary of ECU Scoping Opinion Comments	
Summary of Comment	**Response or location within the EIAR where comments are addressed**
	Transport Assessment (EIAR Volume 4) and managed via the AIL Transport Management Plan.
Q10.2 Do consultees agree that operational and decommissioning of the repowered scheme impacts can be scoped out of the EIA? Yes: But the Transport Planning Team will recommend that suitably worded conditions are attached to any permission given for the operational and decommissioning traffic impacts to be assessed and mitigated as they can be significant.	Comment noted.
Q10.3 Do consultees agree that the assessment of Scenario 1 (Single Phase Construction) will represent the worst-case scenario for the assessing the construction traffic related to the proposed development? Yes: The worst-case scenario should also include 100% of materials being imported into the site if it cannot be evidenced that there is suitable material on site.	Comment noted, the assessment has been undertaken as a single phase of construction and on the basis of a 100 % of materials being imported.
Transport Planning would expect a Transport Assessment to be submitted with any future planning application and a High National Traffic Forecast be applied.	A Transport Assessment has been undertaken and is included as **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**. A High National Road Traffic Forecast (NRTF) growth factor has been applied to the THC road network within the assessment undertaken in this chapter, while a Low NRTF growth factor has been applied to the trunk road sections.
1. Identify all public roads affected by the development. In addition to transportation of all abnormal loads & vehicles (delivery of components) this should also include routes to be used by local suppliers and staff. It is expected that the developer submits a preferred access route for the development. All other access route options should be provided, having been investigated in order to establish their feasibility. This should clearly identify the pros and cons of all the route options and therefore provide a logical selection process to arrive at a preferred route.	All routes likely to be used and impacted by the Proposed Development have been included within this assessment. Details on this are included within **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**. Impacts relating to AILs on the Study Area are included within the RSR, which is included as **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.
2. Establish current condition of the roads. This work which should be undertaken by a consulting engineer acceptable to the Council and will involve an engineering	Information relevant to the preparation of this chapter in line with the methodology previously agreed and accepted by THC has been included.

Table 11.1: Summary of ECU Scoping Opinion Comments	
Summary of Comment	**Response or location within the EIAR where comments are addressed**
appraisal of the routes including the following: ▪ assessment of structural strength of carriageway including construction depths and road formation where this is likely to be significant in respect of proposed impacts, including non-destructive testing and sampling as required; ▪ road surface condition and profile; ▪ assessment of structures and any weight restrictions; ▪ road widths, vertical and horizontal alignment and provision of passing places; and ▪ details of adjacent communities.	The Applicant is willing to enter into a formal Wear and Tear agreement as required to assess the potential impact of the Proposed Development on THC infrastructure. It is considered that these can form part of a suitably worded planning condition.
3. Determine the traffic generation and distribution of the proposals throughout the construction and operation periods to provide accurate data resulting from the proposed development including: ▪ nos. of light and heavy vehicles including staff travel; ▪ abnormal loads; and ▪ duration of works.	The relevant information in relation to traffic generation during construction has been determined using first principles. Details on this are included within **Section 6** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**. Impacts relating to AILs are included within the RSR, which is included as **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.
Current traffic flows including use by public transport services, school buses, refuse vehicles, commercial users, pedestrians, cyclists and equestrians.	Where relevant, information on current traffic flows have been obtained from the Transport Scotland (TS) traffic database and ATCs. Details of this can be found in **Section 5.4** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and **Section 11.5** of this chapter.
Impacts of proposed traffic including: ▪ impacts on carriageway, structures, verges etc.; ▪ impacts on other road users; ▪ impacts on adjacent communities; ▪ swept path and gradient analysis where it is envisaged that transportation of traffic could be problematic; and ▪ provision of Trial Runs to be carried out in order to prove the route is achievable and/or to establish the extent of works required to facilitate transportation.	The Applicant is willing to enter into a formal Wear and Tear agreement. This will form a suitably worded planning condition. The assessment has been undertaken in line with the outlined methodology included within the Scoping Report and detailed within this Chapter, relating to assessing potential impacts on traffic and transport. An AIL RSR has been undertaken which includes an ESDAL review in relation to structures on the Access Route. Swept path analysis of pinch points along the proposed AIL delivery route are also provided. See **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**. A trial run will be undertaken at the appropriate time following consent and

Table 11.1: Summary of ECU Scoping Opinion Comments	
Summary of Comment	**Response or location within the EIAR where comments are addressed**
	following confirmation of the selected turbine manufacturer and haulage contractor. The requirement of this can be secured via an appropriately worded planning condition.
6.Cumulative impacts with other developments in progress and committed developments including other Renewable Energy projects.	Relevant committed developments i.e. those developments with extant planning permission have been included. Details of relevant schemes can be found in **Section 5.6** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and **Section 11.7** of this chapter.
7.Proposed mitigation measures to address impacts identified above, including: ▪ carriageway strengthening; ▪ strengthening of bridges and culverts; ▪ carriageway widening and/or edge strengthening; ▪ provision of passing places; ▪ road safety measures; and ▪ traffic management including measures to be taken to ensure that development traffic does not use routes other than the approved routes.	Proposed mitigation measures to facilitate the delivery of AILs to the Site are included within the AIL RSR included as **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**. A framework Construction Traffic Management Plan (CTMP) has been prepared and included within **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and it is considered that the requirement for a full CTMP can be secured by an appropriately worded planning condition.
Details of residual effects.	Details of potential residual effects are included within this chapter in Section 11.9.
Transport Planning will require any application for planning permission associated with this proposal to submit a CTMP for the approval of the Planning Authority. A CTMP will normally detail the following issues, however this is not an exhaustive list and the CTMP should be tailored to reflect the issues pertinent to the Proposed Development: ▪ Identification of all THC maintained roads likely to be affected by the various stages of the Proposed Development, ▪ Predicted volume, type and duration of construction traffic. ▪ Location of Site compound, staff parking and visitor parking. ▪ Proposed measures to mitigate the impact of general construction traffic and abnormal loads on the local road network following detailed assessment of relevant roads.	A framework CTMP has been prepared and included within **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and it is considered that the requirement for a full CTMP can be secured by an appropriately worded planning condition. An AIL RSR has been undertaken which includes an ESDAL review in relation to structures on the proposed route to Site and is included as **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.

Table 11.1: Summary of ECU Scoping Opinion Comments	
Summary of Comment	**Response or location within the EIAR where comments are addressed**
▪ Details of any traffic management signage required for the duration of the construction period. ▪ Measures to ensure that all affected public roads are kept free of mud and debris arising from the Proposed Development.	
Details of any new Site access should be clearly set out on dimensioned drawings related to OS data and include confirmation of geometry, construction form, drainage details to prevent water running out onto the public road and evidence that appropriate visibility splays can be achieved.	Drawings for the indicative Main Vehicular Access Point have been prepared and are included as **Annex A** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.
Transport Scotland (TS)	
Chapter 10 of the SR presents the proposed methodology for the assessment of Traffic, Transport and Access. This states that the assessment will be carried out in accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines entitled Environmental Assessment of Traffic and Movement (July 2023). These specify that road links should be taken forward for further assessment where the following two rules are breached: Rule 1: Include road links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%) Rule 2: Include road links of high sensitivity where traffic flows have increased by 10% or more.	Comment noted. The assessment has been undertaken in line with the outlined methodology.
Chapter 10 states that the Study Area for the assessment will be "defined by the preferred abnormal load and general construction traffic routes" and will comprise: ▪ A9(T) between Invergordon and Ardullie; ▪ B817 between Evanton and Alness; and ▪ B9176 between the A9 and its junction with the B817. It is noted that base traffic data for the trunk road will be obtained from the Traffic Scotland database for the A9(T), both east and west of the B9176 junction at Skiach. We also note that future traffic	Comment noted. Low NRTF growth factors have been applied to all trunk roads. Details of this can be found in Section 5.4 of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and **Section 11.5** of this chapter.

