SSEN Transmission

Bingally 400 / 132 kV Substation

Environmental Appraisal

Volume 1

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Scottish & Southern Electricity Networks
TRANSMISSION

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11 TRAFFIC, TRANSPORT AND ACCESS

11.1 Introduction

11.1.1 With reference to **Volume 1, Chapter 1 Introduction and Background, Section 1.1.10**, this Voluntary EA has been prepared based on the structure and assessment methodology of an EIA. This overall report, however, is a Voluntary EA Report and is not carried out under the EIA Regulations.

11.1.2 This chapter considers the potential for significant traffic and vehicle movement environmental effects resulting from the Proposed Development (as defined within **Volume 1, Chapter 1**). It considers traffic and transport effects in accordance with IEMA Guidelines: Environmental Assessment of Traffic and Movement[1]. This chapter is supported by **Volume 3**, **Appendix K Transport Statement**.

11.2 Assessment Methodology and Significance Criteria

Scope of the Assessment

11.2.1 The assessment considers the potential environmental effects of road traffic during the construction phase of the Proposed Development lifespan as identified in **Volume 1, Chapter 3 Description of the Proposed Development**. Operational and decommissioning stages have not been considered in this assessment. It is considered that the operational phase of the Proposed Development would generate traffic numbers which would not have a material impact on the local road network. The Proposed Development will operate in perpetuity and decommissioning is not considered. It is therefore considered that an assessment of the construction phase of the Proposed Development presents a worst-case scenario.

11.2.2 The construction phase assessment considers construction traffic movements associated with delivery of plant and equipment, materials management, construction of the proposed access track, compound areas and substation and construction workforce movements.

11.2.3 The construction traffic programme has been obtained from the Construction Traffic Management Plan prepared by the Applicant's contractors Siemens Energy and BAM. Month 9 (September) of 2027 is the busiest forecasted period for Proposed Development traffic. This time period has been adopted for the purposes of the environmental assessment of traffic and movement. **Volume 3, Appendix K Transport Statement** contains the detailed calculation of forecast Proposed Development construction traffic.

Extent of the Study Area

11.2.4 The Study Area encompasses the public road network in the vicinity of the junction for the proposed access track which are considered likely to be used by construction related traffic. Study Area roads are shown on **Volume 2, Figure 11-1.** Study Area roads include the A831 to the east and west of the proposed access track. To the east, the A831 connects to the trunk road network (A82) at Drumnadrochit. To the west of the proposed access track, the A831 through Cannich and then north of Cannich towards Beauly are also included. Main Street in Cannich is included as a road within the Study Area due to the presence of facilities

[1] IEMA (2023) New IEMA Guidance: *Environmental Assessment of Traffic and Movement* (Online) Available from: IEMA - New IEMA Guidance: Environmental Assessment of Traffic and Movement

such as accommodation and local shops which may be used by construction staff. Main Street would not carry any HGV construction traffic for the Proposed Development.

Method of Baseline Data Collation

11.2.5 A traffic baseline is derived from 2024 survey data. The location, type and results from the traffic surveys are provided in **Volume 3, Appendix K Transport Statement** and shown in **Volume 2, Figure 11-2**. In summary, the following traffic surveys were undertaken.

- A831 – 4 Automatic Traffic Counter surveys and one junction turning count survey; and
- Main Street – One Automatic Traffic Counter survey.

11.2.6 Department for Transport (DfT) Recorded injury accident data was obtained from the online Crashmap (www.crashmap.co.uk[2]) database which classifies accidents by location and severity.

Assessment Modelling

11.2.7 The assessment methodology follows the IEMA Guidelines 2023[1]. Rule 1 and Rule 2 from the IEMA Guidelines[1] are used to identify roads to be included in the environmental assessment:

- Rule 1 - Include highway links where traffic flows will increase by more than 30 % (or the number of HGVs will increase by more than 30 %); and
- Rule 2 – Include any other specifically sensitive areas where traffic flows have increased by 10 % or more.

11.2.8 The IEMA Guidelines[1] 30 % threshold is based on research and experience of the environmental effects of traffic, with less than a 30 % increase in traffic generally resulting in imperceptible changes in environmental effects apart from within specifically sensitive areas. The IEMA Guidelines[1] consider that forecast changes in traffic of less than 10 % in specifically sensitive areas creates no discernible environmental effect, hence the second threshold set out in Rule 2.

Determining Magnitude of Change and Sensitivity of Receptors

11.2.9 For magnitude of change, the IEMA Guidelines[1] describe those changes in average annual weekday traffic (AAWT) of 30 %, 60 % and 90 % should be considered as ‘slight’, ‘moderate’ and ‘substantial’ respectively. **Table 11-1** reflects the IEMA Guidelines[1] to quantify the magnitude of change resulting from Proposed Development construction traffic.

Table 11-1 Magnitude of Change

Magnitude of Change	Change in Traffic (AAWT)	Description
High	90 %+	Alteration to baseline conditions such that post development character or composition of baseline condition fundamentally changed.
Medium	60 % - 90 %	Alteration to baseline conditions such that post development character or composition of baseline condition materially changed.
Low	30 % - 60 %	Minor shift from baseline conditions such that post development character or composition of baseline condition remains similar to baseline and not materially changed.
Negligible	0 % - 30 %	Very little change from baseline conditions. Change is barely distinguishable approximating to no-change situation.

