

FEARNA STORAGE

Fearna Pumped Storage Hydro Scheme EIA Report

Appendix 15.1 – Transport Assessment

February 2025



Quality Information

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Revision History

Revision

01

Revision Date

February 2025

Details

Issue to ECU

Authorised

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Fearna Pumped Storage Hydro Scheme

Technical Appendix 15.1: Transport Assessment

February 2025

10109554

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Report Ref.		250206 Gilkes Fearna PSH_Transport Assessment_V2				
File Path		https://pellf.sharepoint.com/sites/EdinburghOfficeTeam/Shared Documents/General/Projects/10109554 Gilkes Fearna/01 - WIP/Reports/TA and EIA Reports/250206 Gilkes Fearna PSH_Transport Assessment_v2.docx				
Rev	Suit	Description	Date	Originator	Checker	Approver
A		Draft	17/01/2025	S Cochrane	E Moran	G Buchan
B		Update, client review	07/02/2025	S Cochrane	E Moran	G Buchan

Ref. reference. Rev revision. Suit suitability.

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Appendix A – Abnormal Route Survey Report

1 Introduction

1.1 Purpose of the Report

Pell Frischmann Consultants Ltd (PF) has been commissioned by Fearna PSH Ltd (the Applicant) to undertake a Transport Assessment (TA) for the proposed Fearna Pumped Storage Hydro (PSH) Project (The Proposed Development) located to the northwest of Kingie Lodge, Invergarry in The Highland Council (THC) administrative area.

The report identifies the key transport and access issues associated with the construction and operation of the Proposed Development, including the route for abnormal loads. The TA identifies where the Proposed Development may require mitigation works to accommodate the predicted traffic; however, the detailed design of these remedial works is beyond the agreed scope of this report. Any mitigations works will be agreed with THC and Transport Scotland (TS), which would be developed during the detailed design stage and prior to construction and deliveries taking place.

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1.2 Report Structure

Following this introduction, the TA report is structured as follows:

- Section Two describes the Proposed Development;
- Section Three reviews the relevant transport and planning policies;
- Section Four sets out the methodology used within this assessment;
- Section Five describes the baseline transport conditions;
- Section Six describes the trip generation and distribution of traffic in the study area;
- Section Seven summarises the traffic impact assessment;
- Section Eight considers mitigation proposals for development related traffic within the study network; and
- Section Nine summarises the findings of the TA and outlines the key conclusions.

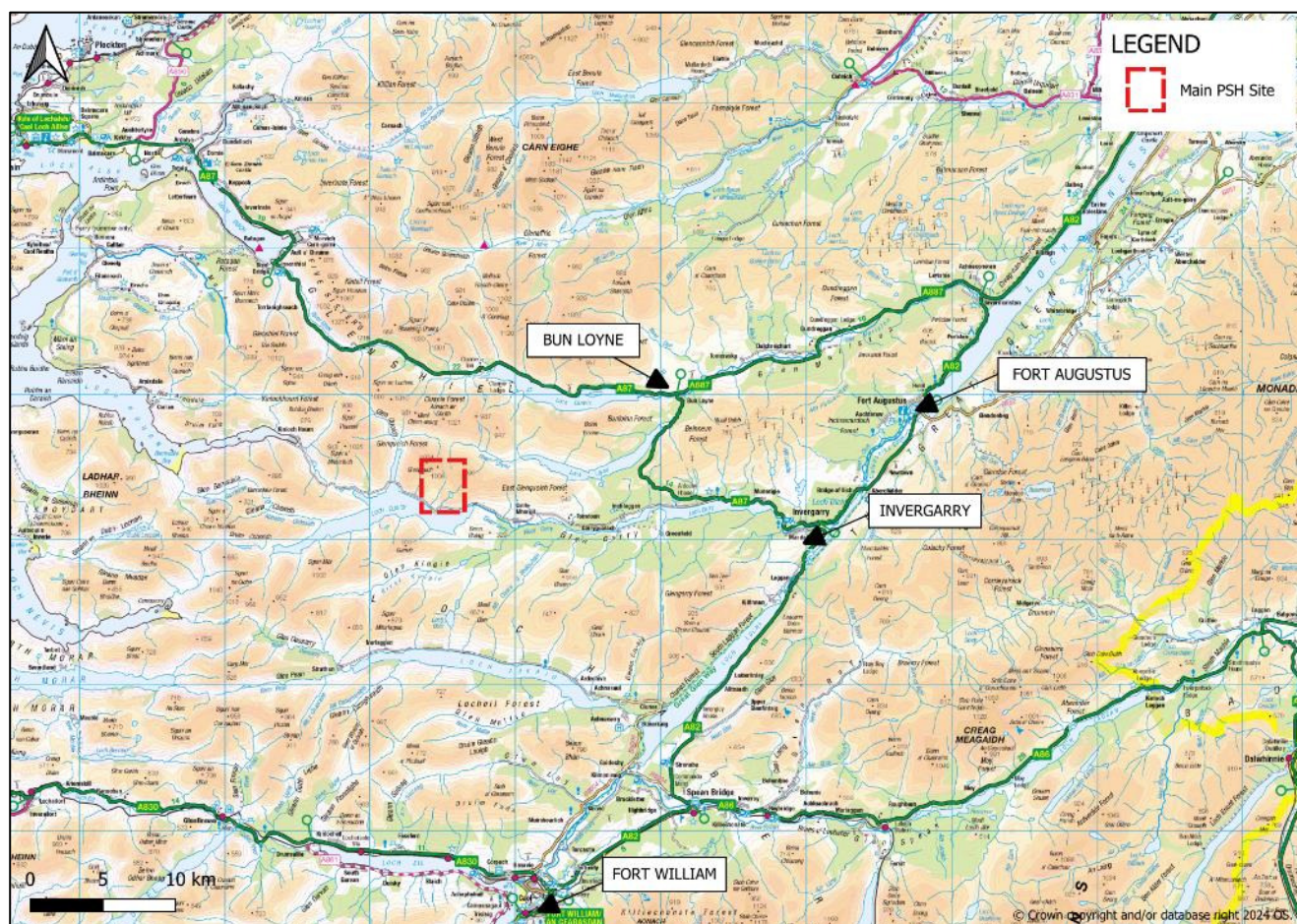
2 Proposed Development

2.1 Site Location

The main PSH site, comprising the upper and lower reservoir works is located approximately 18 kilometres (km) along the C1144 minor public road, between the A87 trunk road and Kinloch Hourn, to the northwest of Kingie Lodge, Invergarry in THC administrative area.

The general location of the site is shown in **Figure 1**.

Figure 1 Site Location



2.2 Proposed Development

The Proposed Development comprises construction and operation of a new large-scale long-duration electricity PSH of up to 1,800MW capacity, up to 36 Gigawatt Hours (GWh) of energy storage and approximately 20 hours of sustainable dispatchable electricity generation at full power. Water would be stored and transferred between a lower and an upper reservoir and flow between these during pumping and generating cycles via screened inlet / outlet structures and underground waterways (tunnels).

The lower reservoir would utilise Loch Quoich, which is currently used as a reservoir for conventional hydro generation and is the largest storage reservoir in the UK. No modifications to the existing dams or operational level range are proposed in Loch Quoich. The proposed 36GWh storage capacity of the Proposed Development would require approximately 11% of the storage capacity of Loch Quoich and the water would remain within the Quoich catchment.

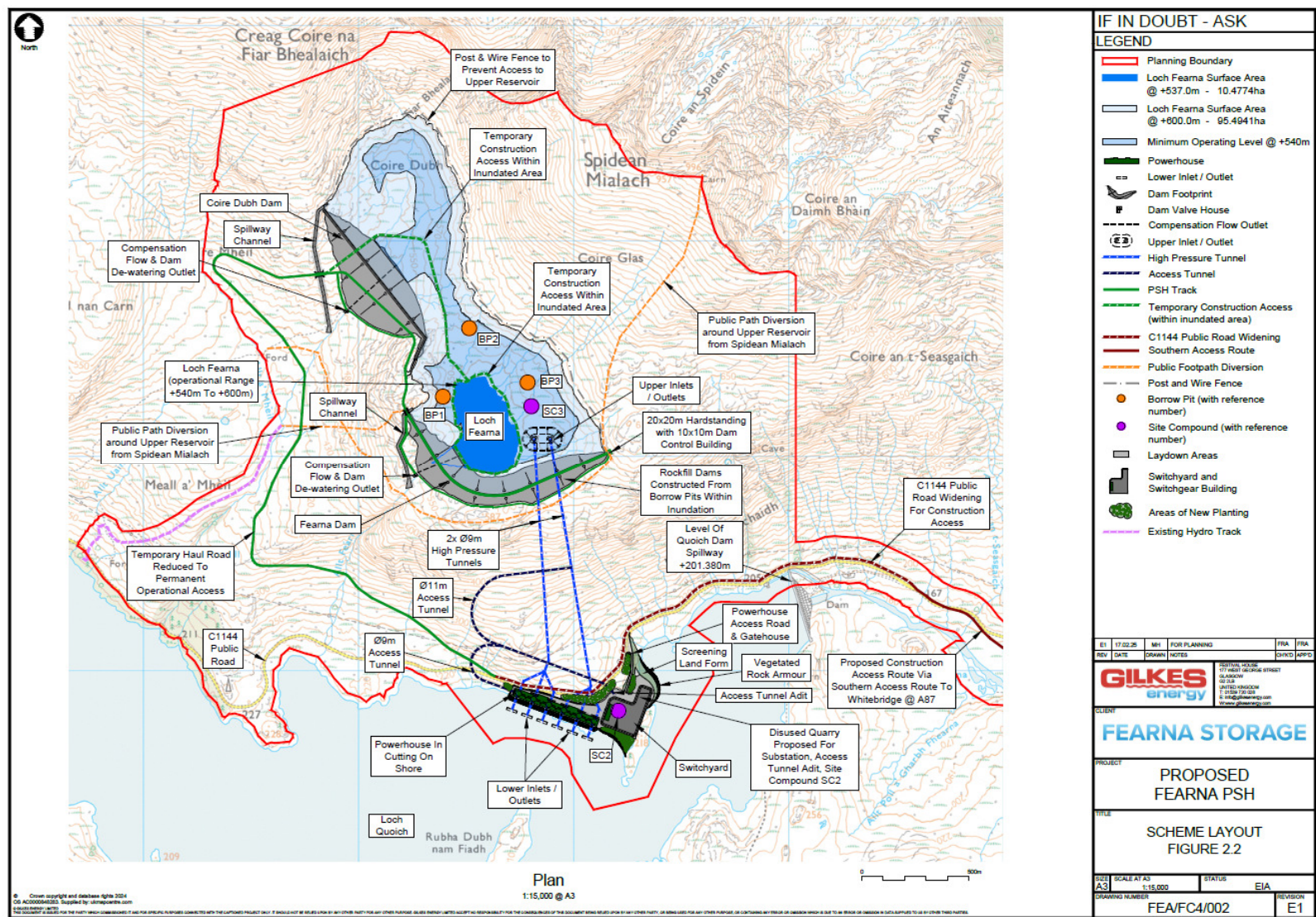
The upper reservoir would be created by raising the level of Loch Fearna from its current level of 538m AOD to a maximum of 600m AOD. An adjacent coire (Coire Dubh) is also proposed to be dammed and inundated, to provide additional storage.