Table 11.1: Summary of ECU Scoping Opinion Comments	
Summary of Comment	**Response or location within the EIAR where comments are addressed**
flows will be factored from traffic data using Low Growth factors estimated from National Road Traffic Forecasts.	
Transport Scotland considers this approach acceptable but would add that the trips generated by the removal of the existing 34 turbines will require to be included in the generated traffic figures with any required mitigation being identified.	The Applicant is committed to re-using materials from the existing Novar 1 Wind Farm, and the construction trips generated by this would be significantly lower than those during the construction of the Proposed Development. The construction phase therefore represents a worst-case assessment and as such, no further assessment of the decommissioning phase of Novar 1 Wind Farm has been considered and has been scoped out of the assessment. With regards to AIL from the existing Novar 1 Wind Farm, it would be proposed to prepare an AIL RSR for this, following confirmation of the destination of turbine parts. This would be completed prior to works commencing on the Proposed Development.
It is noted that any impacts associated with the operational phase and the decommissioning of the new turbines are to be scoped out of the EIA. We would consider this to be acceptable in this instance	Comment noted.
In addition, detailed swept path analysis will be undertaken for the main constraint points on the route from the port of entry (likely to be Nigg) 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 is considered appropriate, and we would add that Transport Scotland will require to be satisfied that the size of turbines proposed can negotiate the selected trunk road route and that their transportation will not have any detrimental effect on structures within the trunk road route path.	An AIL RSR of the proposed route to Site is included as **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4).**

Potential Impacts Scoped In

11.4.6 The scope of this chapter is set out in Table 11.2 and is based on the comments in Table 11.1.

Table 11.2: Impacts Considered within the Assessment			
Impact	**Phase ***		
	C	**O/M**	**D**
Increase of traffic on users of roads	Yes	-	-
Increase of traffic on users/residents of locations	Yes	-	-

*C=construction, O=operation and maintenance and D=decommissioning.

11.4.7 The chapter assesses cumulative effects as arising from the addition of the Proposed Development to other cumulative developments, which have secured consent.

11.4.8 The assessment is based on the Proposed Development as described in **Chapter 3: Site Description and Proposed Development (EIAR Volume 2)**.

Potential Impacts Scoped Out

11.4.9 The assessment focusses on likely significant effects and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with reasoning for scoping them out is presented in Table 11.3.

Table 11.3: Impacts Scoped Out of the Assessment	
Impact	**Reasoning**
Operational Phase	Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular monthly or weekly visits would be made to the wind farm for maintenance checks. The vehicles used for these visits are likely to be 4x4 vehicles and there may also be the occasional need for a Heavy Goods Vehicle (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 Proposed Development has been provided. As such, the effects during the operational phase are scoped out of the assessment.
Decommissioning Phase	With regards to the decommissioning of the existing wind turbines, the Applicant has advised that subject to the Proposed Development being granted planning consent, the existing wind farm would be decommissioned at the start of the overall three-year combined decommissioning and construction programme for the Proposed Development. There may be some elements of the decommissioning works still being undertaken during the principal construction period; however, traffic movements would be minimal and less than during the peak period of construction works assessed within the chapter. Furthermore, any decommissioning works will be managed so as not to peak concurrently with peak construction activities, with all non-essential works and construction traffic movements reduced where practicable on the peak turbine foundation concrete pour days. The construction peak within the principal construction period therefore remains the worst-case scenario. Based on the information provided in **Technical Appendix 1.5: Outline Circular Decommissioning Strategy (EIAR Volume 4)** and **Chapter 3: Site Description and Proposed Development (EIAR Volume 2)** on-Site infrastructure would be re-used or recycled where feasible during the construction of the Proposed Development, with some infrastructure including the existing wind turbines components removed from Site.

Table 11.3: Impacts Scoped Out of the Assessment	
Impact	**Reasoning**
	The traffic effects during the decommissioning phase for the repowered wind farm and associated infrastructure can only be fully assessed closer to that period, following 35 years of operation. As some elements of the Proposed Development may remain in situ (such as cable trenches, Internal Tracks), the traffic flows associated with the decommissioning works may 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.

Method of Baseline Characterisation

Extent of the Study Area

11.4.10 The Study Area for the assessment has been based on those roads that are expected to experience increased traffic flows associated with the construction of the Proposed Development. The geographic scope was determined through a review of the other developments in the area, Ordnance Survey (OS) plans, and an assessment of the potential origin locations of construction staff and supply locations for construction materials.

11.4.11 Locally sourced material would be used where feasible, and traffic would avoid impacting on local communities as far as is possible.

11.4.12 The Proposed Development would be accessed from the B817 (Fyrish Crescent) via an existing simple priority junction, which currently provides access to the operational Novar 1 Wind Farm. This junction would be upgraded to accommodate the larger wind turbine components proposed as part of the Proposed Development.

11.4.13 A Secondary Vehicular Access Point is available from the northeast via the U1990 (Boath Road); however as previously advised, this would only be used during the operational phase of the Proposed Development. No construction vehicles would be permitted to use this during the construction phase.

11.4.14 Strategic access to the Site would be taken from the A9 to the southeast and northeast, with construction traffic routing through to the Site via the B9176 and B817.

11.4.15 The likely Port of Entry (PoE) used for the discharging of wind turbine components would be the Port of Nigg, utilising sections of proven AIL routes used during the construction of other wind farms in the area. Full details of the proposed AIL route from the PoE through to the Site are included within **Annex B of Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.

11.4.16 Based on the above, the Study Area for this assessment is as follows:

- B817, between the B9176 and the Main Vehicular Access Point;
- B9176, between the B817 and A9; and
- A9, between Ardullie and The Mound.

11.4.17 The Study Area is presented in **Figure 11.1 (EIAR Volume 3a)**.

11.4.18 Note that the Study Area chosen relates to those roads likely to be subject to the biggest increase in construction traffic i.e. those closest to the Site for which their users could experience significant effects. It does not include all roads across the wider network both within the local and trunk road networks that may be used in the movement of general construction materials or AIL traffic.

11.4.19 The environmental assessment is focused on the road links proximate to the Site where the concentration of construction traffic is greatest and the potential for likely significant effects is concentrated. Beyond this network, construction vehicles disperse across multiple strategic routes. While commercial supply routes from local quarries would accommodate delivery vehicles, these roads are purpose-built and consented for heavy mineral haulage, meaning the temporary, incremental traffic from the development falls within their established operational baseline. On this basis, potential environmental effects beyond the identified Study Area are not considered significant and have been scoped out of detailed assessment.

11.4.20 In response to Scoping feedback from THC regarding roads serving quarries, material suppliers, and the PoE:

- Quarries and material suppliers: Commercial quarries operate under existing planning permissions where the principle of material extraction and the associated transport of HGVs across their immediate road network have already been established, evaluated, and consented. These roads are specifically designated and maintained to accommodate ongoing commercial haulage operations. Furthermore, specific commercial suppliers have not been contracted at this application stage. Once material traffic leaves the immediate Site vicinity and joins the wider network, it disperses across multiple strategic corridors, ensuring the relative percentage increase remains negligible and well below established ISEP screening thresholds; and
- PoE/AILs: The environmental volume impact of low frequency AIL deliveries is negligible. The physical and operational feasibility of the route from the PoE (including swept path analysis and bridge structures) is assessed separately within the RSR, which is included in **Annex B** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and managed via the AIL Transport Management Plan.

Desk Study

11.4.21 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 ISEP 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 – THC planning portal and the Scottish Government's 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

11.4.22 The following field surveys were carried out to inform the assessment:

- Detailed Site visits were undertaken to review the proposed route to Site and potential constraints; and

- The collection of traffic flows and speed data was undertaken in June and November 2024 to establish a baseline on the local road network.