[2] CrashMap (2022) *CrashMap Data: Great Britain 1999 – 2022.* Available at https://www.crashmap.co.uk/Search

11.2.10 Receptors are locations or land-use types categorised by sensitivity or environmental value. **Table 11-2** describes the receptor sensitivity adopted for the assessment of Proposed Development traffic.

Table 11-2 Sensitivity of Receptors

Receptor Sensitivity	Description
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.
High	The receptor has low ability to absorb change without fundamentally altering its present character, is of high environmental value, or of international importance.
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value or is of regional importance.
Low	The receptor is tolerant of change without detriment to its character, is low environmental value, or local importance.
Negligible	The receptor is resistant to change and is of little environmental value.

11.2.11 For the purposes of assessment, receptors are identified in accordance with IEMA Guidelines[1], including;

- People at home;
- People at work;
- Sensitive and/or vulnerable groups (including young age; older age; income; health status; social disadvantage; and access and geographic factors);
- Locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools);
- Retail areas;
- Recreational areas;
- Tourist attractions;
- Collision clusters and routes with road safety concerns; and
- Junctions and highway links at (or over capacity).

11.3 Sensitive Receptors

11.3.1 **Volume 3, Appendix K Transport Statement** provides an assessment of Study Area roads and the sensitivity of the IEMA Guideline[1] receptors that may be present on those roads. **Table 11-3** summarises the sensitivity of Study Area roads as environmental receptors.

Table 11-3 Study Area Roads Sensitivity of Receptors

Road	Description	Sensitivity
A831 Drumnadrochit to Site Access	Single carriageway with national speed limit of 60 mph. Rural road between the proposed site access track and the trunk road network (A82). Some residential frontage in small villages to the east including Drumnadrochit. No active travel facilities.	Medium
A831 Site Access to Cannich	Single carriageway with national speed limit of 60 mph. Rural road connecting the site	Negligible

Road	Description	Sensitivity
	access track to the village of Cannich to the west. No direct frontage in vicinity of the site access track. No active travel facilities.	
A831 Cannich Village	Single carriageway with 40 mph speed limit which reduces to 30 mph in vicinity of A831 / Main Street junction. Some residential frontage on the south side. Footways also located on south of carriageway. Street lighting present.	Medium
A831 North of Cannich	Single carriageway with national speed limit of 60 mph. Reduced to single track road with passing places in sections to the north. Limited direct residential frontage and no active travel facilities. Part of A831 – Cannich to Struy Strategic Timber Transport Scheme.	Low
Main Street Cannich to Fasnakyle Substation	Single carriageway with a speed limit of 30 mph. Direct residential frontage with footways on east side of carriageway. Primary School and retail properties also with direct frontage.	Medium

11.3.2 For traffic generated by the Proposed Development the significance of environmental effect is derived from a combination of the Magnitude of Change and the Sensitivity of Receptor. **Table** 11-4 summarises the approach to deriving the significance of effects. Note: Table shading indicates likely significant effect subject to assessor's professional judgment.

Table 11-4 Significance of Effects

Magnitude of Change	Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

11.3.3 The reporting of significance of environmental effects will also include:

- Temporary – where the effect occurs for a limited period of time and the change at a defined receptor can be reversed;
- Permanent – where the effect represents a long-lasting change at a defined receptor which is not reversable;
- Short-term / Medium-term / Long-term;
- Direct – where the effect is a direct result (or primary effect) of the Proposed Development;
- Indirect – a secondary effect which occurs within or between environmental components. This may include effects on the environment which are not a direct result of the Proposed Development, often occurring away from the Proposed Development as a result of a complex interactions with other environmental factors;

- Secondary – an induced effect arising from the actions or presence of a project, such as changes to the pattern of future land use or improvements to local road networks;
- Beneficial – an effect beneficial to one or more environmental receptors; and
- Adverse – a detrimental, or negative, effect on one or more environmental receptors.

11.3.4 The potential environmental effects of traffic, transport and access considered in this assessment of the Proposed Development are:

- Severance of communities – the perceived division that can occur when it becomes separated by a major traffic route (existing or proposed);
- Fear and Intimidation on and by road users – the effect on the perceived vulnerability of pedestrian traffic relating to changes in traffic flows and or speed;
- Road user and pedestrian safety – the potential for effects on rate and severity of accidents relating to changes in traffic flows;
- Non-motorised Amenity – broadly defined as the relative pleasantness of a pedestrian or cycle journey. The potential for effects relates to changes in traffic flows;
- Non-motorised User Delay – the effect on travel time. The potential for effects relates to changes in traffic flow;
- Road vehicle driver and passenger delay - the effect on travel time. The potential for effects relates to changes in traffic flow, noting that road and junction vehicle capacity assessments are not part of this assessment; and
- Hazardous / Large Loads.

