Scottish & Southern Electricity Networks
TRANSMISSION

CONTENTS

13. TRAFFIC AND ACCESS

13.1 Introduction

13.1.1 This chapter considers the potential effects of the Proposed Development on transport and access. The assessment includes potential effects on the surrounding road network and local residents.

13.1.2 The specific objectives of the Chapter are to:

- Describe the baseline (including desk-based studies and field surveys);
- Describe how consultation has informed the scope of the assessment;
- Describe the assessment methodology and significance criteria used in assessing effects on the surrounding road and local residents;
- Describe the mitigation measures proposed to address potential significant effects (if required); and
- Assess the residual effects remaining following implementation of mitigation.

13.1.3 An assessment of the effects of the traffic movements has been considered in accordance with the Institute of Environmental Management and Assessment (IEMA) publication, "Environmental Assessment of Traffic and Movement". The document is referred to as the IEMA Guidelines in this Chapter.

13.1.4 This Chapter presents information relevant to the Proposed Development. It should be read in conjunction with **Chapter 3: Description of the Proposed Development (Volume 2)** of the EIA Report for full details of the Proposed Development.

13.1.5 The assessment was undertaken by Pell Frischmann Consultants Limited. This has been undertaken and reviewed by a Chartered Transport Planner with relevant memberships of the Chartered Institution of Highways and Transportation and the Chartered Institute of Logistics and Transport. Further details can be found in **Chapter 2**: **The EIA Report**, contained within **Volume** 2 **of this EIA Report.**

13.1.6 The chapter is supported by **Appendix 13.1 Transport Assessment**. This is referenced in the body of the text, where relevant.

13.2 Scope of the Assessment

Effects Assessed in Full

13.2.1 The assessment has fully considered the transport and access issues arising from the construction phase of the Proposed Development. This chapter considers effects on the following:

- Direct effects during construction on traffic flows in the surrounding study area;
- Direct effects upon local road users;
- Effects upon local residents due to an increase in construction traffic; and
- Cumulative effects during construction.

13.2.2 Where the effects meet the criteria set out in the IEMA Guidelines, a review of the effects with reference to severance, driver delay, pedestrian delay, non-motorised user amenity, fear and intimidation, road safety, road safety audits and large loads has been undertaken.

Effects Scoped Out

13.2.3 Effects within the private site access track network, such as effects relating to traffic impacts on existing forestry traffic or impacts on active travel users within the private track network, have been excluded.

13.2.4 Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular maintenance visits would be made to the Proposed Development typically using Light Goods Vehicles (LGV) or 4x4 vehicles. It is considered that the effects of operational traffic would be negligible and therefore no detailed transportation assessment of the operational phase of the development is proposed.

13.2.5 The traffic generation levels associated with the decommissioning phase are predicted to be less than those associated with the development phase as some elements such as access tracks to be retained by landowners would be left in place. As such, the construction phase is considered the worst-case assessment to review the impact on the study area. An assessment of the decommissioning phase would therefore not be undertaken, although a commitment to reviewing the impact of this phase would be made immediately prior to decommissioning works proceeding.

Study Area

13.2.6 The study area is based upon routes that would be used by construction traffic accessing the Proposed Development. These include routes used for bulk material deliveries, staff movements and component transport.

13.2.7 The study area assessed is as follows:

- A957 Slug Road (between the A90 and A93);
- A90 (between Laurencekirk and Kingsford);
- A93 (between Peterculter and Banchory); and
- B9077 (between the B979 and A957 Slug Road).

13.2.8 The proposed study area is illustrated in **Figure 5.1** of **Appendix 13.1: Transport Assessment**.

13.3 Assessment Methodology

Legislation, Policy and Guidance

Policy

13.3.1 The following policies of relevance to the assessment have been considered:

- National Planning Framework 4 (2023); and
- Aberdeenshire Council Local Plan (January 2023).

Guidance

13.3.2 This assessment is carried out in accordance with the principles contained within the following documents:

- Institute of Environmental Assessment, Environmental Assessment of Traffic and Movement (IEMA) (2023);
- Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring (Revision 1) (2019);
- Planning Advice Note (PAN) 75 (2005);
- Transport Assessment Guidance (2012); and
- Onshore Wind Turbines, Online Renewables Planning Advice (2014).

Consultation

13.3.3 In undertaking the assessment, consideration has been given to the consultation responses which have been received as detailed in **Table 13.1: Summary of Consultation**.

Table 13.1: Summary of Consultation

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
Aberdeenshire Council 11, 19 and 21 March 2024	Pre-Application Consultation events	Stakeholders were asked to consider main access to the substation site from the north, off the A957 Slug Road, with secondary access from the minor unclassified road to the south, running east west through Elfhill. Stakeholders raised concerns regarding	The Applicant has reviewed access options from the north and south to avoid or substantially minimise traffic through west Stonehaven.