A powerhouse structure is proposed on the edge of Loch Quoich, with the pump-turbine units housed in deep underground shafts. Water would flow in and out of Loch Quoich and Loch Fearna via screened inlet/outlet structures. The powerhouse would be located on the site of a disused former quarry, designed to sit discreetly within the surrounding landscape.

A complete description of the Proposed Development for the purposes of the Environmental Impact Assessment (EIA) regulations is provided in EIA Report **Chapter 2 – The Proposed Development**.

The layout of the Proposed Development is shown in **Figure 2**.

Figure 2 Proposed Development Layout (Courtesy of the Applicant)



2.3 Access Arrangement

As part of the Scoping exercise, two potential access options were identified for use during the construction phase of the Proposed Development. The first of these was via the C1144 a minor public road, which runs between the A87 to the east and Kinloch Hourn, in close proximity to the Proposed Development site.

The second access option, which has now been confirmed as the selected option, is known as the Southern Access Route (SAR), and involves the use of forestry tracks which would be accessed from a new upgraded junction on the A87, which is being upgraded as part of the consented Coire Glas PSH and which will also be using the junction to access the Coire Glas upper works of the project. The access track leading through to the site would be a combination of existing and / or upgraded forestry access tracks through Glen Garry Forest, with a new section of track constructed to tie in with the C1144 public road. From this point through to the Proposed Development site, approximately 2.3km, it is proposed to upgrade the C1144 as necessary.

Whilst the majority of the C1144 will not be used during the main construction phase, there will be a requirement to use the whole length of the road while undertaking ground investigation works. The data obtained during these preliminary works will be used to finalise the construction design. In addition, the C1144 would be used to support early enabling works, to allow the completion of the SAR.

Should there be any issues relating to the use of the SAR during the main construction works, there may be a requirement to use the C1144 until such time as the SAR was re-established. In these circumstances, the Applicant would propose to liaise with THC and provide the relevant information on the likely duration of use of the C1144 and what, if any, mitigation measures may be required.

As part of the access proposals, there will be a requirement to construct a number of new bridge crossings, including over the River Garry, Gearr Garry and River Kingie.

The A87 access junction will provide access to the site for all Abnormal Indivisible Loads (AILs), as well as access for Heavy Goods Vehicles (HGVs) delivering construction materials and general site traffic. An indicative layout of the proposed junction on the A87 is presented as **Figure 2.21_ - Southern Access Route A87 Junction** provided by the Applicant.

The design of the proposed access routes and bridge crossings are provided in **Chapter 2 – The Proposed Development** and **EIA Report Volume 2: Figures 2.14 to 2.26**.

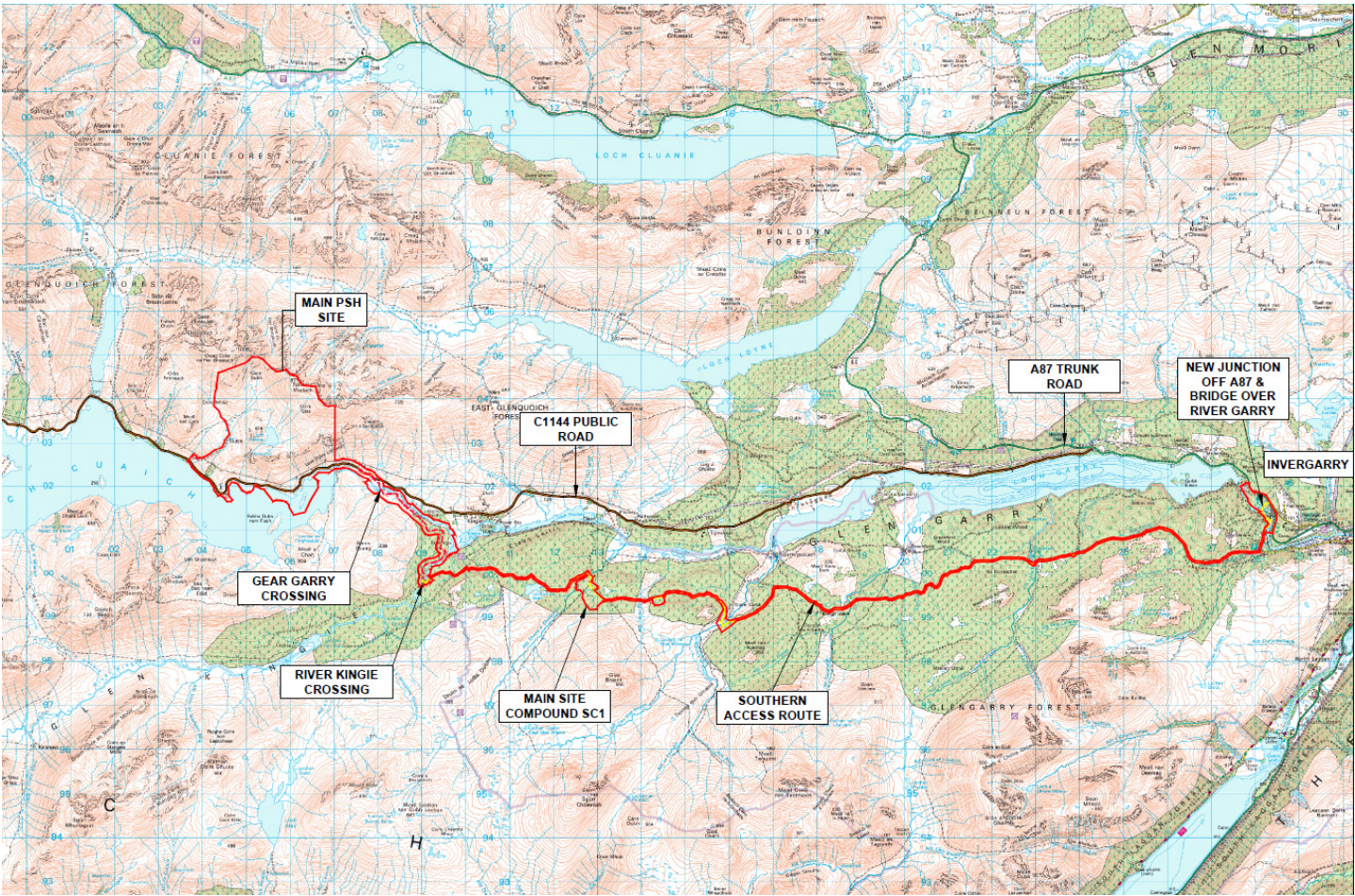
Construction traffic associated with the delivery of materials to the Proposed Development will approach the site predominantly from the east on the A87, which would be accessed via the A82 from the north and south.

The AIL movements are likely to include the turbine sets, transformers and construction plant. For the purposes of the assessment, these will access the site from the Port of Corpach and travel through to the site via the A830, A82 and A87. Confirmation on the Port of Entry (PoE) for AIL movements will be made post consent.

Figure 3 shows the proposed access route from the A87.

During the operational phase of the Proposed Development, access will be taken from the C1144, via a new access junction that will provide direct access to the Proposed Development site.

Figure 3 Proposed Access Route (Courtesy of the Applicant)



3 Policy Context

3.1 Introduction

An overview of relevant transport planning policies has been undertaken and is summarised below for national and local government policies.

3.2 National Policy & Guidance

3.2.1 National Planning Framework 4 (NPF4) (2023)

The National Planning Framework (NPF) is a long-term plan for Scotland that sets out where development and infrastructure is needed in the country. NPF4 sets out the Government's plan looking forward to 2045 that will guide spatial development, set out national planning policies, designate national developments and highlight regional spatial priorities. It is part of the statutory Development Plan, and so influences planning decisions across Scotland.

NPF4 puts the climate and nature crises at the heart of the Scottish planning system and was adopted in February 2023.

Policy 11: which relates to Energy makes specific reference to the impacts of construction traffic associated with renewable energy projects. Policy 11 states the following:

"e) In addition, project design and mitigation will demonstrate how the following impacts are addressed:

➤ *vi. impacts on road traffic and on adjacent trunk roads, including during construction."*

The assessment undertaken as part of this TA and the associated EIA Report **Chapter 15** has taken cognisance of this and provided appropriate mitigation where necessary.

3.2.2 Planning Advice Note (PAN) 75

Planning Advice Note (PAN) 75: Planning for Transport provides advice on the requirements for Transport Assessments. The document notes that:

"... transport assessment to be produced for significant travel generating developments. Transport Assessment is a tool that enables delivery of policy aiming to integrate transport and land use planning."

"All planning applications that involve the generation of person trips should provide information which covers the transport implications of the development. The level of detail will be proportionate to the complexity and scale of the impact of the proposal...For smaller developments the information on transport implications will enable local authorities to monitor potential cumulative impact and for larger developments it will form part of a scoping exercise for a full transport assessment. Development applications will therefore be assessed by relevant parties at levels of detail corresponding to their potential impact."

3.2.3 Transport Assessment Guidance (2012)

TS's Transport Assessment Guidance was published in 2012. It aims to assist in the preparation of TA for development proposals in Scotland such that the likely transport effects can be identified and dealt with as early as possible in the planning process. The document sets out requirements according to the scale of development being proposed.

The document notes that a TA will be required where a development is likely to have significant transport effects, but that the specific scope and contents of a TA will vary for developments, depending on location, scale and type of development.

3.3 Local Policy & Guidance

3.3.1 Highland-wide Local Development Plan (2012)

The Highland-wide Local Development Plan (LDP) was adopted by The Highland Council (THC) in April 2012 and is the established planning policy for the Highlands. It sets out a settlement strategy and spatial framework for how THC foresees development occurring in the forthcoming twenty-year period.

The LDP does not contain any specific policy guidance for the Proposed Development. However, Policy 56 is relevant with regards general transport policy. The relevant transport elements from this policy are:

“Development proposals that involve travel generation must include sufficient information with the application to enable the Council to consider any likely on- and offsite transport implications of the development and should:

- *incorporate appropriate mitigation onsite and/or offsite, provided through developer contributions where necessary, which might include improvements and enhancements to the walking/cycling network and public transport services, road improvements and new roads; and*
- *incorporate an appropriate level of parking provision, having regard to the travel modes and services which will be available and key travel desire lines and to the maximum parking standards laid out in Scottish Planning Policy or those set by the Council.*

When development proposals are under consideration, the Council’s Local Development Strategy will be treated as a material consideration.

The Council will seek the implementation and monitoring of Green Travel Plans in support of significant travel generating developments.”

3.3.2 The West Highlands and Islands Local Development Plan (2019)

The West Highlands and Islands Local Development Plan (WestPlan) was adopted in 2019 and along with HwLDP and Supplementary Guidance forms ‘the development plan’ which directs future developments within the Highlands. In relation to connectivity and transport, the outcome of the WestPlan’s policies are as follows:

“Public agencies and other partners co-ordinate and optimise their investment in agreed growth locations. Communities are better supported to become more self-reliant, to have more pride in their area and identity, to diversify their populations, and to have more control of local resources.”

