

ScottishPower Energy Retail Limited

Cromarty Hydrogen Project

Transport Statement

111192



OCTOBER 2023



RSK GENERAL NOTES

Project No.:	111192-TS ((03)
--------------	-------------	------

Title: Cromarty Hydrogen Project, Transport Statement

Client: ScottishPower Energy Retail Limited

Date: 30 October 2023

Office: Edinburgh

Status: Final

Author	LS	Reviewer	JH	
Date:	30/10/2023	Date:	30/10/2023	

RSK Environment Ltd (RSK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and RSK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by RSK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

No part of this report may be copied or duplicated without the express permission of RSK and the party for whom it was prepared.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd.

ScottishPower Energy Retail Limited Cromarty Hydrogen Project, Transport Statement 111192-TS (03)



CONTENTS

1	INTE	RODUCTION1
	1.1	Overview1
	1.2	Site location1
	1.3	Purpose and structure of the report1
2	PRC	POSED DEVELOPMENT
	2.1	Overview
	2.2	Site access
	2.3	Traffic routeing4
3	BAS	ELINE CONTEXT6
	3.1	Overview
	3.2	Surrounding highway network6
	3.3	Existing traffic data7
	3.4	Accident data
4	TRA	FFIC IMPACTS
	4.1	Construction programme
	4.2	Construction traffic estimates
	4.3	Operational traffic estimates10
	4.4	Methodology11
	4.5	Construction impacts
	4.6	Operational impacts12
	4.7	Mitigation
SU	мма	RY AND CONCLUSIONS

TABLES

Table 3.1: Baseline (AADT) traffic flows (2019)	8
Table 4.1: Peak construction traffic estimates	10
Table 4.2: Peak operational traffic estimates	11
Table 4.3: Estimated 2024 baseline traffic flows and effect of construction traffic	12
Table 4.4: Estimated 2029 forecast traffic flows and effect of operational traffic	13

FIGURES

Figure 2.1: Traffic routeing	5
Figure 3.1: Beinn Tharsuinn Wind Farm access track/B9176 Struie Road junction	7
Figure 3.2: Traffic count locations	8
Figure 3.3: Personal Injury Accidents	9

APPENDICES

APPENDIX 1 LOCATION PLAN APPENDIX 2 APPLICATION BOUNDARY APPENDIX 3 SITE LAYOUT PLAN



1 INTRODUCTION

1.1 Overview

ScottishPower Energy Retail Limited ('SPERL') (herein, 'the Applicant') and Storegga Hydrogen Limited ('Storegga') (the other joint development partners) have instructed RSK to produce a Transport Statement (TS) to accompany the proposals for the construction and operation of a renewable (green) hydrogen production facility (herein, "the Proposed Development") on land to the east of the Beinn Tharsuinn Wind Farm (NGR NH 64225 81469),

The Proposed Development comprises a hydrogen production and storage facility, road haul tanker loading facility, underground electricity connection, import substation, improvements to existing access road, site offices, parking, gatehouse and perimeter fencing, temporary construction and laydown area, and ancillary development.

The measures outlined in this TS will be supported by a Construction Traffic Management Plan (CTMP), which can be conditioned as part of any planning consent and will be finalised and implemented by the contractor.

1.2 Site location

The application site is on land located adjacent to the east of the operational Beinn Tharsuinn Wind Farm, approximately 12 km north of Alness and lies in the administrative boundary of The Highland Council (THC).

In the immediate surroundings there are steep slopes, including Cnoc Muigh-bhlàraidh to the north, valleys and numerous watercourses. The wider area comprises broad rounded hills and forestry plantation. The main site area currently comprises open moorland.

Figure 1.1 in Appendix 1 of this report illustrates the location of the site in a local context. Figure 1.2 in Appendix 2 of this report shows the extent of the application boundary. A full site layout plan is provided in Figure 1.3 in Appendix 3 of this report.