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
		impact on roads and from traffic through west Stonehaven.	
Aberdeenshire Council 10, 11 and 13 June 2024	Pre-Application Consultation events	In addition to concerns about the level of construction traffic coming through west Stonehaven and the impact on pedestrians and other road user, several attendees pointed out the constraints on Slug Road.	The primary access route network has been examined to reduce the impact on Stonehaven.
Aberdeenshire Council 11 September	Scoping Opinion	Environment and Infrastructure Services – Roads Development states that, “Condition Surveys, traffic surveys and route appraisals will be required for all routes associated with the delivery of the project from the boundaries of the trunk road network (or neighbouring Council network) as appropriate.” “It should be noted that the redline boundary of the site identified still includes the U115K public road network section and its’ linkage to the C1K. Roads Development noted concerns about this road corridor (C1K-U115K) in previous correspondence, this should be considered and amended accordingly as part of any future formal applications.” As part of the EIA, a review of the following would likely be required: • existing road widths • passing provisions • construction makeup • drainage • visibility • junction radii road markings statutory undertaker's plant which may result in requirements for: • road widening • passing provision • junction radii increases • edge strengthening	The Applicant will secure Condition Surveys through a suitably worded planning condition, given the likely time between submission of the planning application and the start of construction activities, to ensure an accurate and fair condition survey can be undertaken. A Transport Assessment has been prepared and considers the suitability of the proposed road network.

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
		• drainage solutions • street furniture relocation • statutory undertaker's plant rerouting or lowering • remedial works for reinstatement "A Transport Assessment is required for the development, a reduced scope as noted in 11.3.3 is in principle acceptable, and dialogue should be made with Roads Development in conjunction with this."	

Desk Based Research and Data Sources

13.3.4 The desk study included reviews and identification of the following:

- Relevant transport policy;
- Accident data;
- Sensitive locations;
- Any other traffic sensitive receptors in the area (core paths, routes, communities, etc.);
- Ordnance Survey (OS) plans; and
- Potential origin locations of construction staff and supply locations for construction material to inform extent of local area roads network to be included in the assessment.

Field Survey

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

- Collection of traffic volumes using Automatic Traffic Counts (ATC).

Assessing Significance

Criteria for Assessing the Sensitivity of Receptors

13.3.6 Recent guidance published by the IEMA, namely 'Environmental Assessment of Traffic and Movement' (2023) provides an update to the previously used guidance, 'Guidelines for the Environmental Assessment of Road Traffic' (1993) document, that should be used to characterise the environmental traffic and transport effects (off-site effects) and the assessment of significance of major new developments. The IEMA Guidelines intend to complement professional judgement and the experience of trained assessors.

13.3.7 In terms of transport and access impacts, the receptors are the users of the roads within the study area and the locations through which those roads pass.

13.3.8 The IEMA Guidelines include guidance on how the sensitivity of receptors should be assessed. Using that as a base, professional judgement was used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This is summarised in **Table 13.2: Classification of Receptor Sensitivity**.

Table 13.2 Classification of Receptor Sensitivity

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

13.3.9 Where a road passes through a location, road users (pedestrian, cyclists, drivers, etc.) are considered subject to the highest level of sensitivity defined by either the road or location characteristics.

Criteria for Assessing the Magnitude of Change

13.3.10 The following rules, also taken from the IEMA Guidelines are used to determine which links within the study area should be considered for detailed assessment:

- *Rule 1 – include highway links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and*
- *Rule 2 – include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.*

13.3.11 The IEMA Guidelines identify the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development. The impacts and levels of magnitude are discussed below:

- Severance – the IEMA Guidelines 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 IEMA Guidelines acknowledge that changes in traffic flows should be used cautiously, stating that "*the assessment of severance should pay full regard to specific local conditions, e.g. sensitivity of adjacent land uses, prevalence of vulnerable people, whether or not crossing facilities are provided, traffic signal settings, etc*." (Para 3.17);
- Driver delay – the IEMA Guidelines note that these delays are only likely to be "*significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system*" (Para 3.20);
- Pedestrian delay (incorporating delay to all non-motorised users) – the IEMA Guidelines advises that "*pedestrian delay and severance are closely related effects and can be grouped together. Changes in the volume, composition or speed of traffic may affect the ability of people to crossroads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and*

general physical conditions of the development site." (Para 3.24). Furthermore, the guidance advises that "*…it is not considered wise to set down definitive thresholds. Instead, it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect.*" (Para 3.26);