3.3.3 Onshore Wind Energy Supplementary Guidance (2016)

The Onshore Wind Energy Supplementary Guidance was adopted by THC in 2016. Whilst not directly applicable to hydro schemes, elements of it are relevant to energy construction traffic. In relation to traffic and transport interests, the guidance document notes that:

“All proposals should seek to avoid significant adverse effects on the public road network individually and cumulatively with other built and permitted proposals as well as valid planning applications not yet determined (the weight apportioned to each will reflect their position in the planning process).

The proposals for the use of the public roads and mitigation works will require the approval of the Roads Authority. Developers will be required to enter into a Section 96 (Roads Scotland Act) agreement with the Council to cover damage to the public roads by construction traffic and may be required to provide a bond as surety.

Developers will be required to undertake a Transport Assessment to establish the transport impacts of the construction traffic associated with the development, the suitability of the existing road network, the impact on existing road users and adjacent communities, and the requirement for any mitigation works.”.

3.3.4 Roads and Transport Guidelines for New Developments (2013)

THC document outlines the guidance and standards for the provision of infrastructure within the council area, which includes the design and construction of all new roads associated with development proposals.

THC's Roads and Transport Guidelines for New Developments document provides guidance in relation to transport implications of other types of renewable energy developments (outwith onshore wind farms). The document notes that:

“Where other types of renewable energy schemes, such as offshore wind farms, wave/tidal power, hydro-electric and bio-fuel developments, require consent or approval from the Council, these will be considered on a site-by-site basis as some developments may generate site-specific issues, including abnormal loads and significant volumes of construction traffic. Associated developments, such as transmission projects, can also result in significant transport impacts and the Council would usually require an associated TA to be provided.

There are some types of renewable energy schemes, be they new development or significant maintenance works, which do not require planning consent from the Council. However, if these works are likely to result in significant levels of construction traffic or the need for abnormal loads then the proposals must still be discussed with the Council, in its role as Local Roads Authority. This will ensure that any detrimental impact on the surrounding road network or affected local communities is minimised.”

3.3.5 Guidance on the Preparation of Transport Assessments (2014)

THC has prepared guidance on how TA should be prepared for development sites within The Highlands. The guidance was published by THC in November 2014.

This TA has noted the guidelines and has provided the required assessment.

3.4 Policy and Guidance Summary

The Proposed Development can align with the stated traffic and transport policy objectives and the design of the site and proposed mitigation measures will ensure compliance with national and local objectives.

4 Study Methodology

4.1 Introduction

There are two phases of the Proposed Development, which have been considered in this assessment and are as follows:

- the Construction Phase; and
- the Operational Phase.

4.2 Project Phases – Transport Overview

Of the two phases, the construction phase is considered to have the greatest impact in terms of transport and potential impacts on the road network and sensitive receptors. Construction plant, bulk materials and construction materials will be transported to site, potentially resulting in a significant increase in traffic on the study area.

The operational phase is restricted to trips associated with staff who will operate the equipment, monitor the operation, undertake maintenance and deliveries of consumables, spare parts etc. During the operation of the Proposed Development, up to 10 staff may be at the site to operate the equipment, which is not considered to result in journeys in excess of daily traffic variation levels on the road network. Therefore, no separate assessment for the operational phase is considered to be required.

4.3 Scoping Discussions

The Applicant submitted a request for scoping opinion to the Scottish Ministers in respect of the EIA which included a section considering traffic and transport. A full review of that scoping opinion and other correspondence relating to the scope of the study including pre-application advice is provided in the site **Transport and Access Chapter of the EIA Report (Volume 1: Chapter 15)**.

5 Baseline Conditions

5.1 Study Area Determination

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

It is estimated that the majority of construction personnel would access the site from the directions of Inverness, Fort Augustus, Fort William and other local settlements. In addition given the scale of the proposals and number of staff employed onsite, it is likely that construction personnel will travel from further afield, including the Central Belt, the rest of the UK and possibly abroad.

Given the volume of staff likely to be employed during the construction of the Proposed Development, it is proposed to provide an off-site staging area, where personnel will initially travel to and leave their vehicles before being transported to the Proposed Development site in shuttle buses via the A87 and SAR. The off-site staging area will also allow for the delivery of smaller items of contractor's supplies and for site personnel, which will then be managed by the Principal Contractor. The location of the off-site staging area has yet to be confirmed, however for the purposes of the preparing the assessment, it has been assumed that it will be located to the south of Invergarry and accessed via the A82.

The main site compound SC1 is proposed towards the western end of the SAR, which would act as the primary administration, laydown / storage, accommodation and staging area for the Principal Contractor. The movement of labour, materials and equipment from this compound would be managed by the Principal Contractor.

A secondary site compound SC2 is proposed within the disused former quarry which is adjacent to the proposed powerhouse site within the site boundary. An adjacent area is proposed for the processing and temporary storage of materials. A further satellite compound is also proposed in the upper reservoir area.

A third site compound, SC3 would be located within the upper reservoir works area and would provide administration, welfare and accommodation for staff who may remain in this area during their work rota, rather than travelling back to SC1 after each shift.

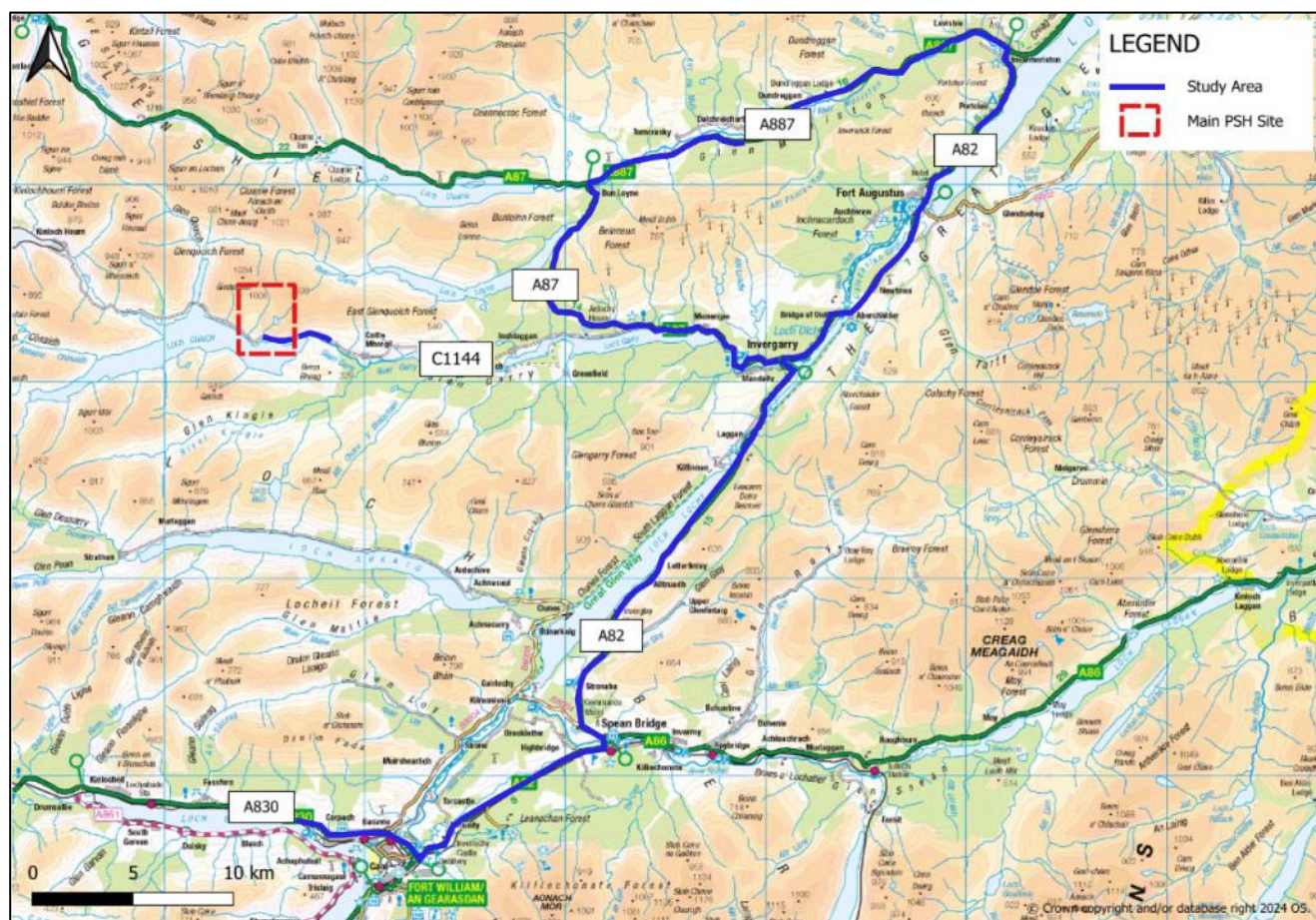
The final location of the off-site staging area, and the design of temporary compounds and laydown areas would be refined and further assessed if deemed necessary by THC, however, based on the current locations, it is considered that the proposed study area incorporates the relevant areas for consideration at this time.

Based on the above, the study area for the assessment has therefore been assumed to be as follows:

- C1144 between the site access junction and its junction with the A87;
- The A87 between Invergarry and Bunloyne Bridge;
- The A887 between Invermoriston and Bunloyne Bridge;
- The A82 between Fort William and Invermoriston; and
- The A830 between Corpach and Fort William.

Effects associated with construction traffic generated by the Proposed Development would be most pronounced in close proximity to the off-site staging area, the access junction between the A87 and the SAR and on the final approaches to the site on the C1144. As vehicles travel away from the Proposed Development, they would disperse across the wider road network, thus diluting any potential effects. It is therefore expected that the effects relating to construction traffic are unlikely to be significant beyond the study area identified above.

Figure 4 Transport Assessment Study Area Road Network



5.2 Pedestrian and Cyclist Networks

There are limited pedestrian facilities in the immediate vicinity of the Proposed Development site, reflecting the rural nature of the location. There are no facilities on the C1144 between its junction with the A87 and the proposed site access junction.

Further away from the Proposed Development in the wider study area, there are pedestrian facilities within the larger settlements, including Invergarry, Spean Bridge, Fort William and Fort Augustus, where there are footways on one side or both sides of the carriageways, drop kerbs with tactile paving, pedestrian refuge islands and dedicated crossing facilities by way of signalised crossings. The level of pedestrian infrastructure is commensurate with the scale of the local settlements and their relative rural setting.