11.3.5 Consideration is given to large / hazardous loads in accordance with IEMA Guidelines as follows.

11.3.6 There will be a requirement for two transformers to be transported to site. These transformers will be Abnormal Indivisible Loads (AIL) and be transported using Special Types General Order (STGO) regulations. The protocols for AIL transport to site require roads authorities and emergency services notifications and approvals to ensure the safe and efficient movement of AIL to the site. A specialist heavy haulage contractor will be appointed for the transport of AIL and all relevant studies and approvals will be made.

11.3.7 Once in situ the transformers will require to be filled with oil. The oil will be transported to site by tanker. An appropriate tanker haulage contractor would deliver the oil to site in accordance with the relevant Carriage of Dangerous Goods (CDG) regulations. Regarding oil and the environmental assessment of hazardous loads, IEMA Major Accidents and Disaster in EIA, September 2020, provides guidance on scoping hazardous loads in or out of environment assessments. The IEMA scoping decision process states that if existing design measures or legal requirements, codes and standards adequately control the potential risks associated with hazardous loads then the topic may be scoped out. The transport of oil by tanker on UK roads is commonplace, particularly in rural areas for domestic fuel purposes, and is comprehensively covered in relevant CDG regulations. The number of tanker movements required to fill the transformers with oil is likely to be minimal (estimated 4 35,000 litre HGV tankers) and as such hazardous loads are scoped out of the assessment.

11.4 Baseline Conditions

Future Baseline

11.4.1 Vehicle access to the proposed Bingally substation would utilise an existing access track, created for the installation of the original Beauly-Denny OHL with the addition of an off-line section where the original track was previously reinstated. The existing access track will require widening and extending as part of the Proposed Development. The proposed access

track is accessed from the existing public road network from the A831. Study Area roads would include the A831 and Main Street in Cannich.

11.4.2 The A831 routes past the junction of the proposed access track in an east to west direction between the easterly point at the A82 at Drumnadrochit and west at Cannich. To the west of Cannich, the A831 then routes north to south between Cannich and Beauly. It is a single carriageway road which is predominantly rural in nature. National speed limits apply to the A831 outside of the urban environs on its route, and a 40 mph speed limit applies through Cannich with a short 30 mph section at the A831 / Main Street junction.

11.4.3 Main Street routes north to south parallel to the River Glass, providing access to the existing Fasnakyle Substation. National speed limits of 60 mph apply to the route outside of urban environs on its route which is largely rural in nature.

11.4.4 Current traffic conditions on Study Area roads were established by the traffic surveys undertaken in June 2024.

11.4.5 The 2024 traffic data provides information on current vehicle flows as well as speeds and is used to inform the baseline traffic position for the environmental assessment of traffic and movement. The 2024 traffic data has had a growth factor applied to arrive at a true baseline position for when construction is due to commence in 2025 and peak in 2027. This provides a robust assessment in terms of applying IEMA Guidelines 2023 Rule 1 and Rule 2 to determine which roads should be included in the environmental assessment.

Table 11-5 shows the 2024 baseline traffic data collected for Study Area roads.

Table 11-5 2024 Traffic Survey Data

Road	Daily Weekday Traffic (Two-Way)		
	Car & LGV	HGV	Total
A831 Site Drumnadrochit to Site Access	634	2	636
A831 Site Access to Cannich	645	2	647
A831 Cannich Village	647	6	653
A831 North of Cannich	413	5	418
Main Street Cannich to Fasnakyle Substation	695	4	699

11.4.6 DfT accident data has been sourced (via Crashmap[2]) for the five-year period 2018-2022. On Study Area roads this data shows no fatal, serious, or slight injury accidents being reported. This data is proposed to be taken as the baseline position on injury accidents for the environmental assessment of traffic and movement.

11.4.7 Vehicle traffic generated by the construction of the Proposed Development may potentially affect other public road traffic as follows; non-motorised traffic including pedestrians, cyclists and core path users, and other vehicular traffic including freight, public transport and emergency service vehicles.

11.5 Proposed Development Construction Traffic

11.5.1 The proposed construction traffic route uses the A831 between the A82 at Drumnadrochit and the junction of the proposed access track. The proposed access track would consist of an 9.5 km purpose-built track to be used exclusively for construction traffic related to the Proposed Development. It is proposed that HGV construction traffic would travel east from Drumnadrochit and return the same way. It would therefore not enter the town of Cannich. However, although unlikely, it is possible that Car / Light Goods Vehicle (LGV) traffic would

use the A831 west of the proposed access track and it has therefore been assumed to be present on all Study Area roads.

11.5.2 It is unknown at the time of assessment where construction personnel would be accommodated. It has therefore been assumed that Car / LGV movements associated with the Proposed Development would occur on all Study Area roads. Car / LGV arrivals will park in a 188 space car park located in the Temporary Compound 5 located approximately 1 km south of the Site entrance. Temporary Compound 5 will also include welfare facilities and storage containers for staff use. Construction of the car park will take place during the first six months of the construction programme, allowing staff to park at the compound for the duration of construction.

11.5.3 **Volume 2, Figure 11-2** shows the proposed construction traffic routes for HGV and Car / LGV movements.

11.5.4 Forecast construction traffic data for the Proposed Development was obtained from data provided by the Applicant. The construction period for the Proposed Development is anticipated to begin in September 2025 and last approximately 56 months. The construction traffic data encompasses the entirety of the proposed works and includes deliveries of plant and materials associated with the site access track upgrades, civils works, mechanical and electrical works and commissioning of the substation.

11.5.5 During the identified peak month of construction traffic for the Proposed Development, it is forecast that there would be 226 daily HGV movements during September 2027 and 378 Car / LGV movements on Study Area roads. To reiterate, for the purpose of assessment, HGV construction traffic would only appear on the A831 between the A82 and the proposed access track while Car / LGV traffic has been assumed to appear on all Study Area roads.

11.6 Assessment of Effects, Mitigation and Residual Effects

11.6.1 **Table 11-6** compares forecast Proposed Development construction traffic against baseline traffic to determine which roads must be included in the environmental assessment in accordance with IEMA Guidelines Rule 1 or Rule 2. Roads to be included in the environmental assessment are marked ‘Yes’ or ‘No’. 2027 Baseline traffic is 2024 surveyed traffic growth to 2027 using TEMPro (Low Growth) and adjusted for seasonal variation between June (month of 2024 surveys) and September (peak month for 2027 construction).

Table 11-6 IEMA Guidelines Roads to be Included in Environmental Assessment

Road	2027 Baseline		Proposed Development		% Increase (%)		Environmental Assessment
	HGV	All Vehicles	HGV	All Vehicles	HGV	All Vehicles	
A831 Site Drumnadrochit to Site Access	2	635	226	604	11,639	95	Yes
A831 Site Access to Cannich	2	646	0	378	0	59	Yes
A831 Cannich Village	6	652	0	378	0	58	Yes
A831 North of Cannich	5	417	0	378	0	91	Yes

Road	2027 Baseline		Proposed Development		% Increase (%)		Environmental Assessment
	HGV	All Vehicles	HGV	All Vehicles	HGV	All Vehicles	
Main Street Cannich to Fasnakyle Substation	4	698	0	378	0	54	Yes

11.6.2 **Table 11-6** shows that all five Study Area roads require environmental assessment.

Severance of Communities

11.6.3 **Table 11-7** presents the significance of effect on the severance of communities as a result of Proposed Development construction traffic. The significance of effects for severance are based on an assessment of all traffic in accordance with the IEMA Guidelines 2023[1].

Table 11-7 Severance of Communities Significance of Effect

Road	% Change in Total Traffic (%)	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	95	High	Medium	Moderate
A831 Site Access to Cannich	59	Medium	Negligible	Negligible
A831 Cannich Village	58	Medium	Medium	Moderate
A831 North of Cannich	91	High	Low	Moderate
Main Street Cannich to Fasnakyle Substation	54	Medium	Medium	Moderate

11.6.4 Classifying the significance of effects prior to mitigation, the likely significance of effects of construction traffic on severance of communities would be a direct, temporary, **Moderate Adverse (Significant)** effect.

11.6.5 For severance of communities, the likely significance of effects on the A831, east of Cannich, through Cannich Village and north of Cannich is considered moderate. The likely significance of effects on Main Street would also be considered moderate. HGV construction traffic for the Proposed Development would not be routed along these roads and therefore the anticipated significance of effects would be due to additional Car / LGV traffic generated by the Proposed Development.

Fear and Intimidation on and by Road Users

11.6.6 **Table 11-8** presents the significance of effect on fear and intimidation on and by road users resulting from the anticipated Proposed Development construction traffic. Using IEMA Guideline's methodology for fear and intimidation magnitude of change, there would be no

step change in traffic flows from baseline conditions. The significance of effects are based on an assessment of all traffic in accordance with the IEMA Guidelines 2023[1].

Table 11-8 Fear and Intimidation on and by Road Users Significance of Effect

Road	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	Negligible	Medium	Negligible
A831 Site Access to Cannich	Negligible	Negligible	Negligible
A831 Cannich Village	Negligible	Medium	Negligible
A831 North of Cannich	Negligible	Low	Negligible
Main Street Cannich to Fasnakyle Substation	Negligible	Medium	Negligible

11.6.7 Classifying the significance of effects prior to mitigation, the likely significance of effects of construction traffic for fear and intimidation on and by road users is a direct, temporary, **Negligible (Not Significant)** effect.

11.6.8 For fear and intimidation on and by road users the likely significance of effects for all Study Area roads carrying construction traffic would be negligible.

Road User and Pedestrian Safety

11.6.9 **Table 11-9** presents the significance of effect on road user and pedestrian safety as a result of construction traffic serving the Proposed Development. A forecast increase in accidents resulting from the presence of construction traffic on Study Area roads is used to establish a magnitude of change. **Volume 3, Appendix K Transport Statement** contains the construction traffic accident forecast for the Proposed Development. The significance of effects for road user and pedestrian safety are based on an assessment of all traffic in accordance with the IEMA Guidelines 2023[1].

Table 11-9 Road User and Pedestrian Safety Significance of Effect

Road	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	Negligible	Medium	Negligible
A831 Site Access to Cannich	Negligible	Negligible	Negligible
A831 Cannich Village	Negligible	Medium	Negligible
A831 North of Cannich	Negligible	Low	Negligible
Main Street Cannich to Fasnakyle Substation	Negligible	Medium	Negligible

11.6.10 Classifying the significance of effects prior to mitigation, the likely significance of effects of construction traffic on road user and pedestrian safety would be a direct, temporary, **Negligible (Not Significant)** effect.

11.6.11 For road user and pedestrian safety, the likely significance of effects for all Study Area roads carrying construction traffic would be negligible.

Non-Motorised User Amenity and Non-Motorised User Delay

11.6.12 **Table 11-10** presents the significance of effect on non-motorised user amenity and delay as a result of Proposed Development construction traffic. The magnitude of change for these environmental effects is based on the same 30%, 60% and 90% changes in traffic flow used for severance of communities. The significance of effects for severance are based on an assessment of all traffic in accordance with the IEMA Guidelines 2023[1].

Table 11-10 Non-Motorised User Amenity and Delay

Road	% Change in Total Traffic (%)	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	95	High	Medium	Moderate
A831 Site Access to Cannich	59	Medium	Negligible	Negligible
A831 Cannich Village	58	Medium	Medium	Moderate
A831 North of Cannich	91	High	Low	Moderate
Main Street Cannich to Fasnakyle Substation	54	Medium	Medium	Moderate

11.6.13 Classifying the significance of effects prior to mitigation, the likely significance of effects of construction traffic on non-motorised user amenity and delay is a direct, temporary, **Moderate Adverse (Significant)** effect.

11.6.14 For non-motorised user amenity and delay, the likely significance of effects on the A831, east of Cannich through Cannich Village and north of Cannich is considered moderate. The likely significance of effects on Main Street is also considered moderate. HGV construction traffic for the Proposed Development would not be routed along these roads and therefore the significance of effects would be a result of additional Car / LGV traffic generated by the Proposed Development.

Road Vehicle and Passenger Delay

11.6.15 **Table 11-11** presents the significance of effect on road vehicle and passenger delay as a result of Proposed Development construction traffic. The magnitude of change for these environmental effects is based on the same 30%, 60% and 90% changes in traffic flow used

for severance of communities. The significance of effects for severance are based on an assessment of all traffic in accordance with the IEMA Guidelines 2023[1].

Table 11-11 Road User and Passenger and Delay

Road	% Change in Total Traffic (%)	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	95	High	Medium	Moderate
A831 Site Access to Cannich	59	Medium	Negligible	Negligible
A831 Cannich Village	58	Medium	Medium	Moderate
A831 North of Cannich	91	High	Low	Moderate
Main Street Cannich to Fasnakyle Substation	54	Medium	Medium	Moderate

11.6.16 Classifying the significance of effects prior to mitigation, the likely significance of effects of construction traffic on road vehicle and passenger delay is a direct, temporary, **Moderate Adverse (Significant)** effect.

11.6.17 For road vehicle and passenger delay the significance of effects on the A831 east of Cannich, through Cannich Village and north of Cannich is considered moderate. The likely significance of effects on Main Street is also considered to be moderate. HGV construction traffic for the Proposed Development would not be routed along these roads and therefore the significance of effects would be a result of additional Car / LGV traffic generated by the Proposed Development.

Mitigation by Design

11.6.18 A CTMP will be in place throughout the duration of the construction programme. **Appendix K Transport Statement** contains a draft CTMP. A detailed CTMP which will include the following topic will be provided once a principal contractor is appointed:

- Location of the Site and the entry / exit arrangements from public roads;
- Traffic routeing plans – defining the routes to be taken by HGVs to the Site avoiding sensitive locations;
- Construction traffic hours and delivery times;
- Strategy for traffic management and measures for informing construction traffic of local access routes, road restrictions (statutory limits: width, height, axle loading and gross weight), timing restrictions (if applicable) and where access is prohibited;
- Measures to protect the public roads (e.g. wheel wash facilities and regular inspection of road condition throughout the construction phase);
- Measures for the monitoring compliance with the CTMP by drivers and appropriate actions in the event of non-compliance;
- Mechanism for responding to traffic management issues arising during the works (including concerns raised from the public) including a joint consultation approach with relevant road authorities; and
- Staff Travel Plan designed to reduce the number of staff Car / LGV trips to and from Site.

Residual Effects

11.6.19 Following the implementation of mitigation as described in **Section 11.6.17** and **Section 11.6.18**, residual environmental effects are forecast as follows:

Severance of Communities

11.6.20 The sensitivity of receptors on Study Area roads would be unchanged. Mitigation would reduce the previously reported High magnitude of change to Medium. Therefore, the effect on severance following mitigation would be a direct temporary **Minor Adverse (Not Significant)** effect.

Fear and Intimidation on and by Road Users

11.6.21 The sensitivity of receptors on Study Area roads would be unchanged. Mitigation would reinforce the previously reported magnitude of change. Therefore, the effect on fear and intimidation on and by road users following mitigation would remain a direct temporary **Negligible (Not Significant)** effect.

Road Vehicle and Pedestrian Safety

11.6.22 The sensitivity of receptors on Study Area roads would be unchanged. Mitigation would reinforce the previously reported magnitude of change. Therefore, the effect on road vehicle and pedestrian safety following mitigation would remain a direct temporary **Negligible (Not Significant)** effect.