- Non-motorised user amenity - the IEMA Guidelines 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 IEMA Guidelines. (Para 2.19). As such, this has been used to assess the potential impacts associated with construction activities around fear and intimidation on people in close proximity to the Proposed Development;
- Road safety – professional judgement would be used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents. In line with the IEMA Guidelines, those areas of collision clusters would be subject to detailed review;
- Road safety audits – It would be proposed to undertake any necessary Road Safety Audits (RSA) post consent and it is considered that this can be secured via a planning condition; and
- Large loads – The movement of the Abnormal Indivisible Loads (AILs) associated with the construction of the Proposed Development have been considered in full, within a separate route survey assessment, which identifies physical mitigation measures required to accommodate the predicted loads. Additional mitigation in terms of addressing potential impacts on sensitive receptors are included as standard within Mitigation During Construction section.

13.3.12 While not specifically identified as a more vulnerable road user, cyclists, active travel users and equestrians are considered in similar terms to pedestrians.

13.3.13 It is not anticipated that any vehicle movements will be carrying hazardous loads (materials as defined by the United Nations Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods and their relevant classification) (with the exception of small amounts of fuel for the construction plant and compound generators) to or from the Site during the construction phase.

Criteria for Assessing Significance

13.3.14 The Design Manual for Roads & Bridges (DMRB) defines four levels against which the magnitude of impacts should be assessed as follows:

- 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; and
- Negligible: No effects or those that are imperceptible.

13.3.15 To determine the overall significance of effects, the results from the receptor sensitivity and magnitude of impact assessments are correlated and classified using a scale set out in the DMRB LA 104 Environmental Assessment and Monitoring (Revision 1) and summarised in **Table 13.3: Matrix for Determination of Significance of Effects**.

Table 13.3 Matrix for Determination of Significance of Effects

Magnitude of Change	Sensitivity of Receptor / Receiving Environment to change				
	High	**Medium**	**Low**	**Negligible**
High	Major	Major/ Moderate	Moderate / Minor	Minor
Medium	Major/ Moderate	Moderate	Minor	Minor/ Negligible
Low	Moderate / Minor	Minor	Minor	Minor/ Negligible
Negligible	Minor	Minor	Minor/ Negligible	Negligible

13.3.16 In terms of the EIA Regulations, effects would be considered of significance where they are assessed to be major or moderate. Where an effect could be one of Major/Moderate or Moderate/Minor, professional judgement would be used to determine which option should be applicable.

Assessment Assumptions and Limitations

Assessment Assumptions

13.3.17 The following assumptions have been made when undertaking the assessment of effects:

- The peak of construction traffic will occur in February of 2028 (based on an indicative construction programme);
- That bulk materials will be sourced from local quarries;
- National Road Traffic Forecast (NRTF) low growth assumptions have been used to develop future year baseline traffic flows; and
- That a staff Travel Plan for the construction phase will be implemented.

Assessment Limitations

13.3.18 The assessment is based upon average traffic flows in one-month periods. During the month, activities at the Site may fluctuate between one day and another and it is not possible to fully develop a day-by-day traffic flow estimate and external factors can impact upon activities on a day-by-day basis (weather conditions, availability of materials, time of year, etc.).

13.4 Baseline Conditions

Access Arrangement

13.4.1 Access to the Site will be taken from the public road network at the existing substation access junction on the A957 Slug Road, with material deliveries originating from the A90 corridor located to the east, A93 corridor to the north and the B9077 corridor to the northeast.

13.4.2 The access junction has been used for the construction of the nearby Fred. Olsen Renewables Midhill Wind Farm, commercial forestry operations and the recently upgraded Fetteresso Substation. The junction and access track are considered suitable for the proposed construction access use.

Transport Infrastructure Review

13.4.3 A review of pedestrian and cyclist facilities has been undertaken and is provided in Chapter 4 **of Appendix 13.1: Transport Assessment**, along with a description of the public road network.

Existing Traffic Conditions

13.4.4 A review of traffic flows has been undertaken using new Automatic Traffic Count (ATC) surveys, the Transport Scotland traffic database and the Department for Transport (DfT) traffic database. The locations of the survey points are illustrated in **Figure 5.3** of **Appendix 13.1: Transport Assessment**.

13.4.5 ATC traffic surveys were undertaken at the following locations between the 16th and 22nd of April 2024:

- A957 Slug Road (near the location of the proposed substation access junction).

13.4.6 Traffic Scotland Annual Average Daily Traffic (AADT) data was obtained for the following locations:

- A93 Peterculter (site reference ATC00054);
- A93 Banchory (site reference ATC00329);
- A90 North of Stonehaven (site reference 123488);
- A90 Kingsford (site reference NTC01512); and
- A90 south of Stonehaven (site reference JTC00056).