A review of the THC Core Path network¹ indicates that there are no Core Paths on the C1144 leading through to the Proposed Development site, or in the immediate vicinity of the main development areas. There are however Core Paths located to the east in the vicinity of the A87 at the location where the upgraded access junction will be situated. A summary of these paths is provided below, while their locations can be seen in

Figure 5:

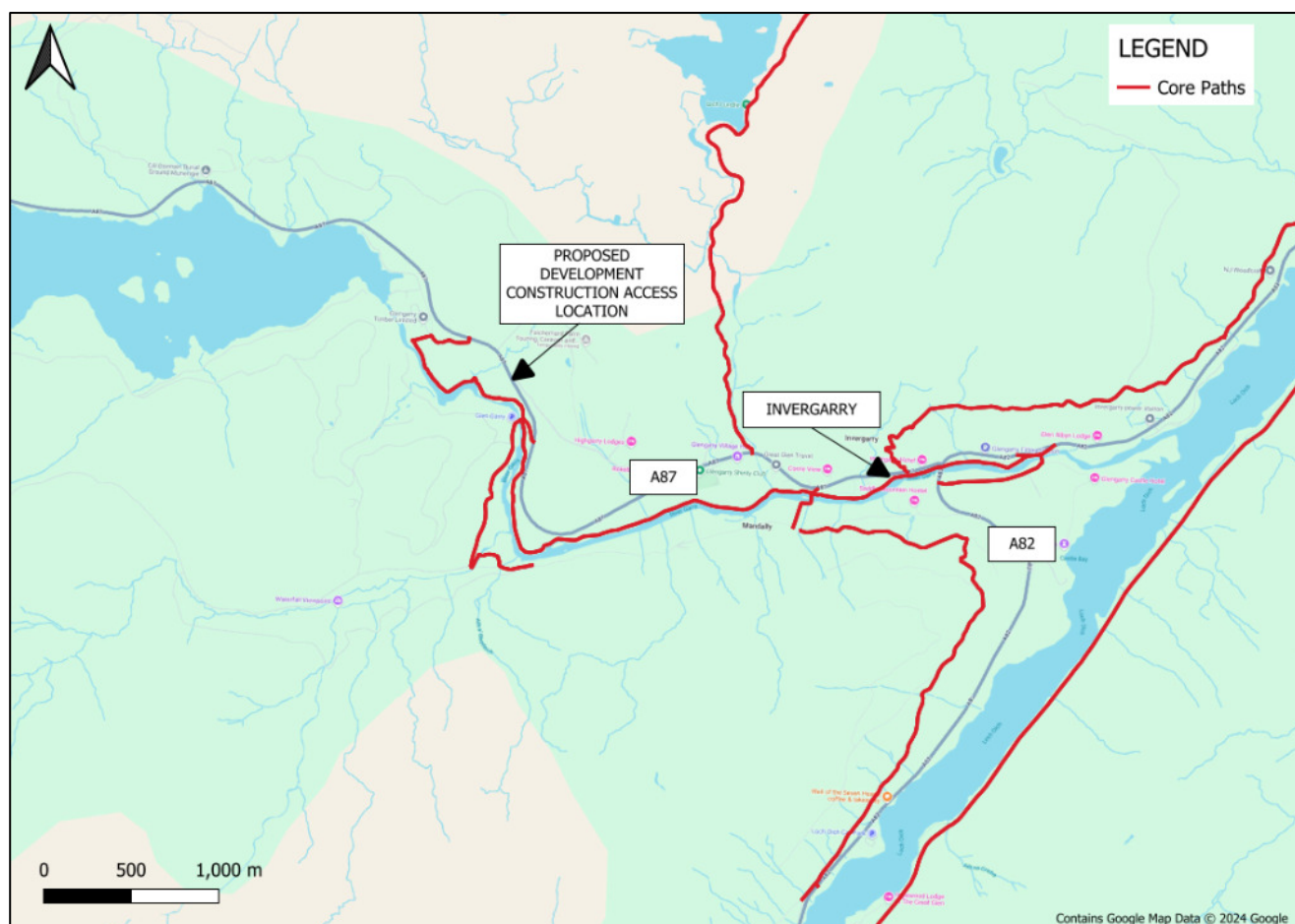
- LO11.08 – Access to Whitebridge waymarked trails from Mandally Road, located to the east, running from the A87 past the Glen Garry Car Park, before heading south towards Tom a' Bhodaich, and finally east towards Poll an Onochoin, for a distance of 1.56km;
- LO11.09 – River Garry access for water sports, located to the east, running from the A87 at the access to Glen Garry Timber, heading east for a distance of approximately 0.37 metres (m) before connecting to LO11.01;

¹ The Highland Council, Core Path Plan:

<https://highland.maps.arcgis.com/apps/webappviewer/index.html?id=2fd3fc9c72d545f7bcf1b43bf5c8445f> [Accessed December 2024]

- LO11.01 – River Garry Paths, located to the east, running from LO11.09 heading south towards Tom a' Bhodaich, before heading east towards Invergarry, for a distance of 5.79km;
- LO11.02 – Aldernaig Burn to Loch Lundy, located to the east at Invergarry, running from the A87 in the south to Loch Lundy in the north, for a distance of approximately 6.04km;
- LO.11.03 – Bridge of Oich Cycle Track, running from the A87 in Invergarry to Fassie Wood at Aberchalder, for a distance of 4.59km; and
- LO11.05 – Black Bridge to Mandally Road, located to the east, running from the A87 to the Great Glen Way, for a distance of approximately 26m.

Figure 5 Core Path Plan



A review of Sustrans' National Cycle Route (NCR) map² does not show any national cycle routes in the immediate vicinity of the Proposed Development site or on the proposed construction access routes. The closest route is the Caledonian Way, National Cycle Route 78 which runs from Campbeltown to Inverness and crosses the A82 within Fort Augustus and at Aberchalder, following sections of the Great Glen Way.

The Great Glen Way is a 127km waymarked route between Inverness and Fort William which is mainly traffic-free, however there are sections in Drumnadrochit, Invermoriston, Fort Augustus and Invergarry where pedestrians use the footways beside the highway and at these locations cyclists and horse riders travel along the road.

In addition to the Great Glen Way, there is also an unofficial, unmarked and marginally wild long distance route from Fort William to Cape Wrath, known as the Cape Wrath Trail. There is no officially sanctioned route for the Trail, rather walkers using it can plan alternative routes within the start and end points.

² <https://www.sustrans.org.uk/national-cycle-network> [Accessed December 2024]

5.3 Road Access

C1144

The C1144 Daingean Bridge to Tomdoun to Loch Quoich Road is a c-class road, commencing at its junction at Daingean Bridge on the A87, extending in a westerly direction by Loch Garry, Tomdoun and Loch Quoich to Kinloch Horn. The road is a single track road with passing places and is approximately 24km in length. The road has the national speed limit (60 miles per hour (mph)) in place and is maintained by THC, with the exception of Quoich Bridge, on the northern banks of Loch Quoich, which is owned and maintained by SSE.

A87

The A87 is part of the Scottish trunk road network and maintained by Bear Scotland on behalf of TS. The A87 commences at the port of Uig and runs in a southerly direction between Portree and Broadford on Skye, before reaching the mainland via the Skye Road Bridge. Once on the mainland, it continues to its junction with the A82 at Invergarry. The road is a single carriageway road, operating with one lane in each direction. The national speed limit is in place outwith villages and settlements, where it reduces to 30 or 40mph. The road is considered to be in good condition and maintained to a high standard by Bear Scotland.

A82

The A82 is part of the Scottish trunk road network and is managed and maintained by Bear Scotland on behalf of TS. The A82 runs from Glasgow to Fort William and Inverness, passing along the shores of Loch Lomond and Loch Ness. It is a key trunk route in the West Highlands. In the vicinity of the Proposed Development the road is a single carriageway road with one lane operating in each direction. The national speed limit is in place outwith settlements, reducing to 30mph within Fort Augustus to the north and 40mph in the vicinity of Invergarry to the south. The road is considered to be in good condition and maintained to a high standard by Bear Scotland.

A887

The A887 is part of the Scottish trunk road network and is managed and maintained by Bear Scotland on behalf of TS. The A887 runs from Bun Loyne in the west at the A87 to Invermoriston in the east at the A82. The national speed limit is in place outwith settlements for the most part, although there are sections where this reduces to 50mph, for example at locations where there are changes in the horizontal alignment of the carriageway. Within settlements, for example Invermoriston, the speed reduces to 40mph. The road is considered to be in good condition and maintained to a high standard by Bear Scotland.

A830

The A830 is part of the Scottish trunk road network and is managed and maintained by Bear Scotland on behalf of TS. The A830 runs from Fort William in the east at the A82, to Mallaig in the west. The road is a single carriageway road with one lane operating in each direction, for a distance of approximately 65km. The national speed limit is in place outwith settlements, reducing to 30mph or 40mph, for example in Fort William and Corpach. The road is considered to be in good condition and maintained to a high standard by Bear Scotland.

Road Suitability

The Agreed Timber Route Map³ has been developed by The Timber Transport Forum who are a partnership of the forestry and timber industries, local government, national government agencies, timber hauliers and road and freight associations. One of the key aims of the forum is to minimise the impact of timber transport on the public road network, on local communities and the environment and a way of achieving this is to categorise the roads leading to forest areas in terms of their capacity to sustain the likely level of timber haulage vehicles i.e., HGVs. The routes are categorised into four groups, namely; 'Agreed Routes', 'Consultation Routes', 'Severely Restricted Routes' and 'Excluded Routes'.

³ <https://timbertransportforum.org.uk/> [Accessed October 2024]

'Agreed Routes' are categorised as routes used for timber haulage without restriction as regulated by the Road Traffic Act 1988. A-roads are classified as 'Agreed Routes' by default unless covered by one of the other road classifications. Those links classed as 'Consultation Routes' are categorised as a route which is key to timber extraction, but which are not up to 'Agreed Route' standard. Consultation with the local authority is required, and it may be necessary to agree limits of timing, allowable tonnage etc. before the route can be used. B-roads are classified as 'Consultation Routes' by default unless covered by one of the other classifications. 'Severely Restricted Routes' are not normally to be used for timber transport in their present condition. These routes are close to being Excluded Routes. Consultation with the local authority is required prior to use. Finally, 'Excluded Routes' should not be used for timber transport in their present condition. These routes are either formally restricted, or are close to being formally restricted, to protect the network from damaging loads.

A number of the roads within the study area form part of the agreed route network used for the extraction of timber and are therefore regularly used by HGV traffic. This includes the A87 and A82 which are 'Agreed Routes' and sections of the C1144 (from Tomdoun to Kinloch Hourn), which is a 'Consultation Route'.

5.4 Existing Traffic Conditions

In order to assess the impact of development traffic on the study area, traffic count data has been sourced from project specific Automatic Traffic Count (ATC) surveys undertaken on the local road network in the immediate vicinity of the site and from the TS and Department for Transport (DfT) databases.

Three ATC sites were established in June 2024. The ATC surveys were conducted over a 7-day period, recording vehicle classifications, direction of travel and speeds. The count sites were as follows:

1. C1144 at the proposed powerhouse site access junction;
2. A87 at the junction with the C1144; and
3. A887 at Invermoriston.

With regards to the traffic data obtained from the TS / DfT databases, the year 2023 has been used, to take account of a full years' worth of survey data. DfT and TS traffic data allow the traffic flows to be split into vehicle classes. The data was summarised into Cars / Light Goods Vehicles (LGVs) and HGVs (all goods vehicles >3.5tonnes gross maximum weight).