Vehicular access to the site is proposed from the existing Beinn Tharsuinn Wind Farm access track which runs from the B9176 Struie Road, approximately 2 km to the east. Figure 1.2 also illustrates the location of the site access track in relation to the B9176 Struie Road and the site.

1.3 Purpose and structure of the report

This report describes the effects that the construction and operational phases of the hydrogen production facility is likely to have on traffic flows within the local area.

The following chapters describe the analysis that has been undertaken as part of this TS. The report is structured as follows:

• Chapter 2 details the development proposals, including the site access arrangements and the primary route for construction and operational traffic;



- Chapter 3 describes the existing highway network and baseline traffic conditions;
- Chapter 4 discusses the environmental impacts of the development and anticipated trip generation; and
- Chapter 5 provides our summary and conclusions.



2 PROPOSED DEVELOPMENT

2.1 Overview

This Chapter describes the Proposed Development and outlines the different types of vehicles that would serve the application site during construction and the number of anticipated vehicles associated with the works.

The Proposed Development would comprise the following components:

- Hydrogen production and storage facility comprising:
 - o hydrogen electrolysers;
 - o hydrogen purification plant;
 - o hydrogen and oxygen processing plant;
 - o compression and cooling equipment; and
 - o low and high pressure storage vessels.
- Road haul tanker loading facility and transport access roads;
- Power import infrastructure: including underground cabling, substation, transformer(s) and switchgear;
- Water import, buffer storage and water demineralisation package;
- Waste water treatment infrastructure: including effluent treatment plant and holding tanks;
- Chemical storage and dosing equipment (if alkaline electrolyser technology is selected);
- Site office, control room, admin and welfare facilities, gatehouse, internal access roads, parking and hardstanding and perimeter security fencing;
- Improvements to existing access road;
- Temporary construction and laydown area; and
- Ancillary infrastructure, incl. flood mitigation and site drainage, stand by power generation and emergency equipment.

The hydrogen produced by the Proposed Development would be dispensed into lowcarbon fuel tube trailers via dedicated tube trailer filling bays. It is envisaged that there would be multiple bays each with a separate refuelling station and would only be accessible to authorised trailers via a controlled access system. General vehicles would use the same access route via the access track and would access the hydrogen production facility via the same designed access point and onwards to the administration and control and associated staff and visitor parking. There would be electric vehicle provision included in the parking facilities.



2.2 Site access

Access to the Proposed Development would come from the existing Beinn Tharsuinn Wind Farm access track which runs from the B9176 Struie Road (to the north of Aultnamain at NGR NH 66321 81768), approximately 2 km to the east. This section of track is approximately 2.6 km long. There could be localised resurfacing as required from the Wind Farm access track, between the site access junction with the B9176 Struie Road and the entrance to the Proposed Development, to provide a road suitable for HGV use; however, there would be no change to the footprint of the access track and no groundworks along the access track are proposed. The access is shown in the full site plan in Appendix 3.

2.3 Traffic routeing

It is anticipated that construction and operational traffic will use the main strategic roads close to the site, with route appraisals undertaken to ensure that the construction and operational traffic route avoids local settlements and residential areas where possible, minimising the impact on sensitive receptors. A CTMP will be developed to ensure that HGVs only use appropriate routes to access the application site. The Applicant will enter into legal agreement under Section 96 of the Roads (Scotland) Act 1984 to formalise an inspection and maintenance regime with THC for agreed sections of road during the construction stage. The Applicant also proposes to engage with relevant stakeholders – Strategic Timber Transport Scheme (STTS) members and Highland Council Area Roads Team (Ross & Cromarty) – in regard to the ongoing inspection and maintenance of the Struie Road during the operation of the development.

Construction and operational traffic will travel via the A9 onto the B9176 Struie Road. Traffic will travel north until turning left onto the existing Beinn Tharsuinn Wind Farm access track. Traffic will continue west along the access track until turning right into the site. The anticipated construction traffic route is shown in Figure 2.1.