13.4.7 DfT road traffic database for the following location:

- B9077 (site reference 983159).

13.4.8 The two-way traffic flows for 2024 are summarised in **Table 13.4: 24 Hour Average Daily Traffic Flows (2024)**.

Table 13.4: 24 Hour Average Daily Traffic Flows (2024)

Site Ref.	Survey Location	Cars & LGV	HGV	Total
1	A957 Slug Road	901	309	1,210
2	A93 Peterculter	6,002	749	6,752
3	A93 Banchory	3,470	487	3,957
4	A90 North of Stonehaven	12,051	1,643	13,694
5	A90 Kingsford	4,982	1,643	6,625
6	A90 South of Stonehaven	18,246	4,821	23,067
7	B9077	3,125	148	3,273

Accident Review

13.4.9 Road traffic accident data for the five-year period commencing 01 January 2018 through to the 31 December 2022 was obtained from the online resource crashmap.co.uk which uses data collected by the police about road traffic crashes occurring on British roads. Accident data recorded along the local roads within the study area, and in the vicinity of junctions joining the local road network, was analysed.

13.4.10 Transport Assessment guidance requires an analysis of the accident data on the road network in the vicinity of any development to be undertaken for at least the most recent 3-year period, or preferably a 5-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.

13.4.11 The statistics are categorised into three categories, namely “Slight” for damage only incidents, “Serious” for injury accidents and “Fatal” for accidents that result in a death.

13.4.12 A review of accidents trends within the immediate study area (A957 Slug Road) has been undertaken using data from the online resource crashmap.co.uk.

13.4.13 In total, five accidents occurred on the A957 Slug Road. These included three “Slight” accidents and two “Serious” accidents. Of these incidents, one “Slight” accident occurred during winter. Four of the accidents recorded involved one vehicle, suggesting that the driver lost control of their vehicle.

13.4.14 Both “Serious” and one “Slight” accident involved motorcycles. Young drivers (under the age of 25) were involved in two “Slight” accidents. HGV traffic was not involved in any of the recorded incidents.

13.4.15 There were no recorded accidents at the site access junction.

13.4.16 Based on professional judgement, there are no apparent accident trends that would be exacerbated by the proposed construction traffic.

Summary of Sensitive Receptors

13.4.17 A review of sensitive receptors has been undertaken within the study area. **Table 13.5: Summary of Receptor Sensitivity** details the receptors and their sensitivities for use within the following assessment. A justification for the sensitivity has also been provided, based upon the details contained in **Table 13.2: Classification of Receptor Sensitivity**.

Table 13.5: Summary of Receptor Sensitivity

Receptor	Sensitivity	Justification
A957 Road Users	Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic.
A93 Road Users	Low	An A-class road, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures.
A90 Road Users	Low	An A-class road, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures.
B9077 Users	Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic.
Peterculter Residents	High	Where a location is a large rural settlement containing a high number of community and public services and facilities.
Banchory Residents	High	Where a location is a large rural settlement containing a high number of community and public services and facilities.
Drumoak Residents	Medium	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services.
Crathes Residents	Low	Where a location is a small rural settlement, few community or public facilities or services.
Kirkton of Durris Residents	Low	Where a location is a small rural settlement, few community or public facilities or services.
A957 Residents	Negligible	Area with individual dwellings or scattered settlements with no facilities.
A93 Residents	Negligible	Area with individual dwellings or scattered settlements with no facilities.
A90 Residents	Negligible	Area with individual dwellings or scattered settlements with no facilities.
B9077 Residents	Negligible	Area with individual dwellings or scattered settlements with no facilities.

13.4.18 Based on these classifications, residents in Peterculter and Banchory would be classed as sensitive receptors using the guidelines described previously. As such, these will be subject to IEMA “Rule 2” assessments, where the traffic increase is equal to or in excess of 10%.

13.4.19 All other locations within the study area are subject to “Rule 1” and are assessed if traffic flows (or HGV flows) on highway links are anticipated to increase by more than 30% as a result of the construction of the Proposed Development.

Future Baseline in the Absence of the Proposed Development

13.4.20 Construction of the Proposed Development is expected to commence in 2026, if consent is granted, and is anticipated to take approximately three and a half years. The peak of construction traffic activities is expected to occur in February 2028, and this has been used as the future assessment year.

13.4.21 To assess the likely effects during the construction phase, base year flows were forecast by applying a NRTF low growth factor to the 2024 flows. The NRTF low growth factor for 2024 to 2028 is 1.021. The resultant future baseline traffic flows are illustrated in **Table 13.6: 24 Hour Average Daily Traffic Flows (2028)**.

Table 13.6: 24 Hour Average Daily Traffic Flows (2028)

Site Ref.	Survey Location	Cars & LGV	HGV	Total
1	A957 Slug Road	920	316	1,235
2	A93 Peterculter	6,128	765	6,893
3	A93 Banchory	3,543	497	4,040
4	A90 North of Stonehaven	12,304	1,678	13,982
5	A90 Kingsford	5,087	1,678	6,764
6	A90 South of Stonehaven	18,629	4,922	23,551
7	B9077	3,190	151	3,341

Please note that rounding errors can occur.

Implications of Climate Change for Baseline Conditions

13.4.22 If the Proposed Development did not proceed, traffic growth will occur and the links within the study network will experience increased traffic flows resulting from other development pressures, tourism traffic and population flows.

13.4.23 The climate change projections for the United Kingdom, highlight that summer and winter temperatures are likely to be greater than the current baseline, with winter rainfall increasing and summer rainfall decreasing.

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

13.4.25 It is assumed that, at the 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.

13.5 Mitigation and Monitoring

Embedded Mitigation

13.5.1 Topic specific embedded mitigation (mitigation achieved through design) is outlined below.

- TA1: Construction traffic routing will be primarily from the north via the A93 and B9007 to site to avoid unnecessary impacts on the west of Stonehaven and Auchenblae Road. These routes avoid, where possible, large populations and focus traffic on roads that are suitable for HGV traffic;
- TA2: Basic traffic management measures, including the provision of direction signage at the proposed site access junction; and
- TA3: The use of local material suppliers to reduce traffic impacts and overall project mileage.

Applied Mitigation

13.5.2 Applied mitigation measures to be utilised on the site are detailed in **Table 13.7: Proposed Applied Mitigation**.

Table 13.7: Proposed Applied Mitigation

Mitigation Measure	Project Stage/Timing	Responsibility
• TA4: Provision of a basic Construction Traffic Management Plan (CTMP), incorporating simple measures such as road cleaning facilities at the Site access and basic warning signage. The plan will also include access routing to be observed by traffic. The CTMP will be a contractual requirement of the Principal Contractor and it is anticipated that it will be secured via a suitably worded planning condition.	*Prior to start of construction*	*Principal contractor*

Additional Mitigation

- TA5: Abnormal Load Transport Management Plan (TMP), to improve safety for all road users during AIL deliveries; and
- TA6: Construction staff Travel Plan, to reduce the use of single occupancy travel to and from the Site.

Further Survey Requirements and Monitoring

13.5.3 Monitoring of the proposed mitigation measures will include those items noted in **Table 13.8: Monitoring Requirements**.

Table 13.8: Monitoring Requirements

Monitoring Measure	Project Stage/Timing	Responsibility
• The construction staff Travel Plan will be monitored to ensure that staff use van sharing or construction site minibuses to access the site.	*Throughout the construction phase*	*Principal contractor*
• The Principal Contractor will undertake checks to ensure that approved access route is adhered to.	*Throughout the construction phase*	*Principal contractor*

13.6 Assessment of Likely Residual Significant Effects - Construction

13.6.1 The assessment of effects identified above is based on the project description as outlined in **Chapter 3: Description of the Proposed Development**. Unless otherwise stated, potential effects identified are considered to be adverse.

Estimation of Construction Traffic

13.6.2 During the construction period, the following traffic will require access to the Site:

- Staff transport, in either cars or staff minibuses;
- Construction equipment and materials, deliveries of machinery and supplies such as concrete and crushed rock; and
- Abnormal loads associated with the substation development.

13.6.3 At the peak of construction activity, 278 staff are expected on the Site. A Staff Travel Plan will be implemented to control access and it is assumed that 60% will access the site via minibus, 30% by van, with the rest accessing using private car access.

13.6.4 The Principal Contractor has undertaken a preliminary design of the Proposed Development and estimated the resulting traffic generation by construction activity. The worst-case peak of daily construction traffic is predicted to occur in February 2028 and will result in the following.

- Peak Car & LGV Movements (2 way): 152 vehicles;
- Peak HGV Movements (2 way): 56 vehicles;
- Peak Total Traffic (2 way): 208 vehicles.

13.6.5 Traffic levels will fall following the peak month. The assessment however has used the daily peak to ensure a robust assessment has been undertaken and that all relevant mitigation has been considered.

13.6.6 Using the traffic distribution described in **Appendix 13 .1: Transport Assessment**, the peak traffic generation during the construction phase is as illustrated in **Table 13.9: Peak Construction Traffic Flows**.