Traffic data has been used for the following locations:

4. A87 west of Bun Loyne (Count Site Reference ATC01054);
5. A87 between Bun Loyne and C1144 junction (Count Site Reference 30776);
6. A82 between Invermoriston and Fort Augustus (Count Site Reference ATC01038);
7. A82 between Fort Augustus and Invergarry (Count Site Reference ATC01037);
8. A82 between Invergarry and Spean Bridge (Count Site Reference ATC01036);
9. A82 between Spean Bridge and Fort William (Count Site Reference ATC01034); and
10. A830 between Corpach and Fort William (Count Site Reference ATC01070).

These sites were identified as being areas where sensitive receptors on the access routes would be located. A full receptor sensitivity and effect review is prepared in the **Transport and Access Chapter of the EIA Report (Volume 1: Chapter 15)**.

A National Road Traffic Forecast (NRTF) growth factor was applied to the TS and DfT survey data, where applicable, to provide a base year of 2024. As requested by THC in their scoping opinion, NRTF High growth factors have been applied to the local road network, while Low growth factors have been applied to the Trunk road network. The NRTF High growth factor for 2023 to 2024 is 1.012, while the Low growth factor for 2023 to 2024 is 1.005.

Figure 6 shows the location of the surveys, while **Table 1** summarises the Annual Average Daily Traffic (AADT) traffic data collected and used in this assessment.

Figure 6 Traffic Count Location



Table 1 24-hour Average Traffic Data (2024)

Survey Location	Data Source	Cars / LGV	HGV	Total
C1144 at the proposed powerhouse access junction	ATC	38	22	60
A87 at the junction with the C1144	ATC	1,705	570	2,275
A887 at Invermoriston	ATC	1,265	584	1,850
A87 west of Bun Loyne	TS	2,350	383	2,733
A87 between Bun Loyne and C1144 junction	DfT	1,338	72	1,410
A82 between Invermoriston and Fort Augustus	TS	1,259	354	1,613
A82 between Fort Augustus and Invergarry	TS	2,271	665	2,936
A82 between Invergarry and Spean Bridge	TS	3,352	887	4,239
A82 between Spean Bridge and Fort William	TS	16,050	865	16,915
A830 between Corpach and Fort William	TS	9,366	711	10,076

Please note that variances may occur due to rounding.

As noted above the ATCs undertaken to inform the study also collected speed data, as do the TS count sites, and a summary of this can be seen in **Table 2** below.

Table 2 Speed Summary

Survey Location	Mean Speed (mph)	85%tile Speed (mph)	Speed Limit (mph)
C1144 at the proposed powerhouse access junction	26.7	32.2	60
A87 at the junction with the C1144	44.8	50.4	60
A887 at Invermoriston	24.5	29.8	40
A87 west of Bun Loyne	47.2	55.3	60

Survey Location	Mean Speed (mph)	85 th tile Speed (mph)	Speed Limit (mph)
A87 between Bun Loyne and C1144 junction	-	-	-
A82 between Invermoriston and Fort Augustus	41.3	53.8	60
A82 between Fort Augustus and Invergarry	49.9	57.0	60
A82 between Invergarry and Spean Bridge	49.0	55.8	60
A82 between Spean Bridge and Fort William	29.2	34.1	30
A830 between Corpach and Fort William	30.7	35.2	30

The speed survey data indicates that speed limits are being adhered to in the immediate vicinity of the Proposed Development, at the locations where ATC surveys were undertaken. At other locations within the study area, the speed survey data indicates that speed limits are broadly being adhered to. The 85th percentile speeds at Fort William and Corpach are over the posted speed limit of 30mph and as such, Police Scotland may wish to consider enforcement spot checks in these areas as part of their wider road policing measures.

5.5 Accident Review

Personal Injury Accident (PIA) data for the three-year period covering 2020 to 2022 for the C1144 and A87 between Invergarry and Bun Loyne, was obtained from the online resource CrashMap⁴ which uses data collected by the police about road traffic crashes occurring on British roads, where someone is injured.

TA Guidance⁵ requires an analysis of the PIA on the road network in the vicinity of any development to be undertaken for at least the most recent 3-year period.

The statistics are categorised into three categories, namely “Slight” for damage only incidents, “Serious” for injury accidents and “Fatal”, for those accidents that result in a fatality. The locations and severity of the recorded accidents within the study area are summarised in **Table 3**, while **Figure 7** shows their locations.

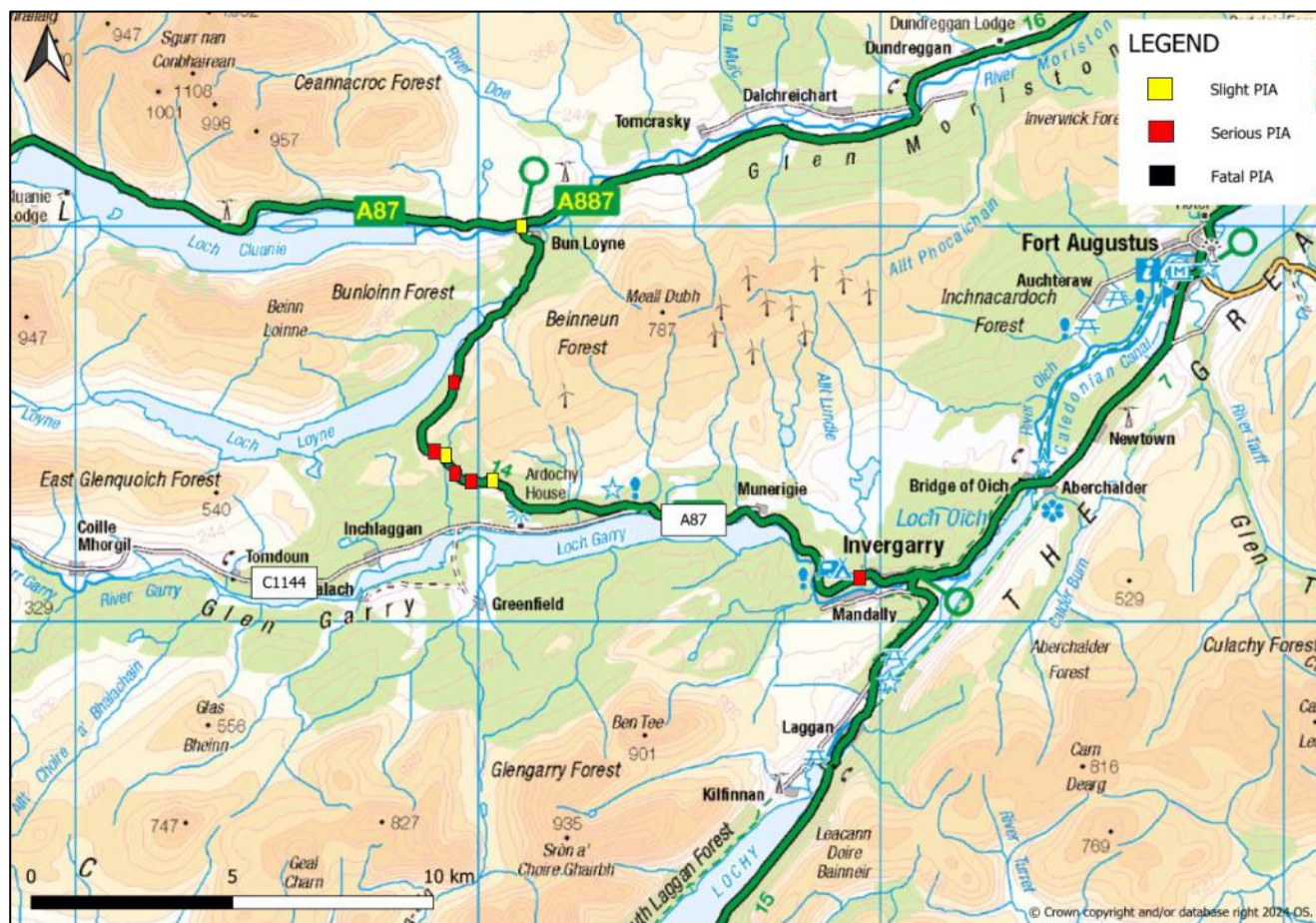
Table 3 Personal Injury Accident Summary

Survey Location	Slight	Serious	Fatal	HGV Incidents
C1144	0	0	0	0
A87	3	5	0	0
Total	3	5	0	0
Percentage	37.5%	62.5%	0.0%	

⁴ <https://www.crashmap.co.uk/> [Accessed December 2024]

⁵ https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management_dpmtag_ref_17_-_transport_assessment_guidance_final_-_june_2012.pdf

Figure 7 PIA Locations



A summary analysis of the incidents indicates that:

- A total of eight PIAs were recorded within the study area within the last three-year period.
- Of those eight PIAs, three were classified as “Slight” (37.5%) and five were classified as “Serious” (62.5%).
- There were no “Fatal” PIAs recorded.
- There were no PIAs recorded that involved a pedestrian or cyclist.
- Three PIAs recorded involved a motorcycle, two were classified as “Serious” and one was classified as “Slight”.
- None of the recorded PIAs involved an HGV.
- Young drivers (under 25) were involved in one accident, which was classified as “Slight” and located at the A87 / A887 junction.
- No PIAs were recorded on the C1144 in the vicinity of the site or the A87 in the vicinity of the proposed site access junction.

In general, there are no clusters of PIAs at any location in the study area or high numbers of accidents involving HGVs for example. The majority of PIAs recorded occurred at or on approach to bends or at junctions where there is an increased interaction between vehicles. It is acknowledged that there has been a number of accidents involving motorcycles, which could be attributed to the fact the road network is used by a high number of tourists, including those undertaking motorcycle touring holidays.

Based on the information available, it has been established that there are no specific road safety issues within the immediate vicinity of the Proposed Development or within the study area that currently require to be addressed or would be exacerbated by the construction of the Proposed Development.

5.6 Future Baseline Traffic Conditions

5.6.1 2032 Traffic Flows, excluding Committed Development Trips

Construction of the Proposed Development could commence during 2028 if consent is granted and is anticipated to take approximately 101 months depending on weather conditions and ecological considerations.

A review of the construction programme provided by the Applicant suggests that the peak of construction activities will occur in 2032. As such, this has been used within the assessment for the future baseline.

To assess the likely effects during the construction, base year traffic flows were determined by applying a NRTF growth factors to the surveyed traffic flows. The NRTF Low growth factor for 2024 to 2032 is 1.093 and the NRTF High growth factor for 2024 to 2032 is 1.063. These factors were applied to the 2024 traffic data to estimate the 2032 Base traffic flows, as shown in **Table 4**.