Method of Assessment

Assessment of Potential Effect Significance

11.4.23 The ISEP 'Guidelines for Environmental Impact Assessment' (2005) notes that the ISEP Guidelines related to road traffic 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 ISEP, namely 'Environmental Assessment of Traffic and Movement' (2023)[5] provides an update to the previously used guidance, 'Guidelines for the Environmental Assessment of Road Traffic' (1993) and this document has been used in the assessment and are referenced as ISEP Guidelines. The guidelines intend to complement professional judgement and the experience of trained assessors.

CRITERIA FOR ASSESSING SENSITIVITY OF RECEPTORS

11.4.24 The receptors are the users of the roads within the Study Area and the locations through which those roads pass.

11.4.25 The ISEP Guidelines include guidance on how the sensitivity of receptors should be assessed. Using that as a base, professional judgement has been used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This is summarised in Table 11.4.

Table 11.4: Classification of Receptor Sensitivity

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, and 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 locations	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.

11.4.26 It is acknowledged that there may 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 11.4. In these situations, professional judgement has been applied and justification for any changes provided.

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

CRITERIA FOR ASSESSING MAGNITUDE OF CHANGE

11.4.28 Magnitude of change has been assessed in accordance with the following rules which are outlined in the ISEP Guidelines, and are used to inform a screening exercise to determine which links within the Study Area are to be considered for detailed analysis in the assessment:

- Rule 1 – Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of 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.

11.4.29 Examples of sensitive areas are presented in the ISEP Guidelines as hospitals, churches, schools, historical buildings, and tourist attractions etc. These locations are to be assessed in relation to "Rule 2".

11.4.30 The ISEP 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 ISEP 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 ISEP 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 ISEP 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 ISEP 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 ISEP 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 Site;
- 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 ISEP Guidance, those areas of collision clusters would be subject to detailed review;
- Road safety audits – it is proposed to undertake any necessary Road Safety Audits (RSA) post consent, and this could be secured via a planning condition; and
- 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 **Technical Appendix 11.1 (EIAR Volume 4)**), 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 the Mitigation During Construction sub-section of this appendix.

11.4.31 While not specifically identified, as more vulnerable road user, cyclists are considered in similar terms to pedestrians.

CRITERIA FOR ASSESSING SIGNIFICANCE

11.4.32 Table 3.7 of LA 104 (Environmental Assessment and Monitoring) of the Design Manual for Roads and Bridges (DMRB) sets out the categories against which the significance of environmental effects and their materiality in the decision-making process are defined – major, moderate, minor, and negligible (refer to Table 11.5).

Table 11.5: Significance Categories and Typical Descriptions

Significance Categories	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.

11.4.33 The predicted significance of the effect has been determined through a standard method of assessment based on professional judgement, considering both sensitivity and magnitude of change as detailed in Table 11.6.

Table 11.6: Significance Criteria				
Receptor Sensitivity	**Magnitude of Change**			
	Major	Moderate	Minor	Negligible
High	Major	Major/Moderate	Moderate/Minor	Minor
Medium	Major/Moderate	Moderate	Minor	Minor/Negligible
Low	Moderate	Minor	Minor	Minor/Negligible
Negligible	Minor	Minor	Minor/Negligible	Negligible

11.4.34 Effect significance is categorised as major, moderate, minor or negligible. Effects judged to be of Major or Moderate significance are significant in the context of the EIA Regulations and require mitigation.

11.4.35 Where an effect could be one of major/moderate or moderate/minor significance, professional judgement has been used to determine which option should be applicable. Effects judged to be of minor or negligible significance are considered not significant in the context of EIA Regulations.

Limitations and Assumptions

LIMITATIONS

11.4.36 Limitations to the assessment are as follows:

- The assessment is based upon average traffic flows in one-month periods across the principal construction programme, taking account of the worst-case construction traffic generating peaks (for example during continuous turbine foundation pour days). Day to day Site activity would vary depending on weather conditions, availability of materials and time of year. However, detailed day by day scheduling would be formally managed post-consent via the CTMP once the Balance of Plant (BoP) contractor is appointed;
- Assumptions on the origin points for materials and components have been assigned to establish a robust, worst-case traffic distribution across the local and trunk road network within the Study Area. These assumptions ensure that traffic accessing the assessed links represents a realistic worst-case scenario; should final commercial origin points vary following contractor procurement by the BoP, traffic flows on the assessed network would remain within or below the worst-case parameters evaluated in this assessment;
- Construction material estimates set out in **Technical Appendix 11.1 (EIAR Volume 4)** are informed by established engineering parameters, Site-specific design requirements and comparable wind farm developments in the Highlands. These estimates provide a robust and realistic basis for identifying likely significant environmental effects; and
- A micrositing allowance of 100 m is proposed. While the final location of infrastructure may vary within this tolerance, any such changes would remain within the parameters assessed in the EIAR and would not give rise to materially different environmental effects. Therefore, the conclusions of this assessment would remain unchanged.

ASSUMPTIONS

11.4.37 The following main assumptions have informed the assessment of effects:

- A principal construction period 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;

- It is anticipated that 100% of the aggregate requirements would be sourced from on-Site excavations including the on-Site borrow pit and from the recycling and re-use of materials sourced from the decommissioning of the existing Novar Wind Farm. However, to represent a worst-case assessment in terms of construction traffic trip generation, it has been assumed that 100% of the aggregate material requirements would be imported to the Site; and
- It is not currently proposed to batch concrete on-Site; rather, it is assumed that ready-mix concrete would be delivered from suppliers to the south in the Inverness area. Assuming two concrete pumps running simultaneously, it is estimated that each pour would typically take between 12 and 16 hours of non-stop deliveries. Based on the scale of the Proposed Development, it has been assumed that one pour per week would be undertaken. As such, it is expected that pouring of the nine turbine bases would occur over a three-month period, allowing for potential impacts due to weather and other unforeseen circumstances.

11.4.38 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.

11.5 Baseline Conditions

Current Baseline

Active Travel Network

11.5.1 With regards to dedicated pedestrian and cycle facilities in the immediate vicinity of the Site, there is a shared pedestrian and cycle path on the B817 from Alness through to the settlement of Evanton to the west of the Site. The path forms part of the Evanton – Skiach Cycleway (RC16.08) which is classified as a Core Path within THC and part of the National Cycle Network (NCN) Route 1. The path is approximately 2.35 km in length and is a formal constructed path.

11.5.2 The path runs the length of the B817, with the path alternating between the northern and southern sides of the carriageway. It is segregated from the carriageway with the exception of a short section in the vicinity of Novar Tulloch Sawmills, approximately 1.35 km to the northeast of the Main Vehicular Access Point.

11.5.3 Further away from the Proposed Development, in the wider Study Area, there are pedestrian facilities within the larger settlements of Alness and Evanton, where there are footways on one or both sides of the carriageway.

11.5.4 A review of THC's Core Path network[13] indicates that there are a number of Core Paths in the Site and wider Study Area. The closest of these are shown in Figure 7 of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and are as follows:

- Within the Site:
  - Novar Green Road (RC16.04) – estate track, approximately 1.62 km in length; and
  - Novar Quarry (RC16.07) – estate track, approximately 1.43 km in length.
- Within wider Study Area:
  - Evanton – Skiach Cycleway (RC16.08) – constructed path, approximately 2.35 km in length;
  - Fyrish Path (RC05.01) – constructed path, approximately 3.71 km in length; and

[13] https://highland.maps.arcgis.com/apps/webappviewer/index.html?id=2fd3fc9c72d545f7bcf1b43bf5c8445f [Accessed December 2025]

- Tollie to Lealty Path (RC05.02) – estate track, approximately 2.4 km in length.

11.5.5 A number of additional Core Paths are located within Evanton, Alness and along the A9.

11.5.6 A review of the Walk Wheel Cycle Trust (previously Sustrans) NCN map[14] indicates that NCN Route 1 is the closest NCN Route to the Proposed Development. The NCN Route 1 is approximately 2,034 km in length and routes from Dover in the south to Tain, in the Scottish Highlands, passing through Edinburgh and Aberdeen.