Table 13.9: Peak Daily Construction Traffic Flows

Site Ref.	Survey Location	Cars & LGV	HGV	Total
1	A957 Slug Road	152	56	208
2	A93 Peterculter	61	2	63
3	A93 Banchory	23	0	23

Site Ref.	Survey Location	Cars & LGV	HGV	Total
4	A90 North of Stonehaven	0	1	1
5	A90 Kingsford	61	2	63
6	A90 South of Stonehaven	8	1	9
7	B9077	31	54	84

Please note that rounding errors can occur.

Predicted Construction Effects

13.6.7 The peak month traffic data was combined with the future year (2028) traffic data to allow a comparison between the baseline results to be made. The increase in traffic volumes is presented below as predicted flows and in percentage increases for each class of vehicle in **Table 13.10: Peak Month Construction Traffic Impact**.

Table 13.10: Peak Month Daily Construction Traffic Impact

Site Ref.	Survey Location	Cars & LGV	HGV	Total	% Car & LGV	% HGV	% Total Traffic
1	A957 Slug Road	1,072	372	1,443	16.5%	17.8%	16.8%
2	A93 Peterculter	6,189	767	6,957	1.0%	0.3%	0.9%
3	A93 Banchory	3,566	497	4,063	0.6%	0.0%	0.6%
4	A90 North of Stonehaven	12,304	1,679	13,982	0.0%	0.0%	0.0%
5	A90 Kingsford	5,148	1,680	6,827	1.2%	0.1%	0.9%
6	A90 South of Stonehaven	18,637	4,923	23,560	0.0%	0.0%	0.0%
7	B9077	3,221	205	3,426	1.0%	35.7%	2.5%

Please note that rounding errors can occur.

13.6.8 With the exception of the A957 Slug Road, total traffic movements are not predicted to increase by more than 2.5% across the study network. Traffic on the A957 Slug Road is predicted to increase by 16.8%. Whilst this is statistically significant, the actual increase in traffic is 208 vehicles, which on average is an additional 17 vehicles per hour (assuming a 12-hour working period).

13.6.9 The highest increase in HGV traffic movements is anticipated to occur on the B9077, where they are estimated to increase by 35.7 %. To put the increase into perspective, the B9077 at this location will see an additional 54 HGV movements per day or 5 HGV movements per hour over the course of a typical 12-hour shift. The next highest HGV traffic movement increase would occur on the A958 Slug Road with an anticipated HGV increase of 16.8.%.

13.6.10 It should be noted that the increases in HGV flows are not considered significant in terms of overall total flows and are high due to the low base HGV flows. It should also be noted the construction phase is transitory in nature.

Capacity Review

13.6.11 A review of existing road capacity has been undertaken using the Design Manual for Roads and Bridges (DMRB), Volume 15, Part 5 (The NESA Manual). 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 13.11: Theoretical Capacity Review**.

Table 13.11: Theoretical Capacity Review

Site Ref.	Survey Location	2028 Baseline	Theoretical Capacity	2028 Base + Development Flows	Spare Capacity (%)
1	A957 Slug Road	1,235	21,600	1,443	93.3%
2	A93 Peterculter	6,893	28,800	6,957	75.8%
3	A93 Banchory	4,040	19,200	4,063	78.8%

Site Ref.	Survey Location	2028 Baseline	Theoretical Capacity	2028 Base + Development Flows	Spare Capacity (%)
4	A90 North of Stonehaven	13,982	81,600	13,982	82.9%
5	A90 Kingsford	6,764	81,600	6,827	91.6%
6	A90 South of Stonehaven	23,551	81,600	23,560	71.1%
7	B9077	3,341	21,600	3,426	84.1%

13.6.12 The results indicate there are no road capacity issues with the Proposed Development and ample spare capacity exists within the trunk and local road network to accommodate construction phase traffic.

13.6.13 With regards to "Rule 1" of the IEMA Guidelines, the impact of HGVs will exceed the 30% threshold increases on the B9077 and as such further assessment will be undertaken on this link. The "Rule 2" receptors of Peterculter and Banchory do not exceed 1% and as such, no further assessment is required for these receptors. A summary of the construction phase effects is shown in **Table 13.12: Construction Phase Effects Summary**.

Table 13.12: Construction Phase Effects Summary

Receptor	Severance	Driver Delay	Pedestrian Delay	Non-motorised user Amenity	Fear & Intimidation	Road Safety	Large Loads
Users and Residents of B9077	Minor	Minor	Minor	Minor	Minor	Minor	Minor

13.6.14 Prior to the introduction of mitigation, it is considered that only minor effects would arise from the construction phase. The increase in HGV flows along the B9077 during the construction phase is therefore not considered to result in adverse effects.

Additional Mitigation

13.6.15 As noted, the increase in HGV traffic levels along the B9077 are considered to be not significant. Whilst no additional mitigation measures are required to satisfy the IEMA guidelines, as a responsible developer, the Applicant will undertake the following additional measures to ensure the highest standards are promoted at the Site.

Enhanced Construction Traffic Management Plan

13.6.16 The following measures would be implemented through a CTMP during the construction phase. The CTMP would be required as a condition of the Principal Contract and it is anticipated would also be required and agreed with Aberdeenshire Council, through a planning condition to any planning permission prior to construction works commencing:

- Where possible the detailed design process would minimise the volume of material to be imported to Site to help reduce HGV numbers;
- A Site worker transport and travel arrangement plan, including transport modes to and from the work site (including pick up and drop off times) would be implemented;
- All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures should 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 AC;
- Appropriate traffic management measures would be put in place on the A957 Slug Road at the Site access junction to avoid conflict with general traffic, subject to the agreement of AC. Typical measures would include HGV turning and crossing signs and a banksmen at the Site access and warning signs;
- Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the Site;

- Adoption of a voluntary speed limit of 20 mph for all construction vehicles travelling through rural villages and towns on the study area network;
- All drivers would be required to attend an induction to include:
  - A tool box 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 urban areas); and
  - Identification of the required access routes and the controls to ensure no departure from these routes.

13.6.17 AC may require an agreement to cover the cost of abnormal wear and tear on roads within the study area. Video footage of the pre-construction phase condition of the construction vehicles route would be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction stage of the Proposed Development. Any necessary repairs would be coordinated with the Council. Any damage caused by traffic associated with the Proposed Development, during the construction period that would be hazardous to public traffic, would be repaired immediately.

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

13.6.19 The Principal Contractor would perform a daily road edge review and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the initial months of construction activity, until the construction junction and immediate access track works are complete.

Public Information

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

Pedestrian Management

13.6.21 The Principal Contractor would ensure that speed limits are always adhered to by their drivers and associated subcontractors. This is particularly important within close proximity to the core path and at crossing points. Advisory speed limit signage would also be installed on approaches to areas where core path users may interact with construction traffic.

13.6.22 Signage would be installed on the Site exit 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 weekly tool box talks.

AIL Management Measures

13.6.23 There are a number of traffic management measures that could help reduce the effect of the proposed six abnormal load convoys.

13.6.24 All abnormal load deliveries will be undertaken at appropriate times (to be discussed and agreed with the relevant roads authorities and police) with the aim to minimise the effect on the local road network. It is likely that the abnormal load convoys will travel in the early morning periods, before peak times while general construction traffic will generally avoid the morning and evening peak periods.

13.6.25 The majority of potential conflicts between construction traffic and other road users will occur with abnormal load traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.

13.6.26 Advance warning signs will be installed on the approaches to the affected road network. This signage will assist in helping improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist).

13.6.27 The location and numbers of signs will be agreed post consent and will form part of the wider Traffic Management Proposal for the project.

13.6.28 The Abnormal Load Transport Management Plan will also 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
- The Contractor will establish a Community Liaison Group. This will provide a public interface with the applicant, the construction contractors, the local community, and if appropriate, the police. This committee will form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

Convoy System

13.6.29 A police escort will be required to facilitate the delivery of the predicted loads. The police escort will be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort will warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy will remain in radio contact at all times where possible.

13.6.30 The abnormal loads convoys will be no more than one component 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.

13.6.31 The times in which the convoys would travel will be agreed with Police Scotland who have sole discretion on when loads can be moved.

Public Information

13.6.32 Information on the convoys will be provided to local media outlets such as local papers and local radio to help assist the public.

13.6.33 Information will relate to expected vehicle movements from the port of entry through to the Site access junction. This will assist residents becoming aware of the convoy movements and may help reduce any potential conflicts.

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

13.6.35 **Table 13:13: Committed Additional Mitigation** details these mitigation measures.

Table 13.13: Committed Additional Mitigation

Mitigation Measure	Rationale	Project Stage/Timing	Responsibility
• TA7: Enhanced Construction Traffic Management Plan	*To improve road safety, efficiency and management*	*Prior to start of construction*	*Principal contractor*
• TA8: Public Information	*To enhance the public's route choice and to enhance safety*	*During the construction phase*	*The Applicant*
• TA9: Pedestrian Management	*To improve road safety*	*Prior to start of construction*	*Principal contractor*

Residual Construction Effects

13.6.36 The assessment confirms the significance of residual effects would be Minor in nature and therefore Not Significant. The traffic effects are transitory in nature. No long-lasting detrimental transport or access issues are associated with the construction phase of the Proposed Development.

13.7 Assessment of Likely Significant Effects - Operation

Predicted and Residual Operational Effects

13.7.1 The assessment of operational effects has been scoped out. No operational effects are anticipated.

13.8 Assessment of Likely Significant Effects - Decommissioning

13.8.1 The assessment of decommissioning effects has been scoped out, as traffic volumes will be lower than the construction phase. No operational effects are anticipated.

13.9 Sensitivity Assessment of Likely Future Development (In-Combination) Effects

Introduction

13.9.1 An assessment of the effects associated with potential future developments has been undertaken as a sensitivity assessment. Projects connected with the Proposed Development (identified as Associated Projects) and other developments (Unassociated Projects) that may use the study area road network have been considered and the potential effects are noted in **Table 13.14: Likely Future Development Sensitivity Review.**

13.9.2 It should be noted that traffic flows from both Associated and Unassociated Projects can only be included to the baseline when the assessment is undertaken. As such, the percentage impact of the Proposed Development will be diluted by the inclusion of other projects. The only exception to this would be where effects are considered in congested networks. The results noted in **Appendix 13.1: Transport Assessment, Table 7.2: Theoretical Capacity Review**, indicate that none of the study area roads are congested.

Table 13.14: Likely Future Development Sensitivity Review

Potential Future Development	Associated SSEN Transmission Projects	Other SSEN Transmission Projects	Other Third Party Projects	Sensitivity Review
Kintore to Tealing 400 kV OHL	x			This project is unlikely to generate significant traffic flows on the Proposed Development's study area. Given the nature of the OHL project, its peak of construction traffic will not coincide with that of the Proposed Development. As such, the effects associated with the Proposed Development will not be exacerbated by the OHL project.
Fetteresso 132 kV substation extension		x		The extension works are not scheduled to coincide with the peak of the Proposed Development. As such, the effects associated with the Proposed Development will not be exacerbated by the substation project.
Network Rail Drumlithie		x		This project is unlikely to generate significant traffic flows on the Proposed Development's study area. Given the nature of the proposed project, its peak of construction traffic will not coincide with that of the Proposed Development. As such, the effects associated with the Proposed Development will not be exacerbated by the proposed project.
Fiddes 132 kV replacement		x		This project is unlikely to generate significant traffic flows on the Proposed Development's study area. Given the nature of the OHL project, its peak of construction traffic will not coincide with that of the Proposed Development. As such, the effects associated with the Proposed Development will not be exacerbated by the replacement project.
SSEN Transmission Offshore Grids Project		x		No traffic details are publicly available at present. Given the future projects will need to connect to the Proposed Development, it is unlikely that its traffic peak will coincide with

Potential Future Development	Associated SSEN Transmission Projects	Other SSEN Transmission Projects	Other Third Party Projects	Sensitivity Review
				that of the Proposed Development. As such, the effects associated with the Proposed Development will not be exacerbated by the connection project.
Glendye Wind Farm Grid Connection		x		No traffic details are available for this project. The only works that will coincide with the Proposed Development Study Area will be those associated with a short length of OHL. As such, traffic volumes are considered to be minor in the Study Area and are likely to occur outwith the peak of traffic generation.
Bowdun Offshore Wind Farm Onshore			x	No traffic details are publicly available at present. Given the Bowdun project needs to connect to the Proposed Development, it is unlikely that its traffic peak will coincide with that of the Proposed Development. As such, the effects associated with the Proposed Development will not be exacerbated by the connection project.
Craigneil Wind Farm			x	The proposed wind farm would create an additional 72 vehicle movements on the A957 Slug Road. This increase in traffic is unlikely to have a significant impact on the operation of the road, given the existing recorded traffic levels and the capacity of that the road has. The Applicant may wish to discuss any shared traffic management measures should the traffic flows coincide with the Proposed Development.
Quithel 50mW BESS			x	A scoping opinion has only been applied for. The scoping information notes that access for this development will be located outwith the Study Area and as such, no cumulative impacts are predicted.

Operation

13.9.3 The assessment of operational effects has been scoped out. No operational effects are anticipated.

Decommissioning

13.9.4 The assessment of decommissioning effects has been scoped out.

13.10 Summary of Significant Effects

13.10.1 **Table 13.15: Summary of Significant Effects** below summarises the predicted residual effects of the Proposed Development on transport and access matters prior to and following to application of additional mitigation.

Table 13.15: Summary of Significant Effects

Predicted Effects	Significance Prior to Additional Mitigation	Mitigation	Significance of Residual Effects Following Additional Mitigation
Construction			
B9077 Residents and Users	Minor (Not Significant)	CTMP – Temporary signage / route signage	Minor (Not Significant)
Operation			
None	None	None	None

Predicted Effects	Significance Prior to Additional Mitigation	Mitigation	Significance of Residual Effects Following Additional Mitigation
Cumulative			
None	None	None	None