Non-motorised User Amenity

11.6.23 The sensitivity of receptors on Study Area roads would be unchanged. Mitigation would reduce the previously reported High magnitude of change to Medium. Therefore, the effect on non-motorised user amenity following mitigation would be a direct temporary **Minor Adverse (Not Significant)** effect.

Non-motorised User Delay

11.6.24 The sensitivity of receptors on Study Area roads would be unchanged. Mitigation would reduce the previously reported High magnitude of change to Medium. Therefore, the effect on non-motorised user delay following mitigation would be a direct temporary **Minor Adverse (Not Significant)** effect.

Driver Delay

11.6.25 The sensitivity of receptors on Study Area roads will be unchanged. Mitigation would reduce the previously reported High magnitude of change to Medium. Therefore, the effect on driver delay following mitigation would be a direct temporary **Minor Adverse (Not Significant)** effect.

11.7 Cumulative Effects

11.7.1 The cumulative assessment considers the effects from the Proposed Development, the proposed Bingally OHL, and the other cumulative developments identified in **Volume 1, Chapter 5 EA Approach and Methodology**. The Proposed Development and the proposed

Bingally OHL would use the same access route from the A831, and the same Study Area road network.

11.7.2 The cumulative peak period has been determined by combining the construction traffic forecasts of the Proposed Development and proposed Bingally OHL. This identified a worst-case scenario in terms of development traffic on which to base the cumulative assessment.

11.7.3 September 2027 was identified as the cumulative peak month. September 2027 has therefore been used as the month for cumulative assessment despite the proposed Bingally OHL generating no construction traffic during this month.

11.7.4 The cumulative assessment includes the developments listed in **Volume 1, Chapter 5 EA Approach and Methodology**. A review of the applications detailed in **Table 5-1** shows that many are at Scoping / Screening stage and do not have construction traffic forecasts available. Knowledge of similar projects has been used to make a forecast of construction traffic for each cumulative development site. For the purposes of the cumulative assessment, cumulative development site traffic is also assumed to occur in September 2027.

11.7.5 The routing of construction traffic for cumulative sites has been considered based on the locations of the respective developments. **Table 11-12** shows how cumulative development construction traffic forecasts have been distributed on study area roads. It should be noted that the Tomchrasky Wind Farm OHL Connection is not expected to use any study area roads for construction and therefore none of its traffic appears in **Table 11-12**.

Table 11-12 Distribution of Cumulative Development Traffic on Study Area Roads

Development	Vehicle Type	Study Area Roads				
		A831 Drumnadrochit to proposed Bingally substation access track	A831 proposed Bingally substation access track to Cannich	A831 Cannich Village	A831 North of Cannich	Main Street Cannich to Fasnakyle Power Station
Bingally OHL	HGV	0	0	0	0	0
	Car / LGV	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**
Proposed Development	HGV	226	0	0	0	0
	Car / LGV	378	378	378	378	378
	Total	**604**	**378**	**378**	**378**	**378**
Bingally to Fasnakyle UGC / OHL connection	HGV	4	4	4	0	4
	Car / LGV	47	47	47	47	47
	Total	**51**	**51**	**51**	**47**	**51**
Tomchrasky Wind Farm OHL Connection	HGV	0	0	0	0	0
	Car / LGV	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**
Fiodhag Wind Farm	HGV	162	0	0	0	0
	Car / LGV	60	60	60	60	60
	Total	**222**	**60**	**60**	**60**	**60**
	HGV	18	18	18	0	18

Development	Vehicle Type	Study Area Roads				
		A831 Drumnadrochit to proposed Bingally substation access track	A831 proposed Bingally substation access track to Cannich	A831 Cannich Village	A831 North of Cannich	Main Street Cannich to Fasnakyle Power Station
Fasnakyle Energy Storage (23/04100/FUL)	Car / LGV	30	30	30	30	30
	Total	**48**	**48**	**48**	**30**	**48**
Kerrow Farm BESS (23/01025/SCRE)	HGV	18	18	18	0	18
	Car / LGV	30	30	30	30	30
	Total	**48**	**48**	**48**	**30**	**48**
Chrathaich Wind Farm	HGV	70	0	0	0	0
	Car / LGV	24	24	24	24	24
	Total	**94**	**24**	**24**	**24**	**24**
Erection of OHL	HGV	2	2	2	0	2
	Car / LGV	23	23	23	23	23
	Total	**25**	**25**	**25**	**23**	**25**
Cnoc Farasd Wind Farm	HGV	70	0	0	0	0
	Car / LGV	24	24	24	24	24
	Total	**94**	**24**	**24**	**24**	**24**
Total	**HGV**	**574**	**42**	**42**	**0**	**42**
	Car / LGV	**663**	**663**	**663**	**663**	**663**
	Total	**1237**	**705**	**705**	**663**	**705**

11.7.6 **Table 11-13** shows which study area roads should be included within the cumulative environmental assessment.