The proposed construction traffic route avoids passing residential areas where possible. However, where residential areas cannot be avoided, it is important to consider that the potential impacts that would occur during the construction phase of the Proposed Development would be temporary and for a short period of time.



Figure 2.1: Traffic routeing



Source: Google Earth. Imagery date: 7/1/21-newer.



3 BASELINE CONTEXT

3.1 Overview

This chapter outlines the baseline local highway conditions relevant to the development proposals.

3.2 Surrounding highway network

The A9 is the closest major road to the application site, located approximately 16 km to the south.

During construction and operation, it is anticipated traffic would originate from the A9 to the south of the B9176 Struie Road (see **Figure 2.1** in Chapter 2).

The roads along the majority of the proposed construction and operational routes are predominantly two-way single carriageways and rural in nature with limited frontage access.

Any imported materials used for upgrading the existing access and new hardstanding and structural fill material would be sourced from nearby quarries. For example, Xhills Services Ltd. Quarry, which is located 11 km by road south-east of the application site via the B9176/Ardross Road produces aggregates. Ready mixed concrete and aggregates can be sourced locally from Pat Munro (Alness) Ltd., located 11.5 km by road south-east of the application site via the B9176/Ardross Road in Alness.

The study area, however, is focused only on the immediate roads surrounding and leading to the Proposed Development, as it is expected that traffic flows outwith this area would be dissipated on the wider road network without any significant effect.

3.2.1 B9176 Struie Road

The B9176 is a single carriageway moorland route subject to the national speed limit with a predominantly rural and agricultural frontage. Due to the geometry of many sections of this road, particularly to the south of the site access, it is likely that traffic will be travelling slower than the national speed limit to accommodate the bends. It runs in a south to north direction and connects the A9(T) to the south with the A836 to the north, providing access to a wider road network. In the vicinity of the site, the road is approximately 6 m wide. No streetlighting or pedestrian footpaths/cycle ways are present within the vicinity of the site. Approximately 2 km to the east of the site lies the existing Beinn Tharsuinn Wind Farm access track/B9176 Struie Road bellmouth junction, shown in Figure 3.1.



Figure 3.1: Beinn Tharsuinn Wind Farm access track/B9176 Struie Road junction



Source: Google Earth, 2023

3.2.2 A9(T)

The A9 is a major road in Scotland running for approximately 439 km from the Falkirk council area to Central Scrabster Harbour, Thurso via Stirling, Bridge of Allan, Perth and Inverness. The A9(T) is a high-quality single carriageway trunk road subject to the national speed limit, located approximately 16 km to the south of the site. The A9(T) connects to the south of the B9176 Struie Road via a slip road. No streetlighting or pedestrian footpaths/cycleways are present within the vicinity of the site.

3.3 Existing traffic data

In order to establish a baseline from which to consider the possible effects of construction traffic on the local highway network, Department for Transport (DfT) traffic data have been examined. Based on the anticipated construction traffic route, three count point locations have been analysed.

Figure 3.2 highlights the location of the count points, while Table 3.1 summarises the Annual Average Daily Traffic (AADT) traffic conditions for 2019 for the study area. Traffic data from 2019 have been used in this assessment to reflect the most recent traffic flows pre-COVID-19 pandemic.







Source: Google Earth. Imagery date: 7/1/21-newer.

DfT Count ID	Road Name	All HGVs	All Vehicles	% HGV
50725	A9 between B9176 and B817	710	11,958	5.94
50813	A9 between A862 and B9176	1005	15,811	6.36
979064	B9176 Struie Road	134	1,826	7.34

3.4 Accident data

Personal Injury Accident data for the local highway network have been interrogated using data currently published by the DfT for the 5-year period covering the latest published data, 2017-2021. ESRI ArcGIS software has been used to interrogate and map the accident locations and severity within a 500m radius of the site access entrance. An extract of the mapped accidents is provided in Figure 3.3.