11.5.7 The closest section of the route is located to the southeast including a section of shared footway/cycleway along the B9176 as previously discussed. The location of NCN Route 1 in relation to the Site is shown in **Figure 7** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.

Road Access

11.5.8 The A9 is the main trunk road in the area which links Perth to Scrabster. The road is subject to a speed limit of 60 miles per hour (mph) within the Study Area, however, sections of dual carriageway are signed as 70 mph. Within the Study Area, the road is operated by BEAR Scotland on behalf of Transport Scotland and appears to be in good condition.

11.5.9 The B9176 (also known as Struie Road) is a single carriageway road, approximately 24 km in length, which runs from the A9 at Skiach, which is located to the southwest of Alness, to Eastern Fern on the Dornoch Firth. The road is subject to a speed limit of 60 mph within the Study Area, reducing to 40 mph within the small village of Dalnavie for goods vehicles in excess of 7.5 tonnes. A narrow bridge is located on the B9176, where it crosses the River Averon, and signage shows that southbound traffic should give way to oncoming northbound traffic over the bridge. The road is maintained by THC and appears to be in a generally reasonable condition.

11.5.10 The B817 is a single carriageway road, approximately 22.7 km in length, which runs from Drummond in the north to Kildary in the south via Invergordon. The road is subject to a speed limit of 60 mph within the Study Area to the east of the Site, reducing to 20 mph at the Main Vehicular Access Point on the approach to the eastern extents of Evanton. Outwith the Study Area the road is mainly subject to a 60 mph speed limit in rural areas, reducing to 30 mph and 20 mph within settlements. The road is maintained by THC and appears to be in a generally reasonable condition.

GENERAL ROAD SUITABILITY

11.5.11 The Agreed Timber Route Map[15] 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'.

11.5.12 '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

[14] https://www.walkwheelcycletrust.org.uk/ [Accessed December 2025]

[15] https://timbertransportforum.org.uk/ [Accessed December 2025]

classifications. 'Severely Restricted Routes' are not normally 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.

11.5.13 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 the A9 and B9176 which are 'Agreed Routes' and the B817 which is a 'Consultation Route'.

Existing Traffic Conditions

11.5.14 To assess the impact of the Proposed Development construction traffic on the Study Area, traffic data was obtained from Automatic Traffic Counters (ATC) that were deployed at the following locations in June and November 2024:

1. B817, east of the proposed Main Vehicular Access Point; and
2. B9176, north of its junction with the A9.

11.5.15 The ATCs were deployed over a 7-day period, to collect vehicle volumes, composition and speed per direction per hour.

11.5.16 To complement the ATC survey information, existing traffic count data was obtained from the Transport Scotland (TS) database, with 2024 data utilised. Data was obtained for the following locations:

1. A9, east of the A9/B9176 Junction (TS Counter: ATC01015);
2. A9, north of Tain at Morangie (TS Counter: ATC01021);
3. A9, between Poles and The Mound (TS Counter: ATC01334); and
4. A9, east of Ardullie Roundabout (TS Counter: ATC01012).

11.5.17 The traffic counters allowed the traffic flows to be split into vehicle classes and the data has been summarised into cars/Light Goods Vehicles (LGVs) and HGVs (all goods vehicles >3.5 tonnes gross maximum weight, including buses).

11.5.18 For the purposes of the assessment, 12-hour (07:00 to 19:00) two-way average traffic flows have been used within the assessment, to align with the likely 12-hour construction day and to ensure that the potential impact of the Proposed Development is not diluted on the road network with higher 24-hour flows.

11.5.19 The following NRTF growth factors were applied to the traffic flows to estimate the 2026 baseline year flows for the traffic data:

- Local Road Network, High NRTF growth factor – 2024 to 2026 is 1.024; and
- Trunk Road Network, Low NRTF growth factor – 2024 to 2026 is 1.011.

11.5.20 These traffic count sites were identified as being areas where sensitive receptors on the route to Site would be located.

11.5.21 The locations of the traffic count sites are illustrated in **Figure 11.2 (EIAR Volume 3a)** while Table 11.7 summarises the average traffic flows collected and used in this assessment.

Table 11.7: Two-Way Average Daily Traffic Data (2026)

No.	Survey Location	Cars & Lights	HGV	Total
1	B817, east of the proposed Main Vehicular Access Point	1,542	213	1,755
2	B9176, north of its junction with the A9	1,019	496	1,515
3	A9, east of the A9/B9176 Junction	8,277	1,901	10,178

Table 11.7: Two-Way Average Daily Traffic Data (2026)				
No.	**Survey Location**	**Cars & Lights**	**HGV**	**Total**
4	A9, north of Tain at Morangie	6,110	1,201	7,312
5	A9, between Poles and The Mound	3,666	831	4,497
6	A9, east of Ardullie Roundabout	10,632	2,349	12,980

11.5.22 The ATC and TS survey locations which provided traffic volume data were also used to obtain speed statistics. The two-way seven-day average and 85th percentile speeds observed at the count sites are summarised in Table 11.8.

Table 11.8: Speed Summary					
No.	**Survey Location**	**Count Source**	**Mean Speed (mph)**	**85%ile Speed (mph)**	**Speed Limit (mph)**
1	B817, east of the proposed Main Vehicular Access Point	ATC	44.7	53.0	60
2	B9176, north of its junction with the A9	ATC	48.3	55.7	60
3	A9, east of the A9/B9176 Junction	TS	51.3	57.6	60
4	A9, north of Tain at Morangie	TS	53.1	59.6	60
5	A9, between Poles and The Mound	TS	50.0	62.7	60
6	A9, east of Ardullie Roundabout	TS	44.1	55.8	60

Speed data obtained 2024 for ATC locations and 2025 for TS locations

11.5.23 The speed information indicates that for the most part, speed limits are being adhered to within the Study Area, with the exception of the 85th percentile on the A9 between Poles and the Mound. On this road link, the 85th percentile speed exceeds the speed limit by approximately 5%. The average (mean) speeds on all sites are below the speed limit of 60 mph.

Accident Review

11.5.24 Personal Injury Accident (PIA) data for the five-year period commencing 01 January 2020 through to the 31 December 2024 was obtained from the online resource CrashMap[16] which uses data collected by the Police about road traffic crashes occurring on British roads, where someone is injured.

11.5.25 TA Guidance[17] requires an analysis of the PIA 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.

11.5.26 The PIA statistics are categorised into three categories, namely:

- A "Slight" PIA, examples include a sprain, bruise or cut which is not considered to be severe, or slight shock requiring roadside attention;

[16] https://www.crashmap.co.uk [Accessed December 2025]

[17] UK Government (2014) Travel Plans, Transport Assessments and Statements Available at: https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

- A "Serious" PIA, examples include fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock requiring treatment; and
- A "Fatal" PIA, for those accidents that result in a death.

11.5.27 The general locations and severity of the recorded accidents within the Study Area are summarised in Table 11.9, while **Figure 11.3 (EIAR Volume 3a)** shows their locations.

Table 11.9: PIA Summary

Location	Slight	Serious	Fatal	HGV Incidents
A9	23	20	3	11
B9176	1	1	0	1
B817	1	0	0	1
Total	**25**	**21**	**3**	**13**
Percentage of total accidents	51%	43%	6%	27%

11.5.28 A general summary of the accidents considered within the review is as follows:

A9

- There were 46 accidents recorded on the A9 within the Study Area, 23 of which were slight, 20 were serious and there were three fatalities;
- The first fatality occurred to the north of Glen Morangie and involved a collision between a car and HGV, resulting in a single fatality in the car. The accident occurred in the evening on a section of road with no street lighting;
- The second fatality occurred to the southwest of Achnagarron Morangie and involved a collision between a car and HGV, resulting in a single fatality in the car. The accident occurred in the evening on a section of road with no street lighting;
- The third fatality occurred on approach to the junction between the A9 and B9176 and involved three cars and two HGVs, resulting in a single fatality in one of the HGVs;
- Twelve of the accidents recorded on the A9 involved an HGV. Of these, four were categorised as being slight, five serious and three fatalities;
- There were a number of clusters of PIAs at junctions on the A9. The first of these was at the northern junction of the A9 and B9174, where three accidents have been recorded, two slight and one serious. All of the recorded accidents at this location involved two or more vehicles. No HGVs or motorcycles were involved in any of the accidents;
- The second cluster occurred at the southern junction between the A9 and B9174 at Tain, where a total of 10 accidents were recorded. Five of the accidents were recorded as serious and five as slight. All of the recorded accidents involved between two and four vehicles. One HGV was involved in one of the accidents, which was serious, and two of the accidents involved young drivers (under 25). The junction has been highlighted as an area of concern by both local residents and Councillors and requests for improvements to the junction have been made to TS;
- The third cluster occurred at the junction between the A9 and the U1905 (Denny Smithy Road) where there were a total of four accidents recorded, three serious and one slight. All of the accidents involved between two and three cars, with one of the accidents involving an HGV. This accident also involved a young driver (under 25);
- The fourth cluster occurred at the junction between the A9 and the B9176 were there were a total of four accidents recorded, two serious and two slight. All of the accidents involved between two and three cars, with one of the accidents involving an HGV. Two of the accidents involved a young driver (under 25);

- There was one accident resulting in a pedestrian casualty, which occurred near Achnagarron and was recorded as serious. The accident involved an HGV on a section of road where there are no pedestrian facilities;
- There were no accidents on the A9 involving a bus or cyclist; and
- There were 21 accidents on the A9 occurring during Winter months (November – March) when poor weather conditions may have exacerbated the risk of an accident occurring.

B9176

- There were two accidents recorded on the B9176 within the Study Area, one of which was slight and one was serious;
- The serious accidents involved two vehicles, a car and a motorcycle, and occurred on approach to the junction with Airfield Road. The slight accident also occurred at the junction and involved a car and an HGV;
- There were no accidents on the B9176 involving a bus or cyclist;
- There were no accidents on the B9176 resulting in a child or pedestrian casualty; and
- There was one accident on the B9176 occurring during Winter months (November – March) when poor weather conditions may have exacerbated the risk of an accident occurring.

B817

- There was one accident recorded on the B817 within the Study Area, which was slight;
- The accident occurred on approach to the junction between the B817 and Dalgheal House, where the road corridor has vegetation lining both sides of the carriageway. The accident involved two vehicles, a car and an HGV;
- There were no accidents on the B817 involving a bus or cyclist;
- There were no accidents on the B817 resulting in a child or pedestrian casualty; and
- There were no recorded accidents in the vicinity of the Main Vehicular Access Point on the B817.

PIA SUMMARY

11.5.29 The analysis identifies a total of 49 PIAs across the assessed links over the five-year period. The severity breakdown is 51% slight, 43% serious and 6% fatal.

11.5.30 Most accidents occurred on a bend or on approach to a junction, where there is an increased interaction between vehicles. The nearest recorded PIA to the Main Vehicular Access Point occurred approximately 620 m to the east and involved a car and HGV and was classed as slight.

11.5.31 There were four clusters of accidents recorded on the A9 at known accidents black spots, all at junctions. Of the 46 recorded accidents on the A9, 21 of them occurred within the aforementioned clusters.

11.5.32 Based on the information available, it has been established that there are no specific road safety issues within the immediate vicinity of the Site that currently require addressing or would be exacerbated by construction activities associated with the Proposed Development. The locations where clusters of PIAs have occurred has been identified and will be given consideration within the CTMP.

Future Baseline

2029 Traffic Flows

11.5.33 For the purposes of this assessment, construction is assumed to commence in 2029. The construction of the repowered wind farm is estimated to take approximately 18 months

(principal construction period) within the overall 3-year decommissioning and construction phase, depending on weather conditions and ecological considerations.

11.5.34 To assess the likely effects during the construction phase, base year traffic flows have been determined by applying NRTF growth factors to the surveyed traffic flows. As requested by THC and TS during the scoping exercise, high NRTF growth factors have been used for the local road network and low NRTF growth factors for the trunk road network. The NRTF low growth factor, for 2026 to 2029 is 1.015 and the high growth factor is 1.036. These factors have been applied to the 2026 traffic data presented in Table 11.7 to estimate the 2029 Base traffic flows presented in Table 11.10.

Table 11.10: Two-Way Average Daily Traffic Data (2029)

No.	Survey Location	Cars & Lights	HGV	Total
1	B817, east of the proposed Main Vehicular Access Point	1,597	221	1,818
2	B9176, north of its junction with the A9	1,055	514	1,569
3	A9, east of the A9/B9176 Junction	8,401	1,929	10,330
4	A9, north of Tain at Morangie	6,202	1,219	7,421
5	A9, between Poles and The Mound	3,721	844	4,564
6	A9, east of Ardullie Roundabout	10,791	2,384	13,175

11.5.35 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.

IMPLICATIONS FOR CLIMATE CHANGE

11.5.36 It is considered that climate change projections will not have a discernible impact on the future conditions for road traffic within the timescales of the Proposed Development.

11.5.37 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.

Summary of Sensitive Receptors

11.5.38 A review of sensitive receptors has been undertaken within the Study Area. Table 11.11 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 11.4.

Table 11.11: Summary of Sensitive Receptors

Receptor	Sensitivity	Justification
A9 Users	Low	Where the road is Trunk or A-class, constructed to accommodate significant HGV composition.
Residents along the A9	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities.
B9176 Users	Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic.
Residents along B9176	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities.

Table 11.11: Summary of Sensitive Receptors		
B817 Users	Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic.
Residents along B817	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities.
Evanton Residents	Medium	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services.
Core Path/Path Network Users	High	Minor paths used by walkers and cyclists, not constructed to accommodate HGV traffic flows.
NCN Users	High	Minor paths used by walkers and cyclists, not constructed to accommodate HGV traffic flows

11.5.39 Examples of sensitive areas are presented in the ISEP Guidelines as locations which include hospitals, churches, schools, historical buildings tourist attractions for example. Based on these indicators which are stated within the ISEP Guidelines, the following location within the Study Area has been identified as a sensitive area:

- Residents in Evanton (church, schools, tourist attractions and community hall).

11.5.40 This location will therefore be subject to 'Rule 2' of the ISEP Guidelines which requires a full assessment of effects if the locations are subject to an increase in 10% of traffic.

11.5.41 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%.

11.5.42 Whilst Evanton has been included above, it is not proposed to route any construction traffic through the settlement. The proposed Main Vehicular Access Point is however located immediately to the east of the settlement and as such could be impacted by construction activities, for example construction staff driving to and from the village to use local facilities.

11.6 Embedded Mitigation

11.6.1 Embedded mitigation includes design/standard best practice measures as described in Chapter 3: Site Description and Proposed Development (EIAR Volume 2) and the Chapter 4 Design Evolution and Alternatives (EIAR Volume 2).

11.6.2 The embedded mitigation forms an integral part of the design of the Proposed Development. As such, the assessment of likely significant effects assumes that these mitigation measures have been implemented.

11.6.3 A summary of the embedded mitigation considered for the transport assessment is set out in Table 11.12.

Table 11.12: Summary of Embedded Mitigation			
ID	**Phase***	**Description**	**Purpose of Mitigation**
Embedded Mitigation			
TA01	C	Construction methodology	Reduce the impact of general construction traffic within the Study Area.
TA02	C	Construction Traffic Management Plan (CTMP)	Plan to manage effects of general construction traffic on local receptors and communities.
TA03	C	AIL TMP	Plan to manage effects of AILs associated with the delivery of wind turbine components on local receptors and communities.

Table 11.12: Summary of Embedded Mitigation			
ID	**Phase***	**Description**	**Purpose of Mitigation**
TA04	C	Staff Travel Plan	Plan to manage the arrival and departure profile of staff and to encourage sustainable modes of transport.
TA05	C	Outdoor Access Management Plan (OAMP)	Plan to manage the interaction between construction traffic and construction activities with users of Core Paths/paths, cycle routes and public roads.

**PC=Pre-construction, C=construction, O=operation and maintenance and D=decommissioning.*

11.6.4 Further details on the embedded mitigation measures and best practices are provided below.

Construction Methods

11.6.5 The Proposed Development layout includes the use of an on-Site borrow pit to provide material for the creation of the Internal Tracks, hardstanding and compound bases. Based on the Borrow Pit Assessment undertaken and included as **Technical Appendix 9.8: Borrow Pit Assessment (EIAR Volume 4)**, it is estimated that approximately 96,000 m³ of aggregate material is available from the identified borrow pit location, including a 20% reduction for unsuitable material. This is in excess of the estimated circa 60,869 m^3 required on-Site.

11.6.6 Furthermore, as detailed in **Technical Appendix 1.5: Outline Circular Decommissioning Strategy (EIAR Volume 4)**, all existing on-Site infrastructure would be re-used during the construction of the Proposed Development where feasible, with the exception of the existing wind turbines and some sections of cabling. Therefore, additional material would be available for use in construction of the Internal Tracks, areas of hardstanding, construction compounds and other uses across the Site.

CONSTRUCTION TRAFFIC MANAGEMENT PLAN (CTMP)

11.6.7 The following measures would be implemented during the construction phase through the CTMP:

- Agree AIL route modifications and improvements with THC and TS. Works which would be required to facilitate turbine deliveries are outlined in the AIL RSR, which is presented as **Annex B** within **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**;
- Where possible, the detailed design process would minimise the volume of material to be imported to the 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;
- To guarantee continuous, unhindered access for concrete wagons, all non-essential HGV deliveries, general servicing trips, and off-Site material export operations would where practicable, be reduced and re-scheduled outwith the designated turbine foundation concrete pour days;
- All material delivery lorries (dry materials) would be sheeted to reduce dust and stop spillage on public roads;

- Specific training and disciplinary measures would 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, depending on the views of THC;
- Normal Site working hours would be limited to 07:00 and 19:00 Monday to Friday and 07:00 and 13:00 on Saturdays, with no construction work taking place on Sundays or Bank Holidays. Outside of these specified hours, maintenance works, emergency works and construction works would be limited to turbine erection, commissioning, maintenance, dust suppression and pouring of concrete foundations, unless otherwise approved in advance in writing by THC;
- Appropriate traffic management measures would be put in place on the B9176 and B817 and other local roads leading to the Site, to avoid conflict with general traffic, subject to the agreement of THC. Typical measures would include HGV turning and crossing signs and/or banksmen at the Site access and warning signs;
- Make staff associated with regular deliveries to the Site aware of any known issues on the proposed routes to the Site, for example locations with known safety issues or locations with a history of accidents, advising them to be extra vigilant and to adhere to posted speed limits;
- Construction updates would be provided on the project website, social media feeds and a newsletter and would be distributed to residents within an agreed distance of the Site;
- Adoption of voluntary reduced speed limits, for example on the B9176 and B817 at other locations to be agreed with THC;
- All drivers would 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

11.6.8 As part of the CTMP which would be provided post consent and secured by condition, an agreement to cover the cost of abnormal wear on the local road network would be required by THC. Video footage of the pre-construction phase condition of the abnormal loads route to Site and the construction vehicles route would be recorded to provide a baseline of the condition of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction phase. Any necessary repairs would be coordinated with THC's roads team. Any damage caused by traffic associated with the Proposed Development during the construction phase that would be hazardous to public traffic would be repaired immediately.

11.6.9 Damage to road infrastructure caused directly by construction traffic would be repaired and street furniture that is removed on a temporary basis would be fully reinstated.

11.6.10 There would be a regular road review, and any debris and mud would be removed from the carriageway using an on-Site road sweeper to ensure road safety for all road users.

AIL Transport Management Plan

11.6.11 An AIL Transport Management Plan would be prepared to cater for all movements to and from the Site, which would 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;
- A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic; and
- Proposals to establish a construction liaison committee to ensure the smooth management of the Proposed Development/public interface with the Applicant, the construction contractors, 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.

ADDITIONAL SPECIFIC AIL MITIGATION

11.6.12 There are a number of traffic management measures that can help reduce the effect of abnormal load convoys. All abnormal load deliveries would be undertaken at appropriate times (to be discussed and agreed with THC, TS and the Police) with the aim to reduce 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.

11.6.13 The majority of potential conflicts between construction traffic and other road users would 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.

11.6.14 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 B9176 and B817;
- 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.

11.6.15 Advance warning signs would be installed on the approaches to the affected road network. Information signage would 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).

11.6.16 The location and numbers of signs would be agreed post consent and would form part of the wider traffic management proposals for the Proposed Development.

11.6.17 Information on the wind turbine convoys would be provided to local media outlets such as local papers and local radio to help assist the public. Information would relate to expected vehicle movements from the port of entry through to the Site access. This would assist residents becoming aware of the convoy movements and may help reduce any potential conflicts.

PUBLIC INFORMATION

11.6.18 The Applicant would also ensure information is distributed through its communication team via the project website, local newsletters, and social media.

11.6.19 The information would inform the public of expected vehicle movements from the PoE through to the Main Vehicular Access Point. This would assist residents in understanding the timing of the convoy movements and may help reduce any potential conflicts.

CONVOY SYSTEM

11.6.20 A Police escort would be required to facilitate the delivery of the AILs. The Police escort would be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort would warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy would remain in radio contact as far as possible.

11.6.21 The AIL convoys are anticipated to 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.

11.6.22 The times in which the convoys would travel would need to be agreed with Police Scotland who have sole discretion on when loads can be transported.

Staff Travel Plan

11.6.23 A Staff Travel Plan would 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 would 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.

Outdoor Access Management Plan (OAMP)

11.6.24 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. A framework Outdoor Access Management Plan (OAMP) has been prepared and included as **Annex C** in **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**, while a full OAMP would be developed and secured via a planning condition. The commitments included in the OAMP are summarised as follows.

11.6.25 Users of the Core Paths/paths would be separated from construction traffic wherever possible. Crossing points would be provided where required, with path users having right of way and temporary diversions would be provided where necessary. Appropriate Traffic Signs Manual Chapter 8[18] compliant temporary road signage would be provided to assist at these crossings for the benefit of all users.

11.6.26 The principal contractor would be required to 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 would also be installed on approaches to areas where path users may interact with construction traffic.

11.6.27 Signage would 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 would also be emphasised in the weekly toolbox talks.

[18] https://assets.publishing.service.gov.uk/media/5a74adeaed915d7ab83b5ab2/traffic-signs-manual-chapter-08-part-01.pdf

11.6.28 A scoping response has been received from The British Horse Society, and it is proposed to implement measures used 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 would 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.

11.6.29 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.

11.6.30 The British Horse Society has previously recommended the following actions that would 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, 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.

11.7 Assessment of Likely Effects

Decommissioning of Novar 1 Wind Farm

11.7.1 Subject to the Proposed Development being granted planning consent, the decommissioning of the Novar 1 Wind Farm and the construction of the repowered wind farm would be undertaken over a Three-year combined decommissioning and construction programme. There may be some elements of the decommissioning works still being undertaken during the principal construction period; however, these would be minimal and less than the peak period of construction works assessed, as detailed below.

11.7.2 Based on the information provided in Technical Appendix 1.5: Outline Circular Decommissioning Strategy (EIAR Volume 4) and Chapter 3: Site Description and Proposed Development (EIAR Volume 2) on-Site infrastructure would be re-used or recycled where feasible during the construction of the repowered wind farm, with the exception of some other infrastructure and existing wind turbines components that would be left in situ or removed from Site. These would be dismantled and transported off-Site to be recycled. A detailed AIL RSR would be undertaken at the appropriate time, following confirmation on the final destination of wind turbine components.

11.7.3 With respect to traffic generation, decommissioning and construction activities are not expected to peak concurrently, with the decommissioning works including dismantling of the existing turbines preceding the 18-month principal construction period. Furthermore, should any decommissioning works be required during this time, the following would apply:

- Exclusion of concurrent movements on peak days: As set out in Section 6 of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)** and the Potential Construction Effects section within this chapter, peak daily traffic generation occurs during turbine foundation concrete pours (a total of 338 two-way movements). These require single, continuous operations occurring on only nine separate days across the entire construction programme. To maintain road capacity and operational safety, all other deliveries and non-essential movements, would be reduced where practicable outwith these specific days, including any decommissioning works, should they still be taking place at this time;
- Recycling efficiencies: The commitment to reclaim and reuse Novar 1 track aggregate and infrastructure in-situ where feasible, dramatically minimises the volume of material requiring off-Site export. Should any export of materials coincide generally with the principal construction period, opportunities for backhauling (making use of empty vehicles which have been used to make deliveries) would be maximised where practicable.

11.7.4 As decommissioning operations are explicitly restricted from occurring during the nine peak foundation pour days, and overall dismantling trips are substantially lower than during the principal construction period, the assessment presented in Section 11.7 remains the definitive worst-case scenario. A standalone assessment of concurrent peak decommissioning traffic is therefore scoped out.

Construction of Repowered Wind Farm

Potential Construction Effects

11.7.5 The assessment is based upon the construction effects that may occur within the Study Area during the construction of the repowered wind farm, which is estimated to take approximately 18 months (principal construction period) within the overall 3-year construction phase. To assess the effects, it is necessary to determine the likely traffic generation associated with the construction of the repowered wind farm during the peak month.

11.7.6 During the 18-month period when the construction of the repowered wind farm would take place, the following traffic would 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;
- AILs consisting of the wind turbine sections and heavy lift cranes; and
- Escort vehicles for AIL deliveries.

11.7.7 Average monthly traffic flow data has been used to establish the construction trips associated with the Proposed Development and these are detailed in **Section 6** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**. 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.

11.7.8 The likely PoE used for the discharging of wind turbine components would be the Port of Nigg. AILs would likely route to the Site via the B9175, A9, B9176 and B817 through to the Main Vehicular Access Point.

11.7.9 Except for the turbine components, most traffic would be HGVs and normal construction plant, including grading tractors, excavators, high-capacity cranes, forklifts and dumper trucks. Most would arrive at the Main Vehicular Access Point on low loaders.

11.7.10 The turbines are delivered in component sections for transport and would 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: Transport Assessment (EIAR Volume 4)**.

11.7.11 In addition to the turbine deliveries, up to two high-capacity erection cranes would 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 would be escorted by boom and ballast trucks to allow full mobilisation on-Site. A smaller erector/assist crane would also be present to allow the assembly of the main cranes and to ease overall erection of the turbines.

11.7.12 The resulting traffic generation profile is presented in Section 6 of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.

11.7.13 The peak of construction occurs in month seven and eight when there would be a total of 2,569 vehicle movements per month, which equates to approximately 118 two-way vehicle movements per day, comprising 92 two-way HGV movements and 26 two-way car/LGV movements. This would equate to just under ten total movements or approximately seven HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile, where traffic arrived and departed the site equally throughout the working day. This is in the scenario whereby 100% of aggregate materials for use on the Site is sourced from local suppliers.

11.7.14 In the scenario whereby 100% of aggregate material, is sourced from the on-Site borrow pit and from the re-use of materials sourced from the decommissioning of the existing Novar 1 Wind Farm, which is considered to be a more realistic scenario, there would be a total of 1,061 vehicle movements per month in the peak, which equates to an average of approximately 50 vehicle movements per day, comprising 24 two-way HGV movements and 26 two-way car/LGV movements.

11.7.15 Notwithstanding the above, those days on which turbine foundations would be poured, there would be a requirement for each base to be poured in a single, continuous operation, which would result in 310 two-way HGV movements (155 inbound trips and 155 outbound trips) per turbine. In addition, there would be approximately two additional HGV movements associated with general deliveries on foundation concrete pour days, however it would be proposed to re-schedule all other deliveries where practicable outwith this time to reduce the potential impact on the local road network. There would still be 26 two-way car/LGV movements associated with construction staff, resulting in a total of 338 two-way vehicle movements on turbine foundation concrete pour days.

11.7.16 It has been assumed that one pour per week would be undertaken, and as a worst-case assessment the day on which the turbine base is poured has been used within the following assessment. It should be noted that this scenario would occur a maximum of nine times over the principal 18-month construction period.

11.7.17 The distribution of development traffic on the network would vary depending on the types of loads being transported. Strategic access to the Site would be taken from the A9 to the southeast and northeast, with construction traffic routing through to the Site via the B9176 and B817. Where feasible, local materials would be sourced which would avoid traffic impacting on local communities as far as practicable. The assumptions for the distribution of construction traffic during the peak months are presented in **Section 6** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**.

11.7.18 Following the distribution and assignment of traffic flows to the Study Area network, the resultant daily traffic during the peak of construction on the concrete foundation pour day, is summarised in Table 11.13.

Table 11.13: Two-Way Peak Construction Traffic (concrete foundation pour day)				
No.	**Survey Location**	**Cars & Lights**	**HGV**	**Total**
1	B817, east of the proposed Main Vehicular Access Point	26	312	338
2	B9176, north of its junction with the A9	26	312	338
3	A9, east of the A9 / B9176 Junction	4	0	4
4	A9, north of Tain at Morangie	4	0	4
5	A9, between Poles and The Mound	4	0	4
6	A9, east of Ardullie Roundabout	26	312	338

11.7.19 The peak of construction activity (concrete foundation pour day) traffic data was combined with the future year (2029) traffic data to allow a comparison between the baseline results to be made.

11.7.20 The increase in traffic volumes is illustrated in percentage increases for each class of vehicle. This is illustrated in Table 11.14.

Table 11.14: 2029 Baseline + Construction Development – 12-Hour Flows and Impact							
No.	**Survey Location**	**Cars & LGV**	**HGV**	**Total Traffic**	**Cars & LGV % Increase**	**HGV % Increase**	**Total Traffic % Increase**
1	B817, east of the proposed Main Vehicular Access Point	1,623	533	2,156	1.6%	141.2%	18.6%
2	B9176, north of its junction with the A9	1,081	826	1,907	2.5%	60.7%	21.5%
3	A9, east of the A9/ B9176 Junction	8,405	1,929	10,334	0.0%	0.0%	0.0%
4	A9, north of Tain at Morangie	6,206	1,219	7,425	0.1%	0.0%	0.1%
5	A9, between Poles and The Mound	3,725	844	4,568	0.1%	0.0%	0.1%
6	A9, east of Ardullie Roundabout	10,817	2,696	13,513	0.2%	13.1%	2.6%

11.7.21 The total traffic movements are predicted to increase by a maximum of 21.5% on the B9176. This is not considered significant in traffic terms for roads within the Study Area. To put the increase into perspective, the road would see an additional 338 total vehicle movements per day or approximately 28 vehicle movements per hour over the course of a typical 12-hour shift. The rest of the Study Area would see total traffic increase by a maximum of 18.6%, which occurs on the B817 to the east of the proposed Main Vehicular Access Point.

11.7.22 With regards to HGV traffic, this is predicted to increase by 141.2% on the B817, which could be considered statistically high, however this is caused by the relatively low levels of

existing HGV traffic using the road. To put the increase into perspective, over the course of a typical 12-hour shift on Site, there would be an additional 312 HGV movements, which would equate to an additional 26 HGV movements per hour. The rest of the Study Area would see HGV traffic increase by a maximum of 60.7%, which occurs on the B9176, north of its junction with the A9.

11.7.23 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 11.15.

Table 11.15: 2029 Peak Traffic Flow Capacity Review

No.	Survey Location	2029 Baseline Flow	2029 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
1	B817, east of the proposed Main Vehicular Access Point	1,818	2,156	21,600	90.0%
2	B9176, north of its junction with the A9	1,569	1,907	28,800	93.4%
3	A9, east of the A9 / B9176 Junction	10,330	10,334	28,800	64.1%
4	A9, north of Tain at Morangie	7,421	7,425	28,800	74.2%
5	A9, between Poles and The Mound	4,564	4,568	28,800	84.1%
6	A9, east of Ardullie Roundabout	13,175	13,513	28,800	53.1%

11.7.24 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.

11.7.25 Based on the information provided in Table 11.14 and in accordance with the ISEP Guidelines Rules 1 and 2, the following receptors have been taken forward for detailed assessment:

- B817 Users (Medium Sensitivity);
- Residents along the B817 (Negligible Sensitivity);
- B9176 Users (Medium Sensitivity);
- Residents along the B9176 (Negligible Sensitivity);
- Evanton Residents (Medium Sensitivity);
- Core Path/Path Network (High Sensitivity); and
- NCN Users (High Sensitivity).

11.7.26 The significance of the potential effects on the above receptors has been determined using the rules and thresholds previously outlined in Criteria for Assessing Significance. Table 11.16 summarises the significance of the effect on the receptors for the construction phase following the implementation of embedded mitigation measures.

11.7.27 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, with the higher of the two sensitivities used for the assessment. Professional judgement has been applied to take account of all factors at each location, which can move the classification both up and down.

Table 11.16: Construction Phase Traffic Effects Summary

Receptor	Severance	Driver Delay	Pedestrian Delay	Non-motorised user Amenity	Fear & Intimidation	Road Safety	Large Loads
B817 Users & Residents (Medium Sensitivity)	Minor	Negligible	Minor	Minor	Minor	Minor	Minor
B9176 Users & Residents (Medium Sensitivity)	Minor	Negligible	Minor	Minor	Minor	Minor	Minor
Evanton Residents (Medium Sensitivity)	Minor	Negligible	Minor	Minor	Minor	Minor	Minor
Core Path/Path Network (High Sensitivity)	Minor	N/A	Minor	Minor	Minor	Minor	Minor
NCN Users (High Sensitivity)	Minor	N/A	Minor	Minor	Minor	Minor	Minor

*N/A: Non-motorised users are not subject to driver delay

11.7.28 The assessment suggests that following the implementation of embedded mitigation measures, namely the provision of CTMP, AIL TMP, Staff Travel Plan and an OAMP the potential for significant effects on the identified receptors can be avoided.

11.7.29 **No significant effects** are anticipated in respect of Traffic and Access impacts. The effects are all assessed to be minor or negligible and would occur during the construction phase only; they are temporary and reversible.

11.7.30 Furthermore, there are no road capacity issues with the addition of construction traffic associated with the Proposed Development and substantial spare capacity exists within the local and trunk road networks to accommodate all construction phase traffic.

Operation of Repowered Wind Farm

11.7.31 Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular monthly or weekly visits would be made to the repowered wind farm for maintenance checks. 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 have been scoped out of the assessment.

Potential Cumulative Effects

11.7.32 As detailed in **Section 5.6** of **Technical Appendix 11.1: Transport Assessment (EIAR Volume 4)**, there are four consented developments, which could potentially impact the roads within the Study Area in addition to the Proposed Development, namely:

- Garvary Wind Farm;
- Strath Tirry Wind Farm;

- Chleansaid Wind Farm; and
- Contullich Energy Storage Project.

11.7.33 The peak traffic flows from the consented developments have been obtained from the relevant planning application documents (see Table 11.17) and then compared to the future year baseline year (2029) on Table 11.18, should they be constructed concurrently.

Table 11.17: Combined Scheme Sensitivity Review Peak Traffic Summary													
No.	**Survey Location**	**Proposed Development**		**Garvary Wind Farm**		**Strath Tirry Wind Farm**		**Chleansaid Wind Farm**		**Contullich Energy Storage**		**Total**	
		Cars & LGV	**HGV**	**Cars & LGV**	**HGV**	**Cars & LGV**	**HGV**	**Cars & LGV**	**HGV**	**Cars & LGV**	**HGV**	**Cars & LGV**	**HGV**
1	B817, east of the proposed Main Vehicular Access Point	26	312	0	0	0	0	0	0	0	0	26	312
2	B9176, north of its junction with the A9	26	312	15	2	0	0	0	0	50	30	91	344
3	A9, east of the A9 / B9176 Junction	4	0	0	0	0	2	0	0	0	0	4	2
4	A9, north of Tain at Morangie	4	0	0	0	0	2	35	336	0	0	39	338
5	A9, between Poles and The Mound	4	0	15	2	0	2	17	168	0	0	36	172
6	A9, east of Ardullie Roundabout	26	312	0	0	0	2	35	336	50	30	111	680

Table 11.18: 2029 Baseline + Combined Scheme – 12-Hour Flows and Impact							
No.	**Survey Location**	**Cars & LGV**	**HGV**	**Total Traffic**	**Cars & LGV % Increase**	**HGV % Increase**	**Cars & LGV % Increase**
1	B817, east of the proposed Main Vehicular Access Point	1,623	533	2,156	1.6%	141.2%	18.6%
2	B9176, north of its junction with the A9	1,146	858	2,004	8.6%	66.9%	27.7%
3	A9, east of the A9 / B9176 Junction	8,405	1,931	10,336	0.0%	0.1%	0.1%
4	A9, north of Tain at Morangie	6,241	1,557	7,798	0.6%	27.7%	5.1%
5	A9, between Poles and The Mound	3,757	1,016	4,772	1.0%	20.4%	4.6%
6	A9, east of Ardullie Roundabout	10,902	3,064	13,966	1.0%	28.5%	6.0%

11.7.34 Table 11.18 shows that there are increases in total and HGV flows when considering all schemes being constructed concurrently compared to the percentage increases associated with the Proposed Development being constructed alone (see Table 11.14).

11.7.35 Based on the road capacity results shown in Table 11.18 and comparing these to the capacity results for the Proposed Development only in Table 11.15, 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.

11.7.36 Should the other schemes be constructed at the same time as the Proposed Development, the Proposed Development's proportional contribution to the overall road network volumes would reduce, and the total cumulative volumes remain well within theoretical link capacities. As such no increase in the significance of effect is anticipated.

11.7.37 Furthermore, it is predicted that the potential traffic flow increases would be unlikely to 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;
- AIL deliveries are highly unlikely to occur on 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; and
- Schemes that have already secured consent are expected to precede the Proposed Development in their construction timelines, given the latter's current status within the consenting regime.

11.7.38 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 THC to ensure appropriate traffic management measures would be implemented to reduce any cumulative effects. In the unlikely event of all the sites 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 THC and Police Scotland.

11.8 Additional Mitigation and Enhancement Measures

11.8.1 Based on the above, no additional mitigation measures or enhancement measures are required.

11.9 Significant Residual Effects

Residual Construction Effects

11.9.1 Following the implementation of a comprehensive CTMP, together with on-Site route signage, AIL TMP, Staff Travel Plan and an OAMP, all effects would be negligible or 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.

11.10 Monitoring

Construction Phase Monitoring

11.10.1 No monitoring is required out with the standard measures included with the CTMP.

Operational Phase Monitoring

11.10.2 During the operational life of the Proposed Development, regular maintenance would be undertaken to keep the Site Internal Track drainage systems fully operational and to ensure there are no run-off issues onto the public road network.

11.11 Summary of Significant Residual Effects

11.11.1 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 negligible or minor and would occur during the construction phase only; they are temporary and reversible.