Table 11-13 IEMA Guidelines Roads to be Included in Environmental Assessment

Road	Baseline		Cumulative Development		% Change		Included in EA (Yes / No)
	HGV	All Vehicles	HGV	All Vehicles	HGV	All Vehicles	
A831 Site Drumnadrochit to Site Access	2	654	574	1,237	27,710%	181%	Yes
A831 Site Access to Cannich	2	665	42	705	2,042%	99%	Yes
A831 Cannich Village	6	672	42	705	681%	98%	Yes
A831 North of Cannich	5	430	0	663	0%	143%	Yes

Road	Baseline		Cumulative Development		% Change		Included in EA (Yes / No)
	HGV	All Vehicles	HGV	All Vehicles	HGV	All Vehicles	
Main Street Cannich to Fasnakyle Substation	4	719	42	705	1,021%	92%	Yes

11.7.7 **Table 11-13** shows that all Study Area roads must be included within the cumulative environmental assessment.

Severance of Communities

11.7.8 **Table 11-14** presents the significance of effects on the severance of communities as a result of cumulative developments.

Table 11-14 Severance of Communities Significance of Effect

Road	% Change in Total Traffic (%)	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	181%	High	Medium	Moderate
A831 Site Access to Cannich	99%	High	Negligible	Minor
A831 Cannich Village	98%	High	Medium	Moderate
A831 North of Cannich	143%	High	Low	Moderate
Main Street Cannich to Fasnakyle Substation	92%	High	Medium	Moderate

11.7.9 Classifying the significance of effects prior to mitigation, the likely significance of effects of construction traffic on severance of communities would be a direct, temporary, **Moderate Adverse (Significant)** effect.

11.7.10 For severance of communities the significance of effects on the A831 east of Cannich, through Cannich Village and north of Cannich is considered moderate. The likely significance of effects on Main Street is also considered moderate. HGV construction traffic for the

Proposed Development would not be routed along these roads and therefore the significant effect would be a result of additional Car / LGV traffic generated by cumulative developments.

Fear and Intimidation on and by Road Users

11.7.11 **Table 11-15** presents the significance of effect on fear and intimidation on and by road users as a result of cumulative development construction traffic.

Table 11-15 Fear and Intimidation on and by Road Users Significance of Effect

Road	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	Negligible	Medium	Negligible
A831 Site Access to Cannich	Negligible	Negligible	Negligible
A831 Cannich Village	Negligible	Medium	Negligible
A831 North of Cannich	Negligible	Low	Negligible
Main Street Cannich to Fasnakyle Substation	Negligible	Medium	Negligible

11.7.12 Classifying the significance of effects prior to mitigation, the likely significance of effects of construction traffic for fear and intimidation on and by road users would be a direct, temporary, **Negligible (Not Significant)** effect.

11.7.13 For fear and intimidation on and by road users the significance of effects for all Study Area roads carrying cumulative construction traffic would be negligible.

Road User and Pedestrian Safety

11.7.14 **Table 11-16** presents the significance of effect on road user and pedestrian safety as a result of cumulative development construction traffic.

Table 11-16 Road User and Pedestrian Safety Significance of Effect

Road	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	Negligible	Medium	Negligible
A831 Site Access to Cannich	Negligible	Negligible	Negligible
A831 Cannich Village	Negligible	Medium	Negligible
A831 North of Cannich	Negligible	Low	Negligible
Main Street Cannich to Fasnakyle Substation	Negligible	Medium	Negligible

11.7.15 Classifying the significance of effects prior to mitigation, the likely significant effect of construction traffic on road user and pedestrian safety would be a direct, temporary, **Negligible (Not Significant)** effect.

11.7.16 For road user and pedestrian safety the significance of effects for all Study Area roads carrying cumulative construction traffic would be negligible.

Non-Motorised User Amenity and Non-Motorised User Delay

11.7.17 **Table 11-17** presents the significance of effect on non-motorised user amenity and delay as a result of cumulative development construction traffic.

Table 11-17 Non-Motorised User Amenity and Delay

Road	% Change in Total Traffic (%)	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	181%	High	Medium	Moderate
A831 Site Access to Cannich	99%	High	Negligible	Minor
A831 Cannich Village	98%	High	Medium	Moderate
A831 North of Cannich	143%	High	Low	Moderate
Main Street Cannich to Fasnakyle Substation	92%	High	Medium	Moderate

11.7.18 Classifying the significance of effects prior to mitigation, the likely significant effect of construction traffic on non-motorised user amenity and delay would be a direct, temporary, **Moderate Adverse (Significant)** effect.

11.7.19 For non-motorised user amenity and delay, the significance of effects for on the A831 east of Cannich, through Cannich Village and north of Cannich is considered moderate. The likely significance of effects on Main Street is also considered moderate. HGV construction traffic for the Proposed Development would not be routed along these roads and therefore the significant effect would be a result of additional Car / LGV traffic generated by cumulative development.

Road Vehicle and Passenger Delay

11.7.20 **Table 11-18** presents the significance of effect on road vehicle and passenger delay as a result of cumulative development construction traffic.

Table 11-18 Road User and Passenger and Delay

Road	% Change in Total Traffic (%)	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Drumnadrochit to Site Access	181%	High	Medium	Moderate

Road	% Change in Total Traffic (%)	Magnitude of Change	Sensitivity of Receptor	Significance of Effect
A831 Site Access to Cannich	99%	High	Negligible	Minor
A831 Cannich Village	98%	High	Medium	Moderate
A831 North of Cannich	143%	High	Low	Moderate
Main Street Cannich to Fasnakyle Substation	92%	High	Medium	Moderate

11.7.21 Classifying the significance of effects prior to mitigation, the likely effect of construction traffic on road user and passenger delay would be a direct, temporary, **Moderate Adverse (Significant)** effect.

11.7.22 For road user and passenger delay, the likely significance of effects on the A831 east of Cannich, through Cannich Village and north of Cannich is considered moderate. The likely significance of effects on Main Street is also considered moderate. HGV construction traffic for the Proposed Development would not be routed along these roads and therefore the significant effect would be a result of additional Car / LGV traffic generated by the cumulative development.

11.8 Cumulative Assessment Mitigation

11.8.1 **Section 11.8** shows that significant affects are forecast as a result of cumulative development traffic across the following IEMA categories:

- Severance of Communities (Direct, Temporary, Moderate Adverse);
- Non-motorised User Amenity and Delay (Direct, Temporary, Moderate Adverse); and
- Road Vehicle Driver and Passenger Delay (Direct, Temporary, Moderate Adverse).

11.8.2 The following IEMA categories are forecast to experience not-significant effects:

- Fear and Intimidation on and by Road Users (Direct, Temporary, **Negligible);** and
- Road User and Pedestrian Safety (Direct, Temporary, **Negligible).**

11.8.3 Mitigation is proposed in the form of a CTMP for the Proposed Development, and co-ordination with construction contractors and their own respective CTMPs for cumulative development sites. The key points in the CTMP are included in **Section 11.6**.

11.8.4 Significant effects can be attributed to increases in total traffic volume on study area roads. **Section 11.7** presents a worst case scenario whereby peak months for construction traffic generation across all cumulative development coincides. It is considered that ensuring peak construction periods do not coincide would drastically reduce the likelihood of significant effects. As mitigation for significant cumulative effects, it is therefore proposed that co-ordination between contractors appointed to each development should occur. Contractors

would be expected to liaise with each other to ensure that peak traffic generation periods are not scheduled for the same months.

11.8.5 It is proposed that, once a contractor is appointed, the requirement to liaise with other cumulative development contractors should be included within the CTMP for the Proposed Development.

11.8.6 The expected outcome of this mitigation would be to reduce magnitude of change across all study area roads by one step.

11.9 Cumulative Assessment – Residual Effects

11.9.1 Following mitigation, it is forecast that there will be residual significant effects across the following IEMA categories:

- Severance of Communities (Direct, Temporary, **Moderate Adverse**)
- Non-motorised User Amenity and Delay (Direct, Temporary, **Moderate Adverse**)
- Road Vehicle Driver and Passenger Delay (Direct, Temporary, **Moderate Adverse**)

11.9.2 It should be noted that these effects, while significant, would be temporary and short term.

11.9.3 The above significant residual effects are essentially a result of low baseline traffic, which leads to high percentage increases when considering cumulative development traffic. Weight must be given to IEMA Guidelines on the matter of low baseline traffic volumes. The Guidelines state that caution needs to be observed when applying magnitude of change thresholds (percentage increases in traffic) to very low baseline flows, as study area roads are unlikely to experience impacts or significance of effects even with high percentage changes in traffic.

11.10 Summary of Effects

11.10.1 **Table 11-19** presents a summary of the environmental effects forecasted in this assessment.

Table 11-19 Summary of Effects

Category	Proposed Development			Cumulative Development		
	Significance of Effects	Mitigation	Residual Effects	Significance of Effects	Mitigation	Residual Effects
Severance of Communities	Direct, Temporary Moderate Adverse (Significant)	CTMP	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Moderate Adverse (Significant)	CTMP and Coordination between Cumulative Schemes	Direct, Temporary Moderate Adverse (Not Significant)
Fear and Intimidation on and by Road Users	Direct, Temporary Negligible (Not Significant)	CTMP	Direct, Temporary Negligible (Not Significant)	Direct, Temporary Negligible (Not Significant)	CTMP and Coordination between Cumulative Schemes	Direct, Temporary Negligible (Not Significant)
Road User and Pedestrian Safety	Direct, Temporary Negligible (Not Significant)	CTMP	Direct, Temporary Negligible (Not Significant)	Direct, Temporary Negligible (Not Significant)	CTMP and Coordination between Cumulative Schemes	Direct, Temporary Moderate (Not Significant)
Non-motorised User Amenity	Direct, Temporary Moderate Adverse (Significant)	CTMP	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Moderate Adverse (Significant)	CTMP and Coordination between Cumulative Schemes	Direct, Temporary Moderate Adverse (Not Significant)
Non-motorised User Delay	Direct, Temporary Moderate Adverse (Significant)	CTMP	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Moderate Adverse (Significant)	CTMP and Coordination between Cumulative Schemes	Direct, Temporary Moderate Adverse (Not Significant)

Category	Proposed Development			Cumulative Development		
	Significance of Effects	Mitigation	Residual Effects	Significance of Effects	Mitigation	Residual Effects
Road Vehicle and Passenger Delay	Direct, Temporary Moderate Adverse (Significant)	CTMP	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Moderate Adverse (Significant)	CTMP and Coordination between Cumulative Schemes	Direct, Temporary Minor Adverse (Not Significant)