Figure 3.3: Personal Injury Accidents



Source: ESRI ArcGIS Online with Open Data from GOV.UK, March 2023

The accident data screening indicates that no accidents have occurred within 500 m of the application site during this time period. Therefore, this does not lead to any significant concerns or demonstrate any discernible pattern that could be affected by the development proposals.



4 TRAFFIC IMPACTS

4.1 Construction programme

Construction is likely to commence in 2024 and last for a period of 18-months.

4.2 Construction traffic estimates

Construction of the Proposed Development would not require substantial volumes of traffic, predominantly deliveries comprising construction plant, equipment, and materials for the construction of the development compound, foundations, hardstanding, internal access roads and buildings. Based on estimates provided by the Applicant, traffic flows during construction are expected to peak at around 44 two-way HGV movements per day (22 vehicles in each direction), with a similar number of cars/vans associated with workers travelling to/from the site (44 two-way LGV movements per day), as shown in Table 4.1.

It is highly unlikely that any Abnormal Indivisible Loads would be required to transport any components for the Proposed Development, however if such requirement arises, further routing studies and swept path analysis will be undertaken, following consultation and agreement with THC and other relevant stakeholders.

Table 4.1: Peak construction traffic estimates

Peak construction					
Two-way movements per day					
All vehicles (LGV + HGV) HGVs					
88	44				

4.3 Operational traffic estimates

The Proposed Development would be capable of operating continuously, although the actual operational routine would be determined by a range of factors, such as customer demand, availability of renewable electricity, available storage, and transportation schedules. The plant will be operational 24 hours/day and 7 days/week, with regular deliveries from the site. The site will be manned by a small on-site staff presence through 5 shifts of 5 crew members and 10 Heavy Goods Vehicle (HGV) drivers on shift patterns.

Facilities would be available for a small on-site staff presence, including car parking, office and welfare facilities.

The hydrogen produced would be collected by tube trailer with 4 filling bays provided for this purpose. The Applicant estimates that the peak number of trailer (HGV) movements per day could be up to 32 two-way movements (16 vehicles in each direction), assuming 840 kg trailers. Utilisation of larger trailer capacities would have the potential to reduce trailer movements, although ultimately this would be dependent on customer sites and logistic optimisation. Peak operational traffic estimates are shown in Table 4.2.



Table 4.2: Peak operational traffic estimates

Peak operational							
Two-way move	ments per day						
All vehicles (LGVs + HGVs)	HGVs						
102	32						
(5 shifts of 5 crew = 25 one-way movements per day = 50 two-way LGV movements)	16 trailers per-day = 32 (two-way trailer movements per day)						
10 HGV drivers = (20 two-way, assuming they arrive and leave in their own cars)							
16 trailers per-day = 32 (two-way trailer movements per day)							

4.4 Methodology

To assess the likely effect of construction and operational traffic on the local area, the Guidelines for the Environmental Assessment of Traffic and Movement (published by the Institute of Environmental Management and Assessment, July 2023) are considered. As described in Chapter 2, traffic count data from the DfT has been utilised as baseline data.

To assess the likely effects during construction and operation, Construction and Operation Year baseline traffic flows were determined by applying a National Road Traffic Forecast (NRTF) growth factor to the 2019 traffic flows shown in Table 3.1.

4.5 Construction impacts

The NRTF low growth factor for 2019 to 2024 is 1.032. This factor was applied to the 2019 baseline data to estimate the 2024 Construction Year baseline traffic flows shown in Table 4.3 which are used in an assessment of the estimated traffic impacts.

Information provided by the Applicant indicates the predicted traffic generated for the construction phase based on workers (LGV) and HGV movements. This data has been compared to the DfT data to calculate a percentage change in traffic during the anticipated construction phase where workers and HGV movements are predicted to peak:

- All vehicles (LGV + HGV) = 88 two-way movements; and
- HGV only = 44 two-way movements.