Table 4 24-hour Average Traffic Data (2032)

Survey Location	Cars / LGV	HGV	Total
C1144 at the proposed powerhouse access junction	42	24	66
A87 at the junction with the C1144	1,812	606	2,418
A887 at Invermoriston	1,345	621	1,966
A87 west of Bun Loyne	2,498	407	2,905
A87 between Bun Loyne and C1144 junction	1,422	77	1,499
A82 between Invermoriston and Fort Augustus	1,339	376	1,715
A82 between Fort Augustus and Invergarry	2,414	707	3,121
A82 between Invergarry and Spean Bridge	3,563	943	4,506
A82 between Spean Bridge and Fort William	17,061	920	17,981
A830 between Corpach and Fort William	9,956	755	10,711

Please note that variances may occur due to rounding.

5.7 Committed Developments

5.7.1 Onshore Wind Farm and Energy Related Planning Applications

A review of THC's online planning portal⁶, in addition to the Scottish Government's Energy Consents Unit portal⁷ was undertaken to identify any consented developments within the vicinity of the Proposed Development which would generate significant traffic. The findings of this review are detailed in **Table 5**.

Table 5 Surrounding Planning Applications

Reference	Name	Current Status
21/04080/S36	Bhlairaidh Wind Farm Extension	Consented
22/01760/S36	Bunloinn Wind Farm	Consented
20/01796/S36	Cloiche Wind Farm	Consented
PPA-270-2183 / 14/02879/FUL	Dell Wind Farm	Consented
ECU00000577	Coire Glas Pumped Storage Scheme	Consented

Bhlairaidh Wind Farm Extension is located to the northeast of the Proposed Development. It is proposed that access to Bhlairaidh Wind Farm Extension will be via the existing Bhlairaidh Wind Farm. As such, construction traffic associated with Bhlairaidh Wind Farm Extension will travel along the Proposed Development's study area. It should however be noted that the development was consented in August 2022 and the decision notice states that the commencement of the development must be no later than six years from the date of consent. As

⁶ View planning applications, The Highland Council, Source: <https://www.highland.gov.uk/info/180/planning-applications-warrants-and-certificates/143/planning-permission/4> [Accessed January 2025]

⁷ <https://www.energyconsents.scot/ApplicationSearch.aspx?T=1> [Accessed January 2025]

such, the peak of the construction activities associated with this and the Proposed Development will not align and this has therefore not been considered further in the assessment.

Bunloinn Wind Farm is located to the northeast of the Proposed Development. It is proposed that access to Bunloinn Wind Farm will be via the A87. As such, construction traffic associated with Bunloinn Wind Farm will travel along the Proposed Development's study area. It should however be noted that the development was consented in March 2024 and the decision notice states that the commencement of the development must be no later than five years from the date of consent. As such, the peak of the construction activities associated with this and the Proposed Development will not align and this has therefore not been considered further in the assessment.

Cloiche Wind Farm is located to the northeast of the Proposed Development. It is proposed that access to Cloiche Wind Farm will be via the B862, which is accessed via the A82. As such, construction traffic associated with Cloiche Wind Farm will travel along the Proposed Development's study area. It should however be noted that the development was consented in November 2023 and the decision notice states that the commencement of the development must be no later than five years from the date of consent. As such, the peak of the construction activities associated with this and the Proposed Development will not align and as such this has therefore not been considered further in the assessment.

Dell Wind Farm is located to the northeast of the Proposed Development, south of Whitebridge. It is proposed to access Dell Wind Farm via the B862. The scheme was granted planning permission at appeal in August 2019 and the decision notice states that the commencement of the development must be no later than five years from the date of consent. A redesign of the scheme and revised planning application has since been made, which has not yet been determined, however the traffic and transport works submitted for the application shows that all construction vehicles will access the site on the B862 from the north, thus limiting any potential interactions on the respective study areas. As such, this has not been considered further in the assessment.

Coire Glas Pumped Storage Scheme, located to the east of the Proposed Development was consented in October 2020. Based on the current status of the project and duration of the construction programme, which was estimated to be nine years, it is considered that the construction of this and the Proposed Development may coincide, and as such the construction peak traffic flows have been obtained from the relevant planning application documents available from THC planning portal and assigned to the base traffic flows for 2032. It is acknowledged that there will be works in relation to Coire Glas outwith the main construction activities, for example those in relation to the Kilfinnan Road upgrade, the proposed site access junction upgrade on the A87, access track upgrades and bridge crossings, however it is assumed that these would all be completed in advance of the main construction activities. As such only those peak construction traffic flows contained within Chapter 16 Traffic and Transport of the March 2018 EIA have been used.

The Base plus Committed Development traffic flows are summarised in **Table 6**. These flows will be used in the Construction Peak Traffic Impact Assessment.

Table 6 24-hour Average Traffic Data (2032) Base plus Committed Development

Survey Location	Cars / LGV	HGV	Total
C1144 at the proposed powerhouse access junction	42	24	66
A87 at the junction with the C1144	1,842	670	2,512
A887 at Invermoriston	1,345	621	1,966
A87 west of Bun Loyne	2,498	407	2,905
A87 between Bun Loyne and C1144 junction	1,422	77	1,499
A82 between Invermoriston and Fort Augustus	1,357	558	1,915
A82 between Fort Augustus and Invergarry	2,432	889	3,321
A82 between Invergarry and Spean Bridge	3,605	1,225	4,830
A82 between Spean Bridge and Fort William	17,085	1,039	18,124

Survey Location	Cars / LGV	HGV	Total
A830 between Corpach and Fort William	9,956	755	10,711

Please note that variances may occur due to rounding.

It should be noted that any crossover of traffic with the Proposed Development flows and other developments in the area would be addressed via an overarching Construction Traffic Management and Monitoring Plan secured by planning condition on the Proposed Development's consent.

Projects in scoping or not yet determined cannot be included in cumulative assessments as they have yet to be determined. As traffic impacts are short lived for construction projects, the potential traffic impact is highly speculative and as such, cannot be included in the assessment. Furthermore, including construction traffic associated with other development projects, specifically in relation to construction activities which are temporary in nature will dilute the potential impact that the Proposed Development will have. The approach taken is therefore considered to be an overly robust assessment.

5.7.2 Other Planning Applications

A review of the THC's online planning portal was also undertaken for other any other non-energy related developments with planning consent, which should be considered within this assessment. The review examined consented developments whose trips are considered significant in scale (i.e., has associated traffic impact of over 10%).

The review did not identify any other significant traffic generating developments in the study area that may occur during the construction period associated with the Proposed Development.

It should be noted that the use of NRTF growth assumptions has provided a basis for general local development growth within the study area.

6 Trip Generation and Distribution

6.1 Construction Phase

6.1.1 Trip Derivation

During the construction phase of the Proposed Development, the following traffic will require access to the site:

- Staff transport, in staff minibuses to a residential camp to be founded at compound SC1 within the Proposed Development area;
- Light Goods Vehicles (LGV) providing supplies, provisions and deliveries to the construction offices and residential camp;
- Removal of waste water and solid waste (should on-site treatment not be used);
- Construction consumables such as fuel and oil deliveries made in HGVs;
- Construction equipment, plant and machinery by HGV low loader (or similar);
- Bulk materials such as cement and aggregate (the majority of aggregates will be won from the site); and
- AILs associated with the High Voltage (HV) transformer equipment and tunnel linings.

The traffic generation associated with the Proposed Development has been based upon similar scale projects undertaken by Gilkes Energy engineers and is based upon their recent experience. The proposed traffic generation has been broken down into three distinct programmes by Gilkes Energy as detailed below:

- Scenario One: Public Road network to Invergarry Staging Area – all SAR Traffic is required to report to Invergarry Staging Area;
- Scenario Two: Invergarry Staging Area to site main site compound – all traffic accessing the main site compound via the SAR; and
- Scenario Three: Main site compound to Fearna PSH site – all traffic accessing the site via the SAR and widened 2.3km of the C1144.

To ensure that a suitably robust assessment has been undertaken, only Scenarios One and Three have been used within this TA and the accompanying **Transport and Access Chapter of the EIA Report (Volume 1: Chapter 15)**. Whilst Scenario Two will generate vehicular trips onto the public road network, these are lower than within Scenario One and will occur on a short section of the public road network. As such Scenario One has been used for the wider road network within the study area and Scenario Three has been used for the widened section of the C1144 in close proximity to the site.

The traffic generation for Scenario One and Scenario Three are illustrated in **Figure 8** and **Figure 9**, respectively.

Figure 8 Scenario One: Monthly Construction Traffic Profile (2 Way Trips)

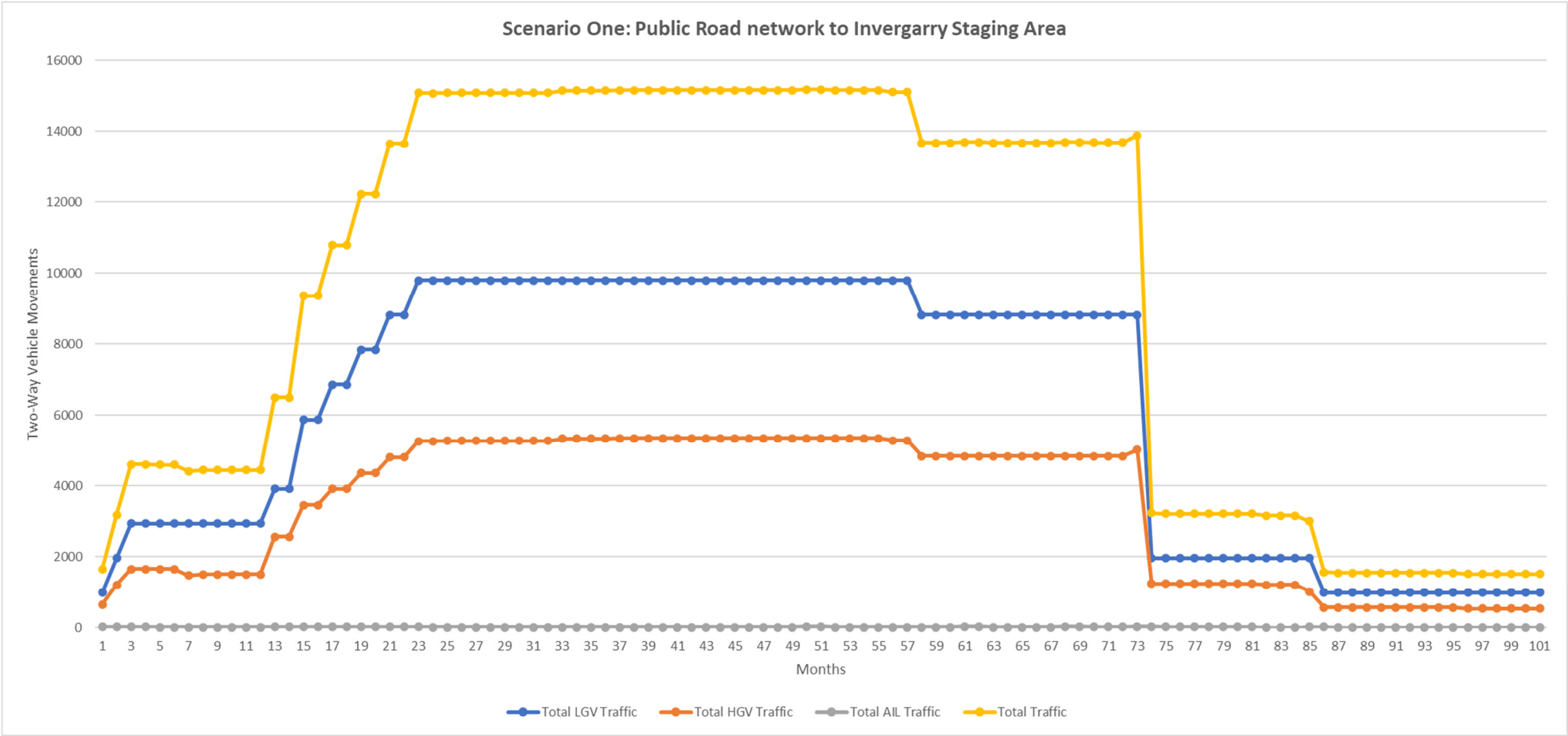
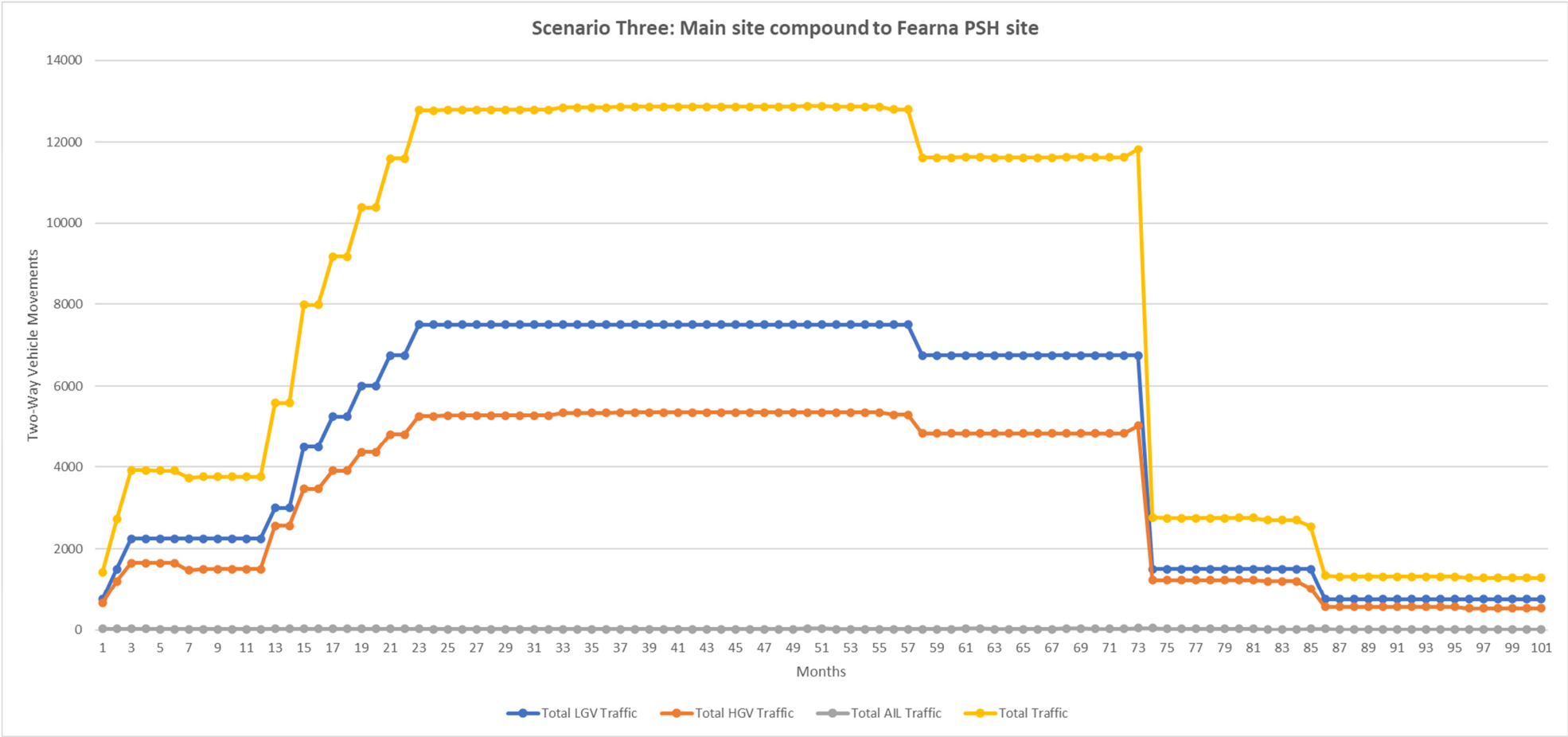


Figure 9 Scenario Three: Monthly Construction Traffic Profile (2 Way Trips)



The peak for construction traffic generation for each of the two scenarios are provided below:

- Scenario One: Between Month 37 and 55 there will be the following daily construction traffic movements:
 - Peak Car / LGV Traffic: 328 movements (164 Inbound trips and 164 Outbound trips) per day;
 - Peak HGV Traffic (including AIL): 178 movements (89 Inbound trips and 89 Outbound trips) per day; and
 - Total Peak Construction Traffic: 506 movements (253 Inbound trips and 253 Outbound trips) per day.
- Scenario Three: Month 52 there will be the following daily construction traffic movements:
 - Peak Car / LGV Traffic: 250 movements (125 Inbound trips and 125 Outbound trips) per day;
 - Peak HGV Traffic (including AIL): 178 movements (89 Inbound trips and 89 Outbound trips) per day; and
 - Total Peak Construction Traffic: 428 movements (214 Inbound trips and 214 Outbound trips) per day.

For Scenario One, the peak daily construction vehicle movements will be used on all roads within the study area with the exception of the C1144, which will use the peak daily construction vehicle movements from Scenario Three.

6.2 Abnormal Indivisible Loads

AIL traffic will be associated with three types of loads, namely:

- Delivery of construction plant (large dump trucks, bulldozers, etc), abnormal in terms of their width (up to 3.5m), rather than weight;
- Delivery of tunnel lining sections (abnormal in width, rather than weight); and
- Delivery of HV transformer equipment abnormal in terms of width and weight.

AIL traffic associated with tunnel lining, turbine sets, transformers and construction plant for the purposes of the assessment, will access the site from the Port of Corpach and travel through to the site via the A830, A82 and A87. Confirmation on the PoE for AIL movements will be made post consent.

A Route Survey Report (RSR) for the AIL movements has been undertaken and is provided in **Annex B**.

6.3 Trip Distribution

Traffic associated with site material deliveries are all assumed to access the Proposed Development from the A87, accessed primarily via the A82 corridor to the east. Access to the A82 corridor will be taken via the A9 to the north and the A830 or A86 to the south.

The split between HGV traffic to the north and south is assumed to be 40% / 60% based upon likely traffic movements.

A total of 10% of Car / LGV traffic is associated with site and residential camp supply deliveries and will access the site from the A9 from the Central Belt. The remaining provision is related to staff and visitor movements and traffic has been distributed to the nearest centres of population where off-site accommodation can be found. The proposed distribution of these is as follows:

- Inverness 40%;
- Fort Augustus: 10%.
- Fort William & Spean Bridge: 10%;
- Aviemore, Kingussie & Newtonmore: 30%; and
- A9 South: 10%.

6.4 Peak Construction Traffic Flows

The peak traffic flows have been assigned to the study area network. The resulting traffic flows are summarised in **Table 7**.

Table 7 Peak Construction Traffic Flows

Survey Location	Cars / LGV	HGV	Total
C1144 at the proposed powerhouse access junction	250	180	430
A87 at the junction with the C1144	328	180	508
A887 at Invermoriston	-	-	-
A87 west of Bun Loyne	-	-	-
A87 between Bun Loyne and C1144 junction	-	-	-
A82 between Invermoriston and Fort Augustus	164	72	236
A82 between Fort Augustus and Invergarry	164	72	236
A82 between Invergarry and Spean Bridge	328	108	436
A82 between Spean Bridge and Fort William	164	108	272
A830 between Corpach and Fort William	33	-	33

Please note that variances may occur due to rounding.

6.5 Operational Phase Traffic

During the operation of the Proposed Development, up to 10 staff may be at the site to operate the equipment, monitor the operation and undertake maintenance.

The traffic generation with the operational phase is minimal and would not trigger the need for a separate impact assessment.

7 Traffic Impact Assessment

7.1 Construction Impact

The peak month traffic data was combined with the future year (2032) traffic data to allow a comparison between the baseline results to be made. The increase in traffic volumes is illustrated in percentage increases for each class of vehicle. This is illustrated in **Table 8**.

Table 8 Peak Construction Traffic Network Impact

Survey Location	Cars / LGV	HGV	Total	Cars / LGV % Increase	HGV % Increase	Total % Increase
C1144 at the proposed powerhouse access junction	292	204	496	595.2%	763.4%	655.7%
A87 at the junction with the C1144	2,170	850	3,020	17.8%	26.9%	20.2%
A887 at Invermoriston	1,345	621	1,966	0.0%	0.0%	0.0%
A87 west of Bun Loyne	2,498	407	2,905	0.0%	0.0%	0.0%
A87 between Bun Loyne and C1144 junction	1,422	77	1,499	0.0%	0.0%	0.0%
A82 between Invermoriston and Fort Augustus	1,521	630	2,151	12.1%	12.9%	12.3%
A82 between Fort Augustus and Invergarry	2,596	961	3,557	6.7%	8.1%	7.1%
A82 between Invergarry and Spean Bridge	3,933	1,333	5,266	9.1%	8.8%	9.0%
A82 between Spean Bridge and Fort William	17,249	1,147	18,396	0.9%	10.4%	1.5%
A830 between Corpach and Fort William	9,988	755	10,744	0.3%	0.0%	0.3%

The total traffic movements are predicted to increase by 655.7% on the widened section of the C1144, where the proposed site access for the main site area will be located. Whilst this increase could be considered high, it is generally caused by the relatively low vehicle flows on the road at this location. It should also be noted that this impact on the C1144 would only be between the main Site and the junction with the SAR, a section totalling approximately 2.3km, which would be upgraded to accommodate the vehicles associated with the construction activities and where there are no sensitive receptors. To put the increase into perspective, there would be an additional 430 two-way vehicle movements at this location per day.

On the rest of the public road network within the study area, the next highest total traffic increase (20.2%) is on the A87 to the west of Invergarry. To put the increase into perspective, there would be an additional 508 two-way vehicle movements at this location per day.

The total HGV traffic movements will increase by 763.4% on the C1144, where the proposed site access will be located. Whilst this increase could be considered high, it is generally caused by the relatively low HGV flows on the road at this location. To put the increase into perspective, there would be an additional 180 two-way HGV movements at this location per day.

On the rest of the public road network, the highest HGV traffic increase is 26.9%, which is on the A87 to the west of Invergarry. Again, to put the increase into perspective, there would be an additional 180 two-way HGV movements at this location per day.

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

A review of existing theoretical road capacity has been undertaken using The NESAs Manual, formerly part of the Design Manual for Roads and Bridges, Volume 15, Part 5. The theoretical road capacity has been estimated

for each of the road links for a 12-hour period that makes up the study area. The results are summarised in **Table 9**.

Table 9 Theoretical Road Capacity

Survey Location	2032 Baseline Flow (total traffic)	2032 Base + Development Flows (total traffic)	Theoretical Road Capacity (12hr)	Spare Road Capacity %
C1144 at the proposed powerhouse access junction	66	496	3,360	85.3%
A87 at the junction with the C1144	2,512	3,020	21,600	86.0%
A887 at Invermoriston	1,966	1,966	21,600	90.9%
A87 west of Bun Loyne	2,905	2,905	21,600	86.6%
A87 between Bun Loyne and C1144 junction	1,499	1,499	21,600	93.1%
A82 between Invermoriston and Fort Augustus	1,915	2,151	21,600	90.0%
A82 between Fort Augustus and Invergarry	3,321	3,557	21,600	83.5%
A82 between Invergarry and Spean Bridge	4,830	5,266	21,600	75.6%
A82 between Spean Bridge and Fort William	18,124	18,396	21,600	14.8%
A830 between Corpach and Fort William	10,711	10,744	21,600	50.3%

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

Whilst no capacity issues are predicted, there are mitigation measures that can be used to reduce the impact of the construction traffic on other road users and nearby residents. These are outlined in the following Section.

8 Proposed Traffic Mitigation Measures

8.1 Construction Phase

8.1.1 Construction Traffic Management Plan (CTMP)

During the construction period, a project website, blog or Twitter (X) feed would be regularly updated to provide the latest information relating to traffic movements associated with vehicles accessing the site. This would be agreed with THC.

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

- 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);
- Delivery lorries containing fine (dry) materials, for example sand and cement 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 THC and TS;
- Contractual requirements that contractors will only use the agreed access routes;
- Direction signage signposting traffic on the agreed access routes;
- Identification numbers of HGV and vans to allow easy recognition;
- Providing the public with details of how to report use of unapproved routes or driving issues of concern;
- Using GPS trackers to allow the monitoring of bulk delivery vehicle movements;
- Setting out site staff disciplinary measures for those who ignore the agreed access route and enforcing these throughout the construction period;
- All site vehicles will feature “white noise” reversing warning devices to reduce noise disruption when on site;
- Appropriate traffic management measures would be put in place on the A87 and C1144 to avoid conflict with general traffic, subject to the agreement of the THC and TS. Typical measures would include HGV turning and crossing signs and / or 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 20mph for all construction vehicles travelling through local villages and towns;
- 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 such as Invergarry, Fort Augustus, Spean Bridge and Fort William; and
 - Identification of the required access routes and the controls to ensure no departure from these routes.

TS and THC may require an agreement to cover the cost of abnormal wear and tear on the A87 in close proximity to the A87 access junction and the C1144. 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 Roads Authority. 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.

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.

There would be a regular 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.

8.2 C1144 Public Road Improvements

As part of the Proposed Development, it is proposed to implement improvements on the C1144 which is part of the public road network and will provide access between the main site area and the main site compound.

The Proposed Development will increase traffic flows on a short section of the C1144 road, between the SAR and the proposed site access junction. The section of road in question is a narrow single track road with passing places and, as such, it is proposed to upgrade this for a length of approximately 2.3km. Through this section, the carriageway will be widened by 4m with associated verge and drainage works, allowing for two-way HGV movements. Details of the proposed works on the C1144 can be seen on **Figure 2.19 - C1144 Road Widening** and **Figure 2.20 - C1144 Widening Details**.

8.3 Abnormal Load Mitigation Works

An abnormal load RSR highlights a number of constraint points which have been assessed within the report using swept path assessment software. The locations of the constraint points and the swept path drawings are included **Annex B**.

The RSR identifies key points and issues associated with the route that require mitigation works. These works are to be agreed with THC and TS and other relevant stakeholders.

The AIL mitigation works can be designed to be temporary in nature to enable the restoration to their original condition, if required by TS and THC.

8.4 Abnormal Load Transport Management Plan

There are a number of traffic management measures that could help reduce the effect of AIL convoys.

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

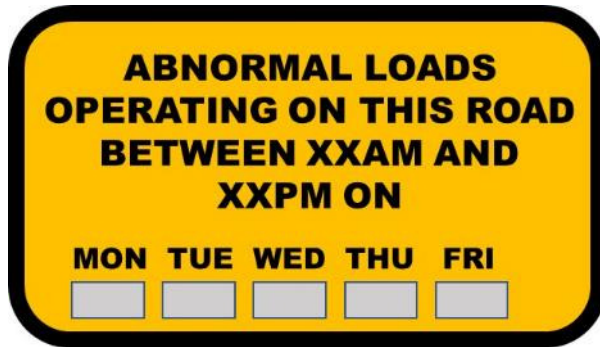
The majority of potential conflicts between construction traffic and other road users will occur with AIL traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.

Potential conflicts between AILs and other road users can occur at a variety of locations and circumstances, for example:

- where the loads may straddle the centre line of the carriageway or where fast moving oncoming traffic may be encountered;
- at locations where there are significant changes in the horizontal alignment of the carriageway, requiring the loads to use the full carriageway width;
- on sections of single carriageway road;
- where traffic turns at a road junctions, requiring other traffic to be restrained on other approach arms; and
- in locations where high speeds of general traffic are predicted.

Advance warning signs would be installed on the approaches to the affected road network. Information signage could be installed to help assist drivers and an example is illustrated in **Figure 10**. Flip up panels (shown in grey) would be used to mask over days where convoys would not be operating. When no convoys are moving, the sign would be bagged over by the Traffic Management contractor.

Figure 10 Example Information Sign



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).

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

The AIL Transport Management Plan would 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 such as local events;
- a protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic; and
- proposals to establish a construction liaison group to ensure the smooth management of the project / public interface with the applicant, the construction contractors, the local community, and if appropriate, the police forming the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

8.5 Construction Staff Travel Plan

A Travel Plan for construction staff will be developed to reduce dependency on single occupancy car trips. The Travel Plan will be a contractual requirement for contractors working on the site and would include the following elements:

- The provision of staff minibus / coach links from local rail stations;
- The use of limited parking spaces on-site. The level of parking will be agreed with THC, prior to works commencing;
- The encouragement for car sharing amongst staff and visitors;
- Provision of emergency taxi links from the site in the event of family emergency requirements;
- Subsidised rail tickets to the minibus pick up areas;
- Reviewing shift changes to ensure that large numbers of staff movements occur outside peak network times to reduce the impact on school trips etc. These could be co-ordinated with other large construction schemes with significant traffic generation in the study area, if required; and

- The provision of a staff travel co-ordinator to assist in organising the travel links, reviewing their operation and monitoring compliance with the contractual requirements.

8.6 On-site Measures delivered using an Outdoor Access Management Plan (OAMP)

Within the site, consideration has been given to pedestrians cyclists and horse riders alike due to potential interactions between construction traffic and users of the paths and public roads. If required, a Path Planning Study will be conducted post consent and will be secured through a planning condition. Findings from the study will be used to formulate a set of measures into an Outdoor Access Management Plan (OAMP).

Crossing points will be provided where required, with path users having right of way. Appropriate Traffic Signs Manual Chapter 8⁸ compliant temporary road signage would be provided to assist at these crossing for the benefit of all users.

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

Signage will be installed on the site exits that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians and cyclists in the area. This will also be emphasised in the weekly toolbox talks.

No scoping response has been received from The British Horse Society, however measures implemented on similar schemes will be given consideration as part of the Proposed Development. These measures are predominantly focused around the interactions between HGV traffic and horses. Horses are normally nervous of large vehicles, particularly when they do not often meet them. Horses are flight animals and will run away in panic if really frightened. Riders will do all they can to prevent this but, should it happen, it could cause a serious accident for other road users, as well as for the horse and rider.

The main factors causing fear in horses in this situation are:

- something approaching them, which is unfamiliar and intimidating;
- a large moving object, especially if it is noisy;
- lack of space between the horse and the vehicle;
- the sound of air brakes; and
- anxiety on the part of the rider.

The British Horse Society has previously recommended the following actions that will be included in the site training for all HGV staff:

- on seeing riders approaching, drivers must slow down and stop, minimising the sound of air brakes, if possible;
- if the horse still shows signs of nervousness while approaching the vehicle, the engine should be shut down (if it is safe to do so);
- the vehicle should not move off until the riders are well clear of the back of the HGV;
- if drivers are wishing to overtake riders, please approach slowly or even stop in order to give riders time to find a gateway or lay by where they can take refuge and create sufficient space between the horse and the vehicle. Because of the position of their eyes, horses are very aware of things coming up behind them; and

⁸ Department for Transport/Highways Agency, Department for Regional Development (Northern Ireland), Transport Scotland & Welsh Assembly Government (2009): Traffic Signs Manual, Chapter 8 – Traffic Safety Measures and Signs for Road Works and Temporary Situations

- all drivers delivering to the site must be patient. Riders will be doing their best to reassure their horses while often feeling a high degree of anxiety themselves.

8.7 Public Information

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

8.8 Operational Phase Mitigation

Site entrance roads would be well maintained and monitored during the operational life of the Proposed Development. Regular maintenance would be undertaken to keep the site access track drainage systems fully operation and to ensure there are no run-off issues onto the public road network.

9 Summary & Conclusions

Pell Frischmann Consultants Ltd has been commissioned by Fearna PSH Ltd (the Applicant) to undertake a Transport Assessment for the proposed Pumped Storage Hydro Project located to the northwest of Kingie Lodge, Invergarry in The Highland Council administrative area.

Existing traffic data established a base point for determining the impact during the construction phase and was factored to future levels to help determine the effect of construction traffic on the local road network.

An assessment of average daily development trips is considered an appropriate method of assessing the impacts of the Proposed Development on the study area roads. The construction traffic would result in a temporary increase in traffic flows on the road network surrounding the Proposed Development.

The peak of construction activity in terms of construction vehicle generation will occur on the Trunk Road Network and is expected to occur for a period of 19 months of the 101 month programme, when there will be a total of 506 vehicle movements per day, comprising 178 two-way HGV movements and 328 two-way car / LGV movements.

No link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Proposed Development.

A review of the theoretical road capacity was undertaken for the study area which showed that with the addition of construction traffic associated with the Proposed Development, there was significant spare capacity within the road network.

A series of mitigation measures and management plans have been proposed to help mitigate and offset the impacts of both the construction and operational phase traffic flows. It is considered that these can be secured by condition with The Highland Council.

The Proposed Development would lead to a temporary increase in traffic volumes within the study area during the construction phase only, however this can be appropriately and effectively managed. The operational phase is restricted to trips associated staff who will operate the equipment, monitor the operation and undertake maintenance. During the operation of the Proposed Development, up to 10 staff may be at the site to operate the equipment, which is not considered to result in journeys in excess of daily traffic variation levels on the road network.

Based on the above, it is therefore concluded that there are no transport related matters which would preclude the construction of the Proposed Development site.

Appendix A – Abnormal Route Survey Report