Table 4.3 below shows the results of the Environmental Assessment.



Count ID	Road	Forecast 2024		Forecast 2024 + Development			% Increase		
Count ID	name	HGVs	All Veh	% HGV	HGVs	All Veh	% HGV	HGV	All Veh
50725	A9 between B9176 and B817	733	12,341	5.9	777	12,429	6.3	6.0	0.7
50813	A9 between A862 and B9176	1037	16,317	6.4	1,081	16,405	6.6	4.2	0.5
979064	B9176 Struie Road	138	1,884	7.3	182	1,972	9.2	31.8	4.7

The guidelines recognise that the day-to-day variation of traffic on the road is frequently plus or minus 10 per cent. It should therefore be assumed that a projected change in the traffic of less than 10 per cent creates no detrimental environmental impact. A 30 per cent change in traffic flow (or HGV flow) represents a reasonable threshold for assessing traffic flow impacts on link roads.

The largest percentage increase in total traffic would be on the B9176 Struie Road with 4.7%. The largest percentage increase in HGV flows would be 31.8% on the B9176 Struie Road.

The percentage increase in traffic on the roads considered exceeds 30 per cent on the B9176 Struie Road. Where existing traffic levels are generally low (e.g. rural roads and some unclassified roads), any increase in traffic flow may result in a predicted increase that would be higher than the IEMA (2023) guideline thresholds. In these situations, it is important to consider any increase in terms of overall traffic flow in relation to the capacity of the road, before making a conclusion on whether the effect is significant as defined under the EIA Regulations.

For comparison, assuming a 12-hour working day, the worst-case absolute change is an additional 2 two-way HGV movements per hour (or an additional HGV in each direction per hour) on the B9176 Struie Road. It should also be noted that this increase in traffic during the construction phase will be temporary in nature and only last for the duration of the construction programme (18 months). Based on this information, and as the increase in total traffic on the B9176 Struie Road is only 4.7%, it is deemed that Struie Road has the capacity to temporarily accommodate this increase in HGV traffic for the period of the construction programme and no further assessment is required.

4.6 Operational impacts

A peak operational year of 2029 has been assumed in this assessment to reflect the first year of the 32 two-way trailer movements peak.

The NRTF low growth factor for 2019 to 2029 is 1.059. This factor was applied to the 2019 baseline data to estimate the 2029 Peak Operational Year baseline traffic flows shown in Table 4.4 which are used in an assessment of the estimated traffic impacts.



Information provided by the Applicant indicates the predicted peak traffic generated for the operational phase based on workers (LGV) and HGV movements. These data have been compared to the DfT data to calculate a percentage change in traffic during the operational phase where workers and HGV movements are predicted to peak:

- All vehicles (LGV + HGV) = 102 two-way movements; and
- HGV only = 32 two-way movements.

To present a worst-case scenario, and as operational traffic is affected by consumer demand, Table 4.4 below shows the results of the Environmental Assessment whereby each road link experiences peak operational traffic flows. In a more realistic scenario, operational traffic would be dispersed throughout the local highway network.

Count	Road	Forecast 2029		Forecast 2029 + Development			% Increase		
ID	name	HGV	All Veh	% HGV	HGV	All Veh	% HGV	HGV	All Veh
50725	A9 between B9176 and B817	752	12,664	5.9	784	12,766	6.1	4.3	0.8
50813	A9 between A862 and B9176	1064	16,744	6.4	1,096	16,846	6.5	3.0	0.6
979064	B9176 Struie Road	142	1,934	7.3	174	2,036	8.5	22.6	5.3

Table 4.4: Estimated 2029 forecast traffic flows and effect of operational traffic

The guidelines recognise that the day-to-day variation of traffic on the road is frequently plus or minus 10 per cent. It should therefore be assumed that a projected change in the traffic of less than 10 per cent creates no detrimental environmental impact. A 30 per cent change in traffic flow (or HGV flow) represents a reasonable threshold for assessing traffic flow impacts on road links.

The largest percentage increase in total traffic would be on the B9176 Struie Road with 5.3%. The largest percentage increase in HGV flows would be 22.6% on the B9176 Struie Road.

The percentage increase in traffic on the roads considered does not exceed 30 per cent and therefore it is deemed that no further assessment is required.

4.7 Mitigation

4.7.1 Construction

Although there is no discernible effect on the strategic or local road network as a result of the construction stage, a CTMP will be developed to ensure that HGVs only use appropriate routes to access the application site. The Applicant will enter into legal agreement under Section 96 of the Roads (Scotland) Act 1984 to formalise an inspection and maintenance regime with THC for agreed sections of road during the construction stage.



4.7.2 Operation

Although there is no discernible effect on the strategic or local road network as a result of the operational stage, it is recognised that the B9176 Struie Road is prone to road closures from land slips. As such, the following statement on Contingency Planning has been prepared by SPERL. It is stated that, if the B9176 Struie Road, south of the site access, is closed, no alternative routes would be used. Instead, operations would reduce and limited onsite storage would be used where available, or production would stop if required. Contingency in the form of storage at customer sites would be considered as part of the design for their operations and also the possibility to store additional trailers at their site, if the bad weather is anticipated in advance.

The Applicant also proposes to engage with relevant stakeholders – STTS members and Highland Council Area Roads Team (Ross & Cromarty) – in regard to the ongoing inspection and maintenance of the Struie Road during the operation of the development.

4.7.3 Decommissioning

Potential effects of decommissioning the Proposed Development are anticipated to be similar to those encountered during the construction phase, although generally less, as the level of activity within the application site would be lower.

Discussion would be held between the Applicant and the appropriate regulatory authorities prior to decommissioning to agree an appropriate Decommissioning Strategy and Restoration Plan (an outline plan has been included as part of the Environmental Appraisal Report forming part of the application documents).



SUMMARY AND CONCLUSIONS

The Applicant have instructed RSK to produce a Transport Statement to support the proposals for the Proposed Development on land to the east of the Beinn Tharsuinn Wind Farm (NGR NH 64225 81469),

A review of the accident data shows no significant issues with the local highway safety provision that is likely to affect or be affected by the Proposed Development.

This assessment provides a summary of the likely increase in traffic flows during the construction and operational periods of the hydrogen production facility. Utilising existing traffic data and anticipated construction traffic data, it is considered that this development would have a negligible impact on the local road network.

The existing strategic road network has sufficient capacity to overcome any concerns raised over temporary increases in HGV and non-HGV construction traffic movements generated during the construction and operational periods.

A number of traffic management measures are available to mitigate the impact of construction traffic during the 18-month period, which will be adequately secured through a Construction Traffic Management Plan.

A statement on Contingency Planning has been prepared by SPERL for the possibility of road closures on the B9176 Struie Road as a result of landslips.

The Applicant will enter into legal agreement under Section 96 of the Roads (Scotland) Act 1984 to formalise an inspection and maintenance regime with THC for agreed sections of road during the construction stage.

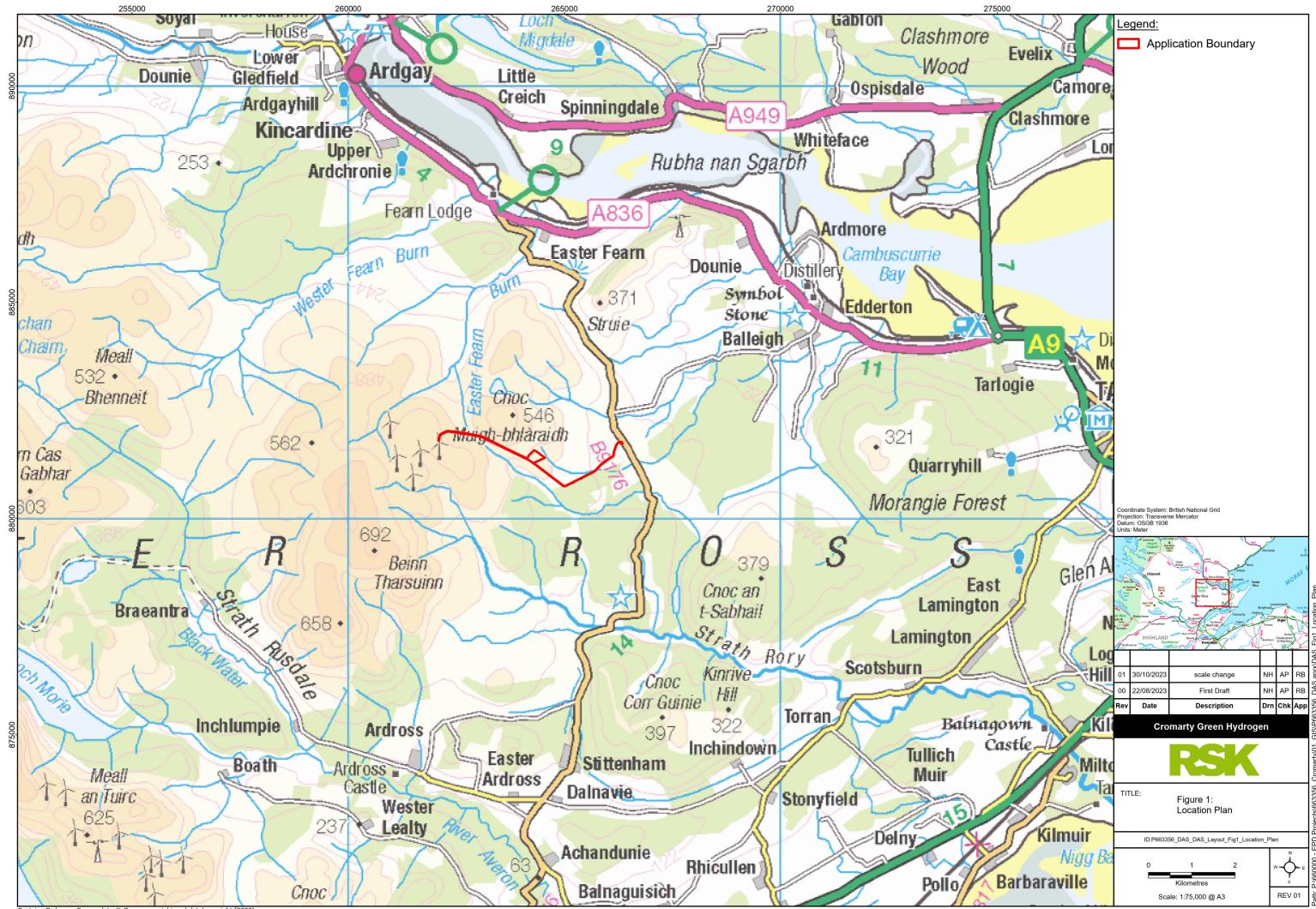
The Applicant also proposes to engage with relevant stakeholders – STTS members and Highland Council Area Roads Team (Ross & Cromarty) – in regard to the ongoing inspection and maintenance of the Struie Road during the operation of the development.

It is therefore concluded that there is no highway-related reason to object to planning permission for the scheme and the Proposed Development is therefore commended for approval.



APPENDIX 1 SITE LOCATION PLAN

ScottishPower Energy Retail Limited Cromarty Hydrogen Project, Transport Statement 111192-TS (03)

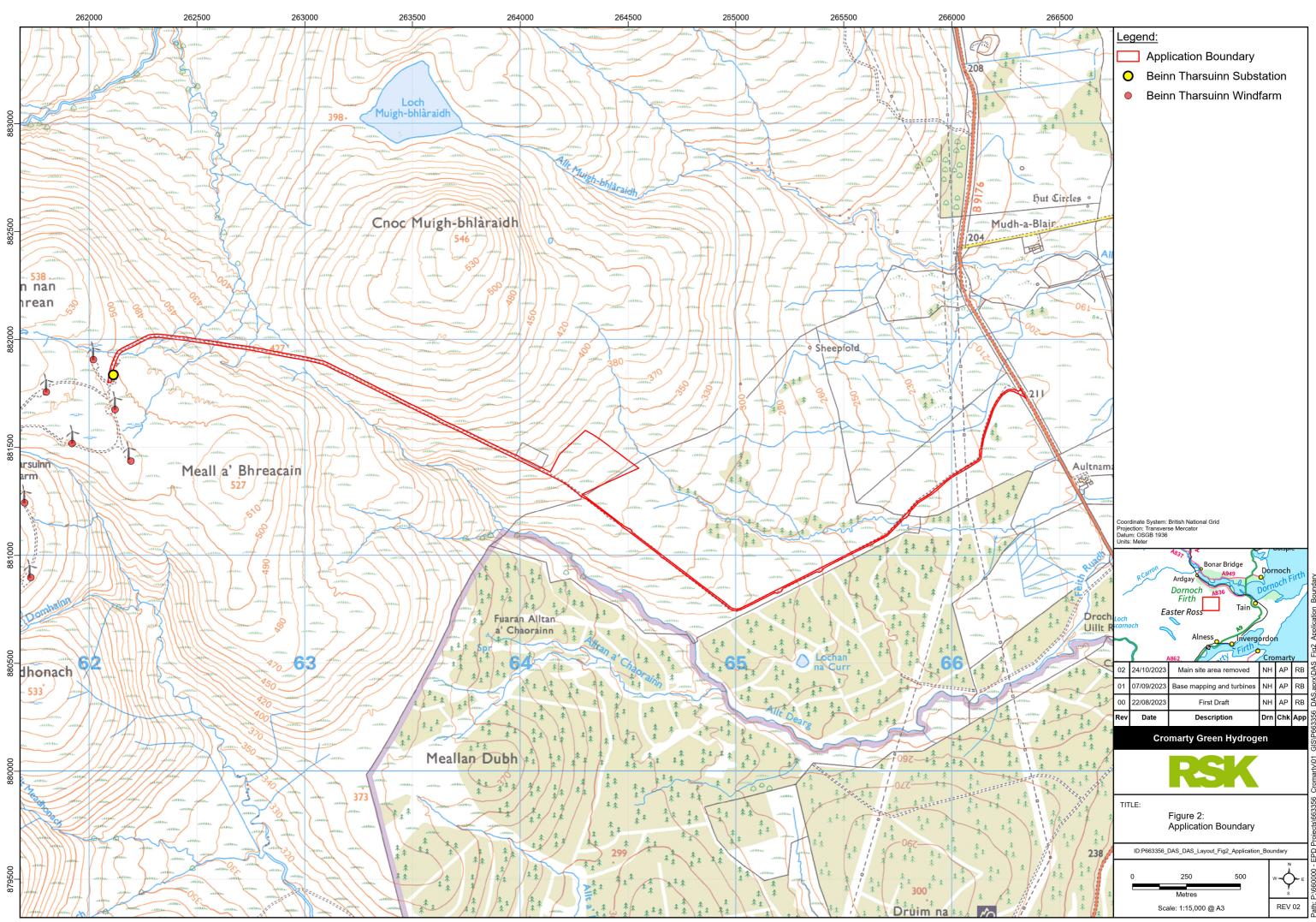


Contains Ordnance Survey data © Crown copyright and database right [2023]



APPENDIX 2 APPLICATION BOUNDARY

ScottishPower Energy Retail Limited Cromarty Hydrogen Project, Transport Statement 111192-TS (03)





APPENDIX 3 SITE LAYOUT PLAN



Maxar, Microsoft, Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS