Technical Appendix 11.1: Transport Assessment

Pell Frischmann

Glenouther Wind Farm

EIA Report Technical Appendix 11.1: Transport Assessment

August 2026

10110219

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1 Introduction

1.1 Purpose of the Report

Pell Frischmann Consultants Ltd. (PF) has been commissioned by Land Use Consultants Ltd. (LUC), on behalf of Wind Power North Four Ltd. (hereafter referred to as 'the Applicant') to undertake a Transport Assessment (TA) for the proposed Glenouther Wind Farm (hereafter referred to as 'the Proposed Development'), located on Glenouther Moor, to the immediate south of Corsehouse reservoir, and approximately 4.5 kilometres (km) north-east of Stewarton (hereafter referred to as 'the Site'). The Site itself is wholly within the administrative area of East Ayrshire Council (EAC).

The TA identifies the key transport and access matters associated with the Proposed Development, including the route for Abnormal Indivisible Loads (AIL). 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. The findings of this report have informed the assessment of traffic and transport related effects in the **Environmental Impact Assessment** (**EIA) Report Volume 2: Chapter 11: Access, Traffic and Transport**.

This technical appendix relates to the Proposed Development as defined below and in **EIA Report Volume 2**: **Chapter 4: Development Description**. The effects of the Likely Grid Connection Route (as defined in **Chapter 4**) in relation to traffic and transport are assessed in **Chapter 11**.

1.2 Report Structure

This 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 in this assessment;
- Section Five describes the baseline transport conditions;
- Section Six describes the estimated trip generation and distribution of construction traffic in the study area;
- Section Seven summarises the traffic impact assessment;
- Section Eight considers mitigation proposals for construction traffic within the study network; and
- Section Nine summarises the findings of the TA and outlines the key conclusions.

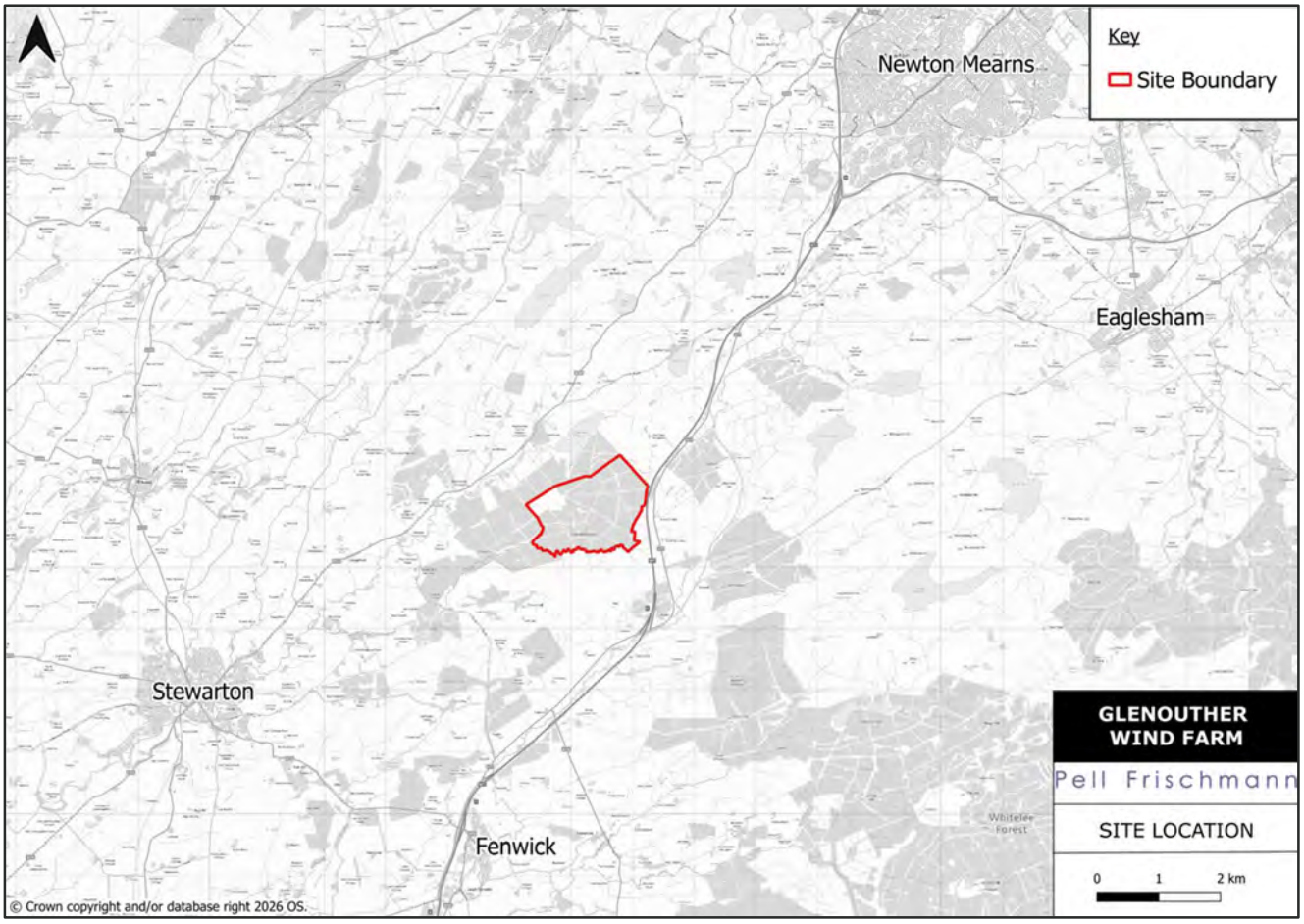
2 Site Background

2.1 Site Location

The Site is located on land at Glenouther Moor, south of Corsehouse reservoir and west of the M77 motorway. The closest settlement is Stewarton, approximately 4.5 km to the south-west. The Site occupies an area of approximately 205 hectares (ha).

The Site location is shown in **Figure 1**.

Figure 1 Site Location



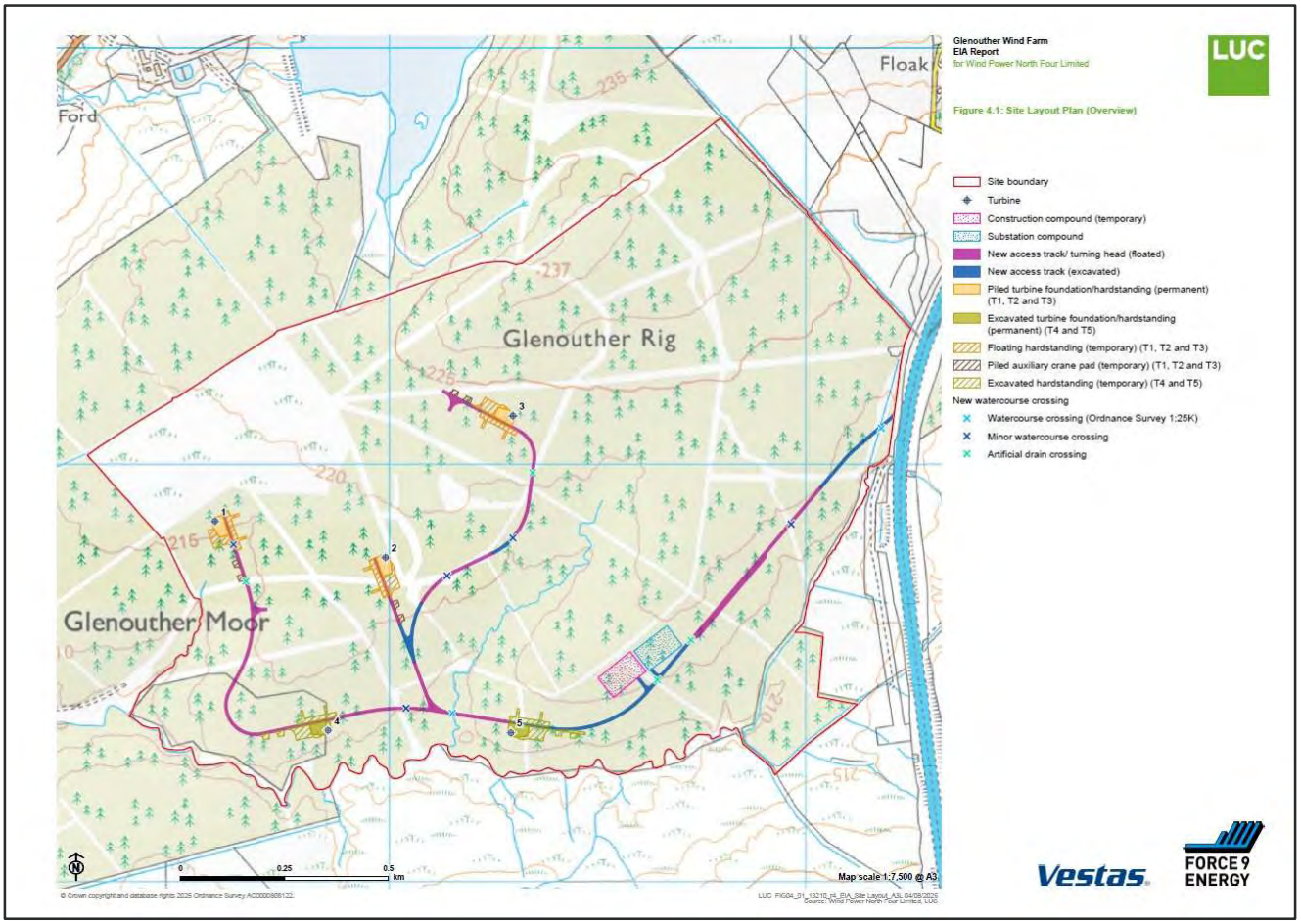
2.2 Proposed Development

The Proposed Development will comprise the following:

- Up to five wind turbines, each with a maximum height to blade tip of 200 metres (m);
- Foundations supporting each turbine;
- Associated temporary and permanent crane hardstandings at each turbine location;
- A network of new onsite access tracks and associated watercourse crossings;
- A network of underground cables to connect the turbines to a substation;
- A control building and substation;
- A temporary construction compound including car parking;
- Forestry works; and
- A Biodiversity Enhancement Management Plan.

The Proposed Development is shown in **Figure 2**.

Figure 2 Proposed Development (courtesy of LUC)



A full description of the Proposed Development is provided in **EIA Report Volume 2: Chapter 4.**

2.3 Access Arrangements

Access to the Site will be taken from the east. It is anticipated that general construction vehicles (Heavy Goods Vehicles (HGVs) and staff vehicles) will travel from the north and south (i.e. from near Glasgow and Ayrshire) and will enter the Site via the existing junction off the A77 to the west of North Drumboy Quarry. These vehicles will then use the minor road (Floak Road) and existing bridge (Floak Bridge) crossing the M77 which provides access to nearby farms (Floak, Mid Floak and Townhead of Floak), as well as Floak Quarry. From there, vehicles will use the existing M77 service road (which is a private and gated road) to travel south-west into the Site. See **Annex A: High Level Access Review** for more details.

The likely Port of Entry (PoE) used for the delivery of wind turbine components will be Glasgow King George V (KGV) Docks. AIL vehicles will travel from the PoE via Kings Inch Road, M8, M74 and M77, exiting at Junction 6 of the M77 and travelling back north via the A77. AIL vehicles will leave the A77 and travel into Site via Floak Road, crossing Floak Bridge and the existing M77 service road.

Construction materials will be sourced from local quarries and other facilities from the surrounding area where practicable.

2.4 Candidate Turbines

The Vestas V162 turbine with a tip height 200 m has been utilised as the candidate turbine for the purposes of this assessment. The details of the components have been provided by Vestas and are detailed in **Table 1**. Note these are indicative component dimensions at this time and may change.

Table 1 Turbine Component Summary

Component	Length (m)	Width (m)	Height/Min Diameter (m)	Weight (t)
V162 Blade	79.97	4.46	3.80	34.96
Base Tower	11.51	4.55	4.40	84.00
Mid Tower 1	18.76	4.40	4.40	89.00
Mid Tower 2	26.04	4.40	4.40	86.00
Mid Tower 3	29.96	4.40	4.15	73.00
Top Tower	30.00	4.15	3.98	67.00

A High-Level Access Review has been prepared and appends this TA as **Annex A**.

The selection of the final turbine model and specification will be provided by Vestas. The assumed dimensions may therefore vary slightly from those assumed as part of this assessment, however the turbine tip height will be no greater than 200 m.

Blades will be delivered on a blade lifting trailer between the PoE and the Site, as shown in **Figure 3**, to enable safe passage over Floak Bridge. This trailer can lift blades up to a maximum angle of 60 degrees to clear potential constraints.

Figure 3 Blade Lifter

Towers will be loaded onto a 4+7 clamp adaptor style trailer shown in **Figure 4**, whereas loads such as the hub, nacelle housing and top towers will be carried on a six-axle step frame trailer.

Figure 4 Tower Clamp Trailer

These configurations are subject to confirmation by the chosen haulier at the time of their commissioning.

As the loads are classified as Special Order, due to a rigid length in excess of 30 m, a full Police Escort will be required along the full length of the route.

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 (2023)

The National Planning Framework 4 (NPF4) was approved by Scottish Parliament on 11 January 2023 and was adopted by Scottish Ministers on 13 February 2023. 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 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: Energy within the NPF4 notes at paragraph a) that: *"Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These include:*

i. wind farms including repowering, extending, expanding and extending the life of existing wind farms;
…
iii. energy storage, such as battery storage and pumped storage hydro; …

Paragraph e) goes onto state that: "In addition, project design and mitigation will demonstrate how the following impacts are addressed:

i. impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;
…
iii. public access, including impact on long distance walking and cycling routes and scenic routes;
…
vi. impacts on road traffic and on adjacent trunk roads, including during construction;
… and
xiii. cumulative impacts."

The assessment undertaken as part of this TA and the associated **EIA Report Volume 2: Chapter 11** has taken cognisance of this and provided appropriate mitigation where necessary.

3.2.2 Transport Assessment Guidance (2012)

Transport Scotland's (TS) Transport Assessment Guidance was published in 2012. It aims to assist in the preparation of TAs for development proposals in Scotland such that the likely transport impacts 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 impacts but that the specific scope and contents of a TA will vary for developments, depending on location, scale and type of development.

3.2.3 Onshore Wind Policy Statement (2022)

The Scottish Government's Onshore Wind Policy Statement was published in December 2022 and sets out an ambition of *"20 GW of installed onshore wind capacity in Scotland by 2030."*

With regards to transport of Abnormal Loads and Police Escorts, the statement notes that:

"Under the Road Traffic Act 1988, any abnormal load movement on public road in Scotland must be escorted by a specially trained police officer. This puts additional pressure on both Police Scotland and hauliers, as well as the wind energy sector's ability to deploy at scale in Scotland.

In order to meet our legally-binding net-zero targets, it is estimated that 3400 turbines will be installed in Scotland between now and 2030, this is the equivalent of a new turbine being installed every day between 2025-2030. Given this, and the significant issues surrounding the transportation of components, this issue has been brought into fresh focus, as we consider it could have serious implications on the delivery of our renewable energy pipeline and subsequent threat to our 2030 net-zero targets.

To this end, the Scottish Government is working directly with senior members of Police Scotland and the renewables and haulier industries. We have come together to consider this issue and to determine what actions must be taken, both short term and long-term, to relieve the pressure on Police Scotland resources to ensure turbines components can be efficiently and effectively conveyed to site."

3.3 Local Policy & Guidance

3.3.1 East Ayrshire Local Development Plan 2 (LDP2), 2024

East Ayrshire Council's Local Development Plan 2 (LDP2) was adopted in April 2024. In relation to wind energy, *Policy RE1: Renewable Energy* within the LDP states that:

"*All applications for renewable energy proposals should be accompanied by detailed supporting information to allow a detailed assessment to be made against the criteria, both in terms of the impacts of the development itself and the cumulative impacts when considered alongside other developments*."

"*Proposals for renewable energy must consider decommissioning and restoration proposals as part of their applications. The need for planning conditions relating to the decommissioning of developments, including ancillary infrastructure, and site restoration will be considered, as will the need for planning obligations to achieve site restoration*."

In relation to transport, *Policy T1: Transport requirements in new developments* states that:

"*Where a development proposal will generate a significant increase in the number of person trips, a transport assessment will be required to be undertaken in accordance with the relevant guidance*."

"*Development proposals that have the potential to affect the operation and safety of the Strategic Transport Network will be fully assessed to determine their impact. Where it has been demonstrated that existing infrastructure does not have the capacity to accommodate a development without adverse impacts on safety or unacceptable impacts on operational performance, the cost of the mitigation measures required to ensure the continued safe and effective operation of the network should be met by the developer*."

3.4 Policy Summary

Cognisance of the policy position is taken in this Transport Assessment.

4 Study Methodology

4.1 Introduction

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

- The Construction Phase;
- The Operational Phase; and
- The Decommissioning Phase.

4.2 Project Phases – Transport Overview

Of the three 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 wind turbine components will be transported to Site, potentially resulting in a significant increase in traffic on the study network.

The operational phase is restricted to occasional maintenance operations which generate significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network.

The decommissioning phase involves fewer trips on the road network than the construction phase, as minor elements of infrastructure are likely to be left in place, adding to local infrastructure that can potentially be used for further agricultural or leisure uses in the future.

It should be noted, however, that construction effects are short lived and transitory in nature, whilst the operational phase assessment has been assumed to be based on typical operating conditions with occasional operational and maintenance traffic.

4.3 Scoping Discussions

The Applicant submitted a request for an EIA Scoping Opinion to EAC in respect of the EIA which included a section considering traffic and transport. While the Ayrshire Roads Alliance (ARA) and Transport Scotland (TS) have not provided comment, TS and EAC provided an initial response at the pre-application stage, which remains relevant. These comments are provided in EIA Report **Chapter 11.**

5 Baseline Conditions

5.1 Study Area Determination

The study area has been based on those public 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.

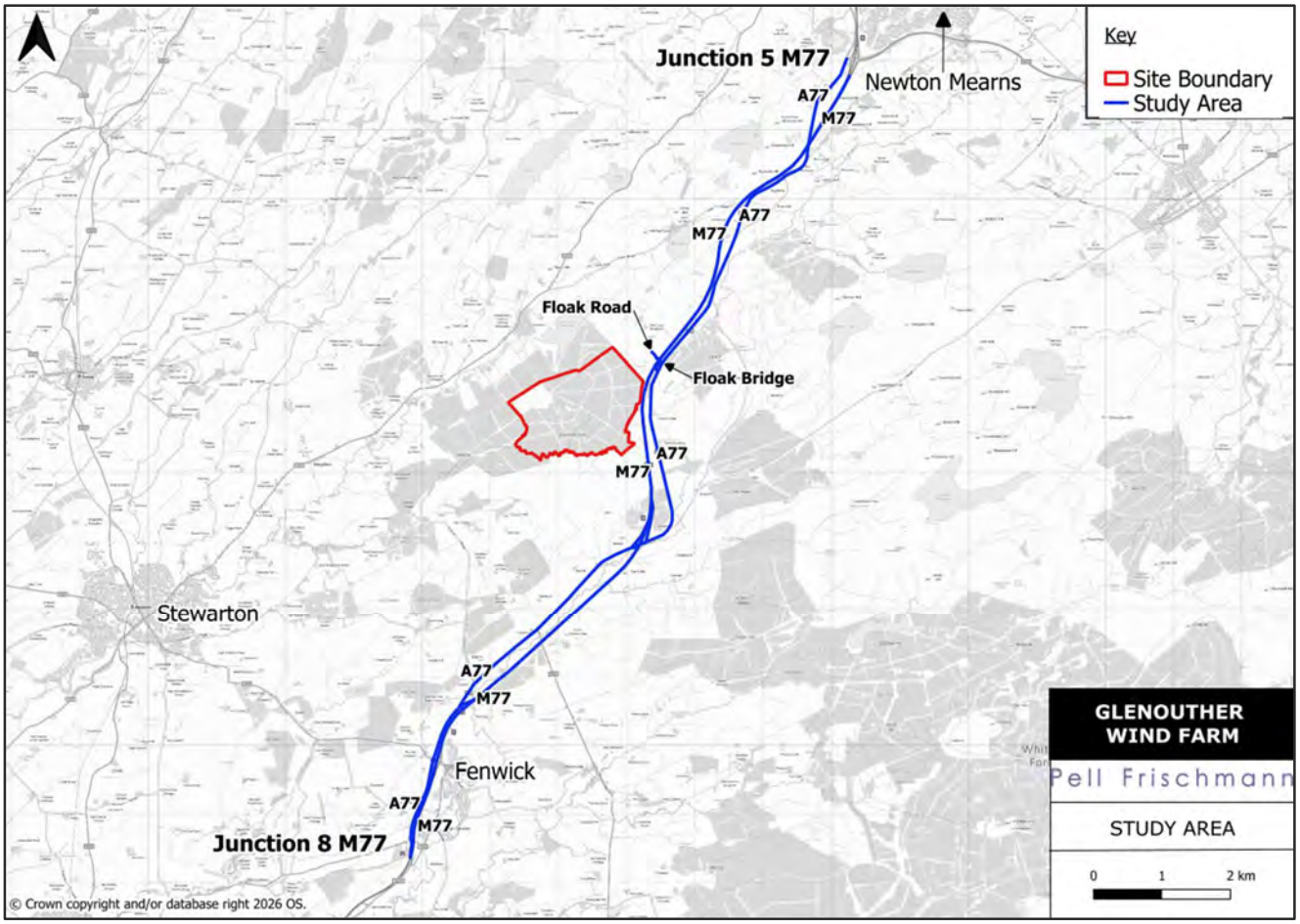
Based on the anticipated construction traffic point of origin as noted above, the study area is determined to be:

- Floak Road, between Floak Quarry access and the A77;
- The A77, between M77 Junction 5 and 8; and
- The M77, between Junction 5 and 8.

Whilst the Proposed Development will be accessed from the existing M77 service road which ties into Floak Road, this has not been considered within the study area as the road is private and gated and forms a part of the infrastructure for maintenance of the motorway network.

Effects associated with construction traffic generated by the Proposed Development would be most pronounced in close proximity to the Site and on the final approaches to the Site. 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. The study area is shown in **Figure 5**.

Figure 5 Study Area

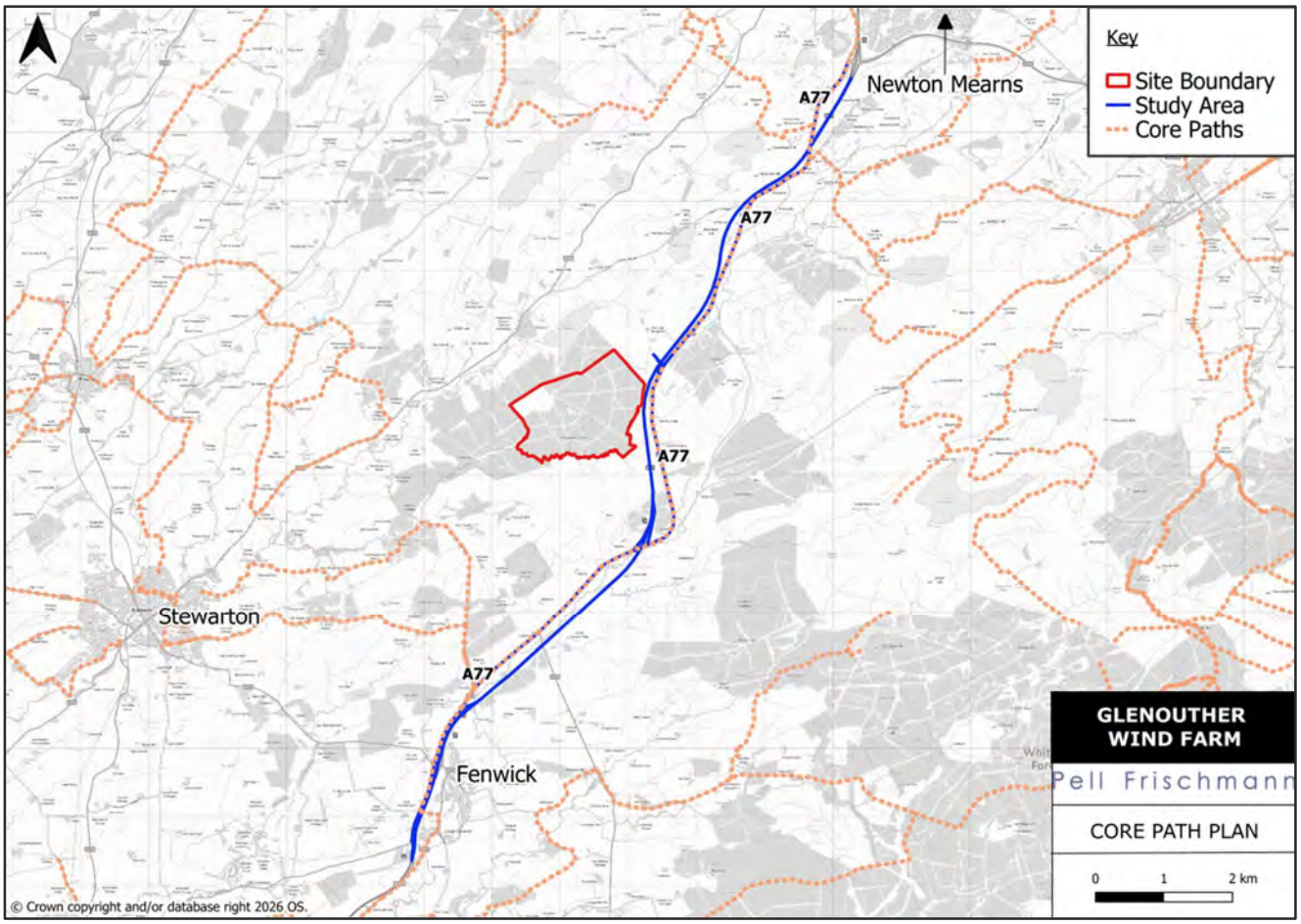


5.2 Pedestrian and Cyclist Networks

There are no dedicated pedestrian facilities in the immediate vicinity of the Site, reflecting its rural setting.

A review of the EAC Core Path network[1] and the East Renfrewshire Council (ERC) Core Path network[2] indicates that there are no Core Paths within the immediate vicinity of the Site, with the closest Core Path located to the east, running adjacent to the A77, as shown in **Figure 6**.

Figure 6 Core Paths



With regards to cycling, a review of Walk Wheel Cycle Trust (formerly Sustrans) map[3] indicates that there are no cycle routes within the vicinity of the Site or study area. There is however a shared path / cycleway which runs adjacent to the A77 within the study area.

[1] East Ayrshire Council, Core Path Plan: https://webgis.east-ayrshire.gov.uk/webGISv3/ [Accessed June 2026]
[2] East Renfrewshire Council Core Path Plan: https://eastrenfrewshire.gov.uk/media/8508/Core-Path-Plan-Proposals-Map/pdf/Core_Path_Plan_Proposals_Map.pdf?m=1669736492567 [Accessed June 2026]
[3] https://www.walkwheelcycletrust.org.uk/ [Accessed April 2026]

5.3 Road Access

M77 Service Road

The M77 service road comprises a narrow single track road, which is maintained by Connect / Balfour Beatty on behalf of TS. This is a private, gated road which forms a part of the road network for the purpose of maintenance of the M77 only.

Floak Road

Floak Road is a two-way single carriageway road which connects to the A77, to the east of the Site access. To the west of the Site access, the road narrows on approach to the access to Floak Quarry, which is served by the road, in addition to areas of agricultural land and a small number of dwellings. Within the study area, Floak Road appears to be in mainly good condition and is maintained by ERC.

The A77

Within the study area, the A77 is a two-way single carriageway road which is mainly subject to the national speed limit, however, this reduces to 40 miles per hour (mph) approximately 450 m to the north-west of its junction with Blacklock Road for the remainder of the northern section of the A77 within the study area. The A77 appears to be in reasonable condition, however there are locations where deterioration appears to be present from online imagery. Within the study area, the A77 is maintained by both ERC and ARA. A shared path is located along the western side of the A77.

The M77

The M77 is a motorway which operates with two lanes in each direction within the study area. The M77 is mainly subject to the national speed limit within the study area however, this reduces to 60 mph on approach to Junction 5. It forms part of the trunk road network and is maintained by Connect / Balfour Beatty on behalf of TS.

Road Suitability

The Agreed Timber Route Map[4] 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'.

'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.

The section of the A77 within EAC's administrative area forms part of the agreed route network used for the extraction of timber and are therefore regularly used by HGV traffic.

[4] https://timbertransportforum.org.uk/ [Accessed May 2026]

5.4 Existing Traffic Conditions

In order to assess the impact of the Proposed Development construction traffic on the study area, an Automatic Traffic Counts (ATC) was undertaken on Floak Road, over a seven-day period in June 2025. To complement the ATC survey, existing traffic count data was obtained from the Department for Transport (DfT) [5] database and the TS[6] database, with 2024 and 2025 data utilised, respectively.

The traffic count sites used were as follows:

1. Floak Road (ATC Survey);
2. A77, south-west of junction with Mearns Road (DfT Count Point 30755);
3. A77, south of Floak Bridge (DfT Count Point 74352);
4. A77, south-west of junction with A719 (DfT Count Point (DfT Count Point 90195);
5. A77, south-west of M77 Junction 7 on-slip road (DfT Count Point 50704);
6. M77, between Junctions 5 and 6 (TS Count Points CTC01014 and CTC01015); and
7. M77, near Junction 7 (TS Count Points CTC01023 and CTC01024).

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 including buses).

A National Road Traffic Forecast (NRTF) low growth factor was applied to the survey data, to bring the traffic data up to the base year of 2026. The NRTF low growth factors for 2024 to 2026 and for 2025 to 2026 are 1.011 and 1.005, respectively.

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 provided in **EIA Report Volume 2: Chapter 11: Access, Traffic and Transport**.

Figure 7 shows the location of the ATC, DfT and TS survey points, while **Table 2** summarises the Annual Average Daily Traffic (AADT) traffic data collected and used in this assessment.

Figure 7 Traffic Count Locations

[5] https://roadtraffic.dft.gov.uk/#6/55.254/-11.096/basemap-regions-countpoints [Accessed May 2026]
[6] https://ts.drakewell.com/multinodemap.asp [Accessed May 2026]

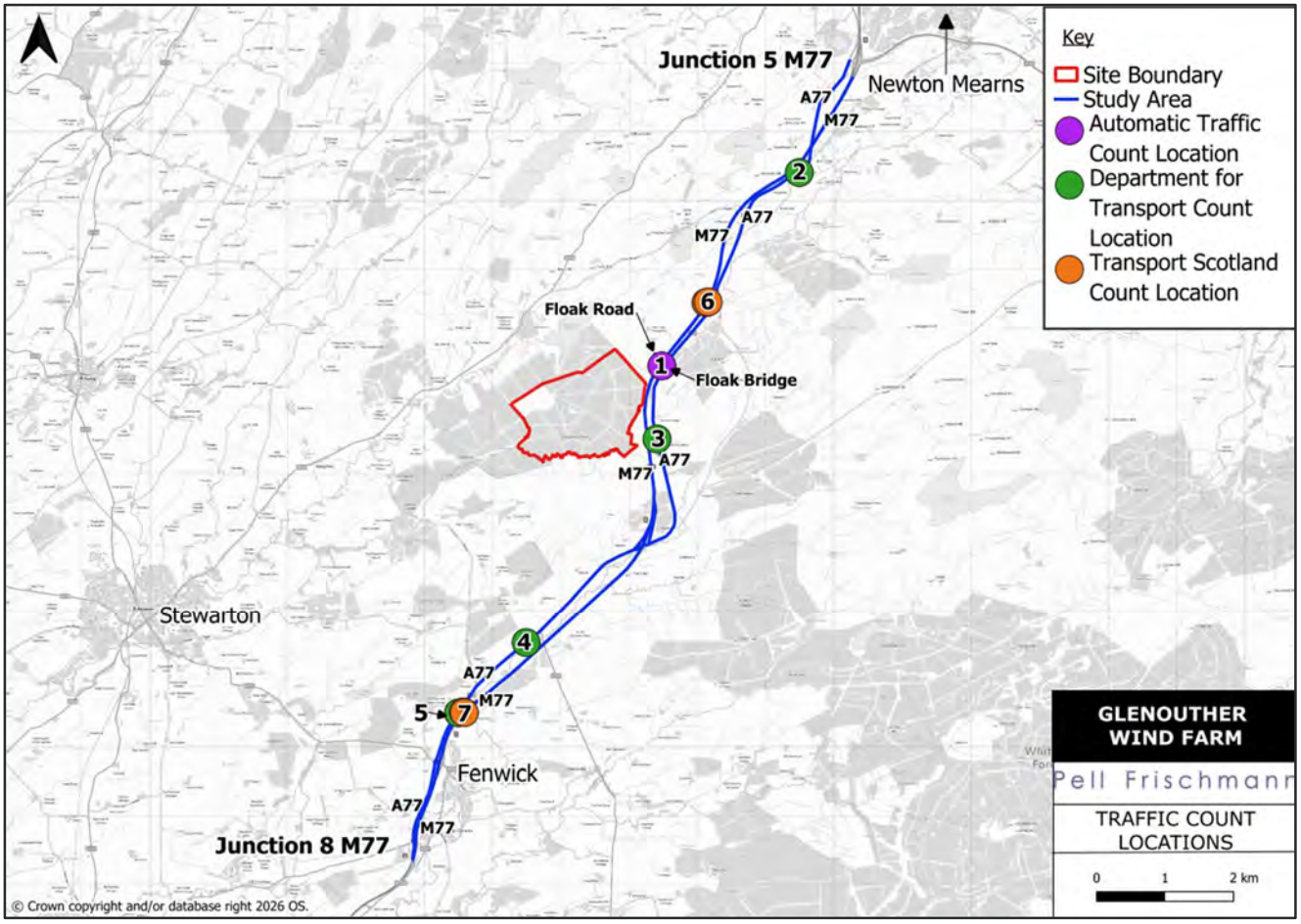


Table 2 24-hour Two-way Average Traffic Data (2026)

No.	Survey Location	Data Source	Cars & Lights	HGV	Total
1	Floak Road	ATC	152	38	191
2	A77, south-west of junction with Mearns Road	DfT Count Point 30755	1,522	326	1,847
3	A77, south of Floak Bridge	DfT Count Point 74352	1,189	132	1,321
4	A77, south-west of junction with A719	DfT Count Point 90195	2,716	103	2,819
5	A77, south-west of M77 Junction 7 on-slip road	DfT Count Point 50704	4,351	400	4,752
6	M77, between Junctions 5 and 6	TS Count Points CTC01014 and CTC01015	46,370	5,136	51,505
7	M77, near Junction 7	TS Count Points CTC01023 and CTC01024	42,074	4,913	46,988

Please note minor variances due to rounding may occur.

The ATC and TS survey locations which provided traffic volume data were also used to obtain speed statistics. The two-way seven-day average and 85th percentile speeds observed at the count sites are summarised in **Table 3**.

Table 3 Speed Summary

No.	Survey Location	Data Source	Mean Speed (mph)	85%ile Speed (mph)	Speed Limit (mph)
1	Floak Road	ATC	23.9	26.8	60.0
2	A77, south-west of junction with Mearns Road	DfT Count Point 30755	No data available.		40.0
3	A77, south of Floak Bridge	DfT Count Point 74352	No data available.		60.0
4	A77, south-west of junction with A719	DfT Count Point 90195	No data available.		60.0
5	A77, south-west of M77 Junction 7 on-slip road	DfT Count Point 50704	No data available.		60.0
6	M77, between Junctions 5 and 6	TS Count Points CTC01014 and CTC01015	67.1	75.0	70.0
7	M77, near Junction 7	TS Count Points CTC01023 and CTC01024	67.0	74.7	70.0

No speed data available from DfT database, ATC speed data from 2024 and TS speed data from 2025.

Speed information from **Table 3**, suggests that the recorded speeds are broadly being adhered to within the study area, with only the 85th percentile speeds recorded marginally above the speed limits at the M77 count point locations. Police Scotland may wish to consider enforcement spot checks in these areas, if deemed necessary.

5.5 Accident Review

Personal Injury Accident (PIA) data for the five-year period covering January 2020 to December 2024 was obtained from the online resource CrashMap[7] which uses data collected by the police about road traffic crashes occurring on British roads, where someone is injured. TA Guidance[8] requires an analysis of the PIA on the road network in the vicinity of any development to be undertaken for at least the most recent three-year period. Whilst the study area has not been identified as having a high accident rate, a five-year review has been undertaken to ensure a comprehensive assessment..

The PIA statistics are categorised into three categories, namely:

- A “Slight” PIA, examples include a sprain, bruise or cut which is not considered to be severe, or slight shock requiring roadside attention;
- A “Serious” PIA, examples include fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock requiring treatment; and
- A “Fatal” PIA, for those accidents that result in a death.

The locations and severity of the recorded accidents within the study area are summarised in **Table 4**, while **Figure 8** shows their locations.

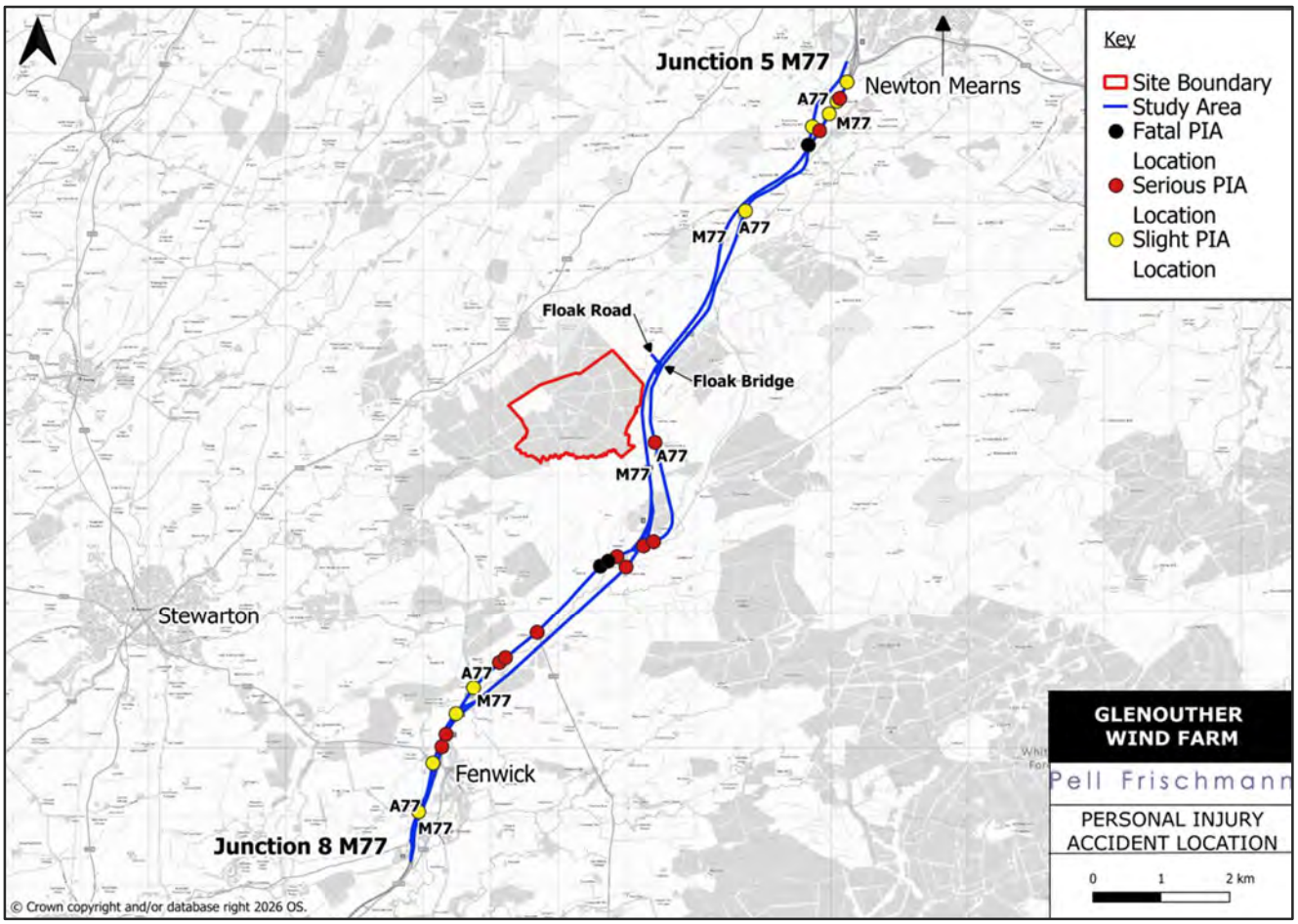
Table 4 Personal Injury Accident Summary

Location	Slight	Serious	Fatal	HGV Incidents
A77 (within Study Area)	6	7	3	1
M77 (within Study Area)	3	5	0	8
Total	**9**	**12**	**3**	**9**
Percentage of total accidents	**38%**	**50%**	**13%**	**38%**

Figure 8 Personal Injury Accident Locations

[7] CrashMap (2026): https://www.crashmap.co.uk [Accessed April 2026]

[8] Transport Scotland (2012) Transport Assessment Guidance: https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management__dpmtag_ref__17__-_transport_assessment_guidance_final_-_june_2012.pdf [Accessed April 2026]



A summary analysis of the incidents indicates that:

5.5.1 A77 (within the Study Area)

- A total of 16 accidents were recorded along the A77 (within the study area) within the five year period;
- Of those 16 accidents, six were classed as “slight”, seven as “serious” and three that resulted in fatalities;
- Two of the accidents that resulted in fatalities were recorded as single vehicle accidents, one of which involved a motorcycle and one which involved a van;
- The third accident resulting in a fatality involved a collision between a van and a bus;
- A total of three accidents involved motorcycles, two of which were single vehicle accident (one of which resulted in a fatality as detailed above) and one involved an accident with a car;
- Three accidents involved cyclists, of which one was classified as “serious” and two were classified as “slight”;
- One accident involved a pedestrian which was classified as “serious”; and
- One accident involved a collision between an HGV and a car and was classified as “serious”.

5.5.2 M77 (within the Study Area)

- A total of eight accidents were recorded along the M77 (within the study area) within the five year period;
- Of those eight accidents, three were classed as “slight”, five as “serious” and none resulted in fatalities;
- A total of two accidents involved motorcycles. Both were single vehicle accidents that resulted in “slight” accidents;
- No accidents involving HGVs were recorded along the M77 (within the study area); and
- No accidents involving pedestrians or cyclists were recorded along the M77 (within the study area).

In general, there are no clusters of PIAs at any location in the assessed area or high numbers of accidents involving HGVs for example. The majority of PIAs recorded on the local road network occurred at or on approach to junctions / access to properties, where there is an increased interaction between vehicles and on bends.

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 2030 Traffic Flows

Construction of the Proposed Development is estimated to commence during 2030 if planning permission is granted and is anticipated to last approximately 20 months depending on weather conditions and ecological considerations.

To assess the likely effects during the construction, base year traffic flows were determined by applying a NRTF low growth factor to the surveyed traffic flows. The NRTF low growth factor for 2026 to 2030 is 1.021. These factors were applied to the survey data to estimate the 2030 base traffic flows, as shown in **Table 5**. This forecast forms the baseline for the assessment of traffic and transport related effects in EIA Report **Chapter 11.**

Table 5 24-hour Two-way Average Traffic Data (2030)

No.	Survey Location	Cars & Lights	HGV	Total
1	Floak Road	155	39	194
2	A77, south-west of junction with Mearns Road	1,552	332	1,884
3	A77, south of Floak Bridge	1,213	135	1,348
4	A77, south-west of junction with A719	2,770	105	2,875
5	A77, south-west of M77 Junction 7 on-slip road	4,438	408	4,847
6	M77, between Junctions 5 and 6	47,297	5,238	52,535
7	M77, near Junction 7	42,916	5,012	47,928

Please note minor variances due to rounding may occur.

5.7 Committed Developments

5.7.1 Onshore Wind Farms and Energy Related Planning Applications

A review of the EAC online planning portal[9], ERC's online planning portal[10] and the Scottish Government's Energy Consents Unit portal[11] was undertaken in the preparation of this assessment to identify any consented developments within the vicinity of the Proposed Development which would generate significant traffic within the same study area and should be included within the assessment.

TA Guidance[12] advises that only those projects with extant planning permission or local development plan allocations within an adopted or approved plan require to be included in any assessment. Those projects in scoping or at the application stage should not be included in cumulative assessments as they have yet to be determined. When considering traffic impacts specifically in relation to the construction phase of a project, the potential traffic impact is highly speculative and as such, cannot be included in the assessment.

[9] https://eaccess.dumgal.gov.uk/online-applications/ [Accessed April 2026]
[10] https://eastrenfrewshire.gov.uk/search-planning-applications [Accessed April 2026]
[11] https://www.energyconsents.scot/ApplicationSearch.aspx?T=1 [Accessed April 2026]
[12] https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

A planning application (2023/0542/TP) was submitted in September 2023 to ERC for Moorshield Wind Farm, involving the erection of three wind turbines (to a maximum blade tip of 149.9 m) with erection of substation/control building and formation of access tracks, which is located approximately 2.5 km to the east of the Proposed Development. Planning permission was granted for the development in September 2024 subject to conditions. A review of the online planning application documents did not provide information regarding construction trips. As such Moorshield Wind Farm cannot be included as a committed development.

A planning application for the erection of Green Hydrogen Production Facility with associated temporary laydown area and ancillary infrastructure (21/0261/PP) was granted planning permission by EAC in January 2025 and is located approximately 3 km to the south-east. A review of the associated online documents suggests that the facility shares a study area with the Proposed Development and that the overall peak week for total traffic generation occurs in week 10 when there are 64 two way HGV movements and 57 two-way LGV movements which results in a total of 121 two-way movements per day for all traffic.

The planning application for Land Adjacent to Whitelee Windfarm - Solar PV Farm, battery energy storage system, HV cabling and associated access(es), link road and ancillary infrastructure (ECU00002198) was also consented in January 2025. The Green Hydrogen Production Facility and the Solar PV Farm are located within the same site and are part of a wider development. A review of traffic generation information for both the Green Hydrogen Production Facility and the Solar PV Farm note that as a robust assessment the construction trips (as outlined in the above paragraph) include trips associated with the Solar PV Farm, the Green Hydrogen Production Facility, BESS Scheme, Grid connection and site mobilisation and reinstatement.

As such, the wider scheme including the Solar PV Farm, the Green Hydrogen Production Facility, BESS Scheme, Grid connection and site mobilisation and reinstatement are considered as a committed development and as part of a sensitivity review to inform EAC of possible issues with other relevant schemes in the area, whose construction traffic would impact the study area, should they be constructed concurrently. This is undertaken as part of the cumulative assessment in EIA Report **Chapter 11**.

The review did not identify any other wind farms or related planning applications that should be considered as a committed development and included within any cumulative assessment.

Furthermore, it is extremely unlikely that peak traffic conditions would occur should more than one scheme be constructed at the same time, due to differences in construction programmes, material supplies and developer resources.

5.7.2 Other Planning Applications

A review of the EAC and ERC online planning portal was also undertaken for other 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 30%).

A review of the Transport Statement associated with consented planning application 23/0370/PP for erection and operation of a Maturation Warehousing Facility and ancillary facilities found that during operation, the development will generate a total of 88 two-way car trips and 40 two-way HGV trips per day. The inclusion of these trips in the baseline would dilute the impact of the Proposed Development, as such in order to provide a robust assessment, these have not been added to the baseline. There is no traffic information associated with the construction phase available on the planning portal at the time of writing, as such it cannot be included in the sensitivity review undertaken as part of the cumulative assessment in **EIA Report Volume 2: Chapter 11: Access, Traffic and Transport**. Should the development and the Proposed Development be constructed concurrently, it is it is suggested this would be mitigated through the use of an overarching TMMP.

The review did not identify any 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 low 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 20-month construction period, the following traffic associated with the Proposed Development will require access to the Site:

- Staff transport, in either cars or staff minibuses;
- Construction equipment and materials, deliveries of machinery and supplies such as concrete materials and crushed rock;
- Timber wagons for the removal of forestry materials;
- Components relating to the substation components and associated infrastructure; and
- AILs consisting of the wind turbine sections and heavy lift cranes.

Average monthly traffic flow data was used to establish the construction trips associated with the Proposed Development, based on the assumptions detailed in the following sections. It should be noted that there may be variations in the following calculations due to rounding, which are not considered significant.

6.1.2 Construction Staff

Staff will arrive in non-HGV vehicles and where possible will be encouraged to car share. The workforce onsite will depend on the activities undertaken, but, based on previous wind farm construction site experience for a project of this scale which suggests four staff per wind turbine during the short peak period of construction is likely, the maximum number of staff expected onsite could be around 20 per day.

For the purposes of estimating traffic movements, it was assumed that 40% of staff will be transported by minibus and 60% will arrive by car (single car occupancy was assumed as the worst case at this stage with potentially fewer movements through car sharing).

Based on these assumptions, staff transport cars and light vehicles will account for a maximum of 26 vehicle movements (13 inbound trips and 13 outbound trips) per day during the peak period of construction.

6.1.3 Abnormal Indivisible Load Deliveries

The wind turbines are broken down into components for transport to the Site. The nacelle, blade and tower sections are classified as AILs due to their weight, length, width and height when loaded. For the purposes of the assessment, the 'worst case' numbers of components requiring transport are illustrated in **Table 6**.

Table 6 Turbine Components

Component	Number of Components per Turbine
Rotor Blades	3
Tower Sections	5
Nacelle	1
Hub	1
Drive Train	1
Nose Cone	1
Transformer	1
Ancillary	1
Site Parts	0.25 (parts shared between 4 wind turbines on one delivery)

In addition to the wind turbine deliveries, up to two high-capacity erection cranes will be needed to offload a number of components and erect the turbines. The cranes are likely to be mobile cranes with a capacity up to 1,000 tonnes that are escorted by boom and ballast trucks to allow full mobilisation on Site. Smaller erector

cranes will also be present to allow the assembly of the main cranes and to ease the overall erection of the wind turbines.

Escort vehicles will accompany the AIL convoys to support the traffic management measures. Up to three vehicles will be deployed and it is assumed that three AIL turbine component loads will be delivered per convoy. This will result in 19 convoys on the network (excluding cranes), with a total of approximately 114 escort vehicle movements (57 inbound trips and 57 outbound trips).

Wind turbine components that do not classify as AILs, will be delivered in addition to these, resulting in a further approximate 32 movements (16 inbound trips and 16 outbound trips). All of these deliveries are expected to occur over a period of approximately three months.

The escort vehicles have been assumed to be police cars and light goods vehicles. Motorcycles may be deployed, depending upon Police resources.

6.1.4 General Deliveries

Throughout the construction phase, general deliveries will be made to the Site by means of HGV. These will include fuel, site office and staff welfare. At the height of construction, it is assumed that up to 40 journeys to Site are made (20 inbound trips and 20 outbound trips) per month.

6.1.5 Timber Felling

There will be a requirement for timber felling and extraction associated with the construction of the Proposed Development. It is currently estimated that the volume of trees to be removed from Site during construction is 31,168 tonnes, which will result in approximately 2,494 two-way movements (1,247 inbound trips and 1,247 outbound trips). For the purposes of the assessment, it has been assumed that all timber extracted will be done using a dedicated timber articulated lorry, which has a payload capacity of approximately 25 tonnes. It is currently estimated that this will occur over a twelve month period from the beginning of construction.

6.1.6 Material Deliveries

Various materials will need to be delivered to Site to construct the site-based infrastructure. At the outset of the construction works, HGV deliveries will deliver plant and initial material to the Site to enable the formation of the Site compound and to deliver additional construction machinery.

Aggregate is expected to come from local quarries such as Floak Quarry or North Drumboy Quarry, for example.

The estimated total volume of ready-mix concrete required on site is 6,930 m³, based upon expected wind turbine foundation, substation foundation and miscellaneous uses across the Proposed Development. For the purpose of this assessment, it is assumed that ready-mix concrete will be delivered from the south near Kilmarnock, via the A77. Deliveries associated with ready-mix concrete for the purpose of the turbine foundations are expected to generate a total of 2,068 two-way HGV movements (1,034 inbound trips and 1,034 outbound trips). The assumption on ready-mix concrete deliveries has been based on a 6m³ concrete delivery vehicle as a worst-case, however, should an 8m³ concrete delivery vehicle be used the number of deliveries would be reduced. Deliveries of ready-mix concrete associated with ancillary works are expected to generate 244 two-way HGV movements (122 inbound trips and 122 outbound trips).

Three of the turbine foundations will require piling due to the ground conditions. It is assumed that the piles will be precast concrete piles and will be delivered by HGV which will result in 78 vehicle movements (39 inbound trips in and 39 outbound trips).

Steel reinforcement required in the foundations across the Proposed Development for wind turbines, substation etc. are estimated to total 850 tonnes, resulting in a total of 58 vehicle movements (29 inbound trips and 29 outbound trips.

The proposed access tracks will generally be 6 m in width and would be designed to accommodate 13 tonne axle loads. In addition to the access tracks, crane hardstands will be constructed to enable the wind turbine erection process. It is assumed that the 100% of aggregate materials will arrive to Site from local quarries such as Floak Quarry or North Drumboy Quarry, for example.

The estimate of imported material is detailed in **Table 7**.

Table 7 Aggregate Material Deliveries

Element	Volume / Installation (m^3)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Movements
Tracks	19,207	42,256	20	2,115	4,230
Hardstanding	15,663	34,459	20	1,723	3,446
Substation	4,200	9,240	20	462	924
Compound	3,000	6,600	20	330	660

Geotextile will be delivered to Site in rolls. A total of 105 large rolls may be required at Site and will be delivered by HGV which will result in 12 vehicle movements (6 inbound trips in and 6 outbound trips).

Cables will connect each wind turbine to the substation compound. Trip estimates for the cable materials are provided below in **Table 8** and **9**. Three cables are to be provided within each cable trench and will be backfilled with cable sand.

Table 8 Cable Trip Estimate

Element	Total Cable Length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Movements
Cables	9,000	500	18	2	4

Table 9 Cable Sand Trip Estimate

Element	Volume (m^3)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Movements
Cable Sand	1,013	1,620	20	81	162

Ducting deliveries will result in 10 vehicle movements (5 inbound and 5 outbound).

One substation building will be constructed on the Site. This will require deliveries of building materials and structural elements and will result in 250 vehicle movements (125 inbound trips in and 125 outbound trips).

The resulting traffic generation estimates have been plotted onto the indicative 20 month construction programme to illustrate the peak journeys on the network. **Table 10** illustrates the average trip generation throughout the construction programme for each month, showing two-way construction vehicle movements, i.e. an inbound and outbound trip.

Table 10 Construction Traffic Profile (Average Two-Way Trips)

Activity	Class	Month									
		1	2	3	4	5	6	7	8	9	10
Site Establishment & Remediation	HGV	50	50								
General Site Deliveries	HGV	40	40	40	40	40	40	40	40	40	40
Timber Extraction	HGV	208	208	208	208	208	208	208	208	208	208
Compound Aggregate Deliveries	HGV								330	330	
Access Track Aggregates Deliveries	HGV							846	846	846	846
Crane Hardstandings	HGV										
Ready-mix Concrete Deliveries	HGV										
Concrete Pile Deliveries	HGV										
Reinforcement	HGV										
Cable & Ducting Deliveries	HGV										
Cabling Sand	HGV										
Geotextile Deliveries	HGV							6		6	
Substation Aggregate and Infrastructure	HGV								462	462	
AIL Cranage	HGV										
Turbine Component Deliveries	HGV										
Commissioning & Reinstatement	Car & LGV										
AIL Escorts	Car & LGV										
Staff	Car & LGV	308	440	572	572	572	572	572	572	572	572
Total HGV	HGV	298	298	248	248	248	248	1,100	1,886	1,892	1,094
Total Cars / LGV	Car & LGV	308	440	572	572	572	572	572	572	572	572
Total Movements		606	738	820	820	820	820	1,672	2,458	2,464	1,666
Total HGV per Day		**14**	**14**	**11**	**11**	**11**	**11**	**50**	**86**	**86**	**50**
Total Cars / LGV per Day		**14**	**20**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**
Total per Day		**28**	**34**	**37**	**37**	**37**	**37**	**76**	**112**	**112**	**76**

Please note minor variances due to rounding may occur.
Calculations assume that there are 22 working days per month.

Table continued on the next page.

Activity	Class	Month									
		11	12	13	14	15	16	17	18	19	20
Site Establishment & Remediation	HGV										
General Site Deliveries	HGV	40	40	40	40	40	40	40	40	40	40
Timber Extraction	HGV	208	208								
Compound Aggregate Deliveries	HGV										
Access Track Aggregates Deliveries	HGV	846									
Crane Hardstandings	HGV			862	862	862	862				
Ready-mix Concrete Deliveries	HGV	517	517	517	517						
Concrete Pile Deliveries		20	20	20	20						
Reinforcement	HGV	15	15	15	15						
Cable & Ducting Deliveries	HGV					5	5	5			
Cabling Sand	HGV					54	54	54			
Geotextile Deliveries	HGV										
Substation Aggregate and Infrastructure	HGV						83	83	83		
AIL Cranage	HGV							10		10	
Turbine Component Deliveries	HGV							47	47	47	
Commissioning & Reinstatement	Car & LGV									40	40
AIL Escorts	Car & LGV							38	38	38	
Staff	Car & LGV	572	572	572	572	572	572	572	572	440	308
Total HGV	HGV	1,645	799	1,453	1,453	960	1,044	239	171	97	40
Total Cars / LGV	Car & LGV	572	572	572	572	572	572	610	610	518	348
Total Movements		2,217	1,371	2,025	2,025	1,532	1,616	849	781	615	388
Total HGV per Day		**75**	**36**	**66**	**66**	**44**	**47**	**11**	**8**	**4**	**2**
Total Cars / LGV per Day		**26**	**26**	**26**	**26**	**26**	**26**	**28**	**28**	**24**	**16**
Total per Day		**101**	**62**	**92**	**92**	**70**	**73**	**39**	**35**	**28**	**18**

Please note minor variances due to rounding may occur.
Calculations assume that there are 22 working days per month.

The peak of construction activity is expected to occur in month nine when there will be a total 2,464 movements or an average of 112 vehicle movements per day, comprising 86 two-way HGV movements and 26 two-way car / LGV movements.

This is based on a flat construction profile however, assuming 22 working days per month, with the construction activities spread equally throughout the month. This, however, is unlikely to be the case given that ready-mix concrete is proposed to be used in the turbine foundations and the foundations will be constructed by means of a continuous pour.

It is therefore assumed that the concrete pour for the turbine foundation would occur over one day and as such, the traffic movements associated with this element of the construction activities is considered to be the most onerous in terms of traffic impacts, with 414 HGV movements (207 inbound trips and 207 outbound trips) per turbine and 26 two way car / LGV movements for staff. Assuming a worst case whereby foundation concrete would be delivered on a single day in order to achieve a continuous pour, this would equate to approximately 35 two-way HGV movements per hour over the course of a typical 12 hour shift onsite. All other deliveries on this day will be suspended to allow unrestricted access for concrete deliveries.

As already stated, this peak of construction activity would occur on a total of five single days and as such any disruption would be short-lived. Following this, the number of HGV vehicle movements will decrease significantly over the remainder of the construction programme of 20 months.

6.1.7 Likely Grid Connection Route Trip Generation

Due to the nature, design and rate of construction of the Likely Grid Connection Route, it is anticipated that vehicle movements at any one location would be limited to approximately three or four visits per day over the course of the construction period which will not lead to any noticeable increase in traffic volumes on the surrounding road network, albeit there will be a slight change in traffic composition as more HGVs will be required to deliver materials for the underground cable. Traffic movements associated with the Likely Grid Connection Route works will interact with the traffic generated by the construction of the Proposed Development on the A77. However, the numbers of traffic movement associated with the Likely Grid Connection Route works will add a negligible amount of additional traffic movements over the wind farm construction.

The timescales for the grid connection works are not yet determined; however, construction of the Likely Grid Connection Route is assumed to take place over a period of up to nine months and may occur concurrently with construction of the Proposed Development. For typical projects, these connection works are generally scheduled towards the end of a wind farm project, outside of the peak of construction activity.

6.1.8 Distribution of Construction Trips

The distribution of Proposed Development construction traffic on the network will vary depending on the types of loads being transported. The assumptions for the distribution of construction traffic during the construction phase are as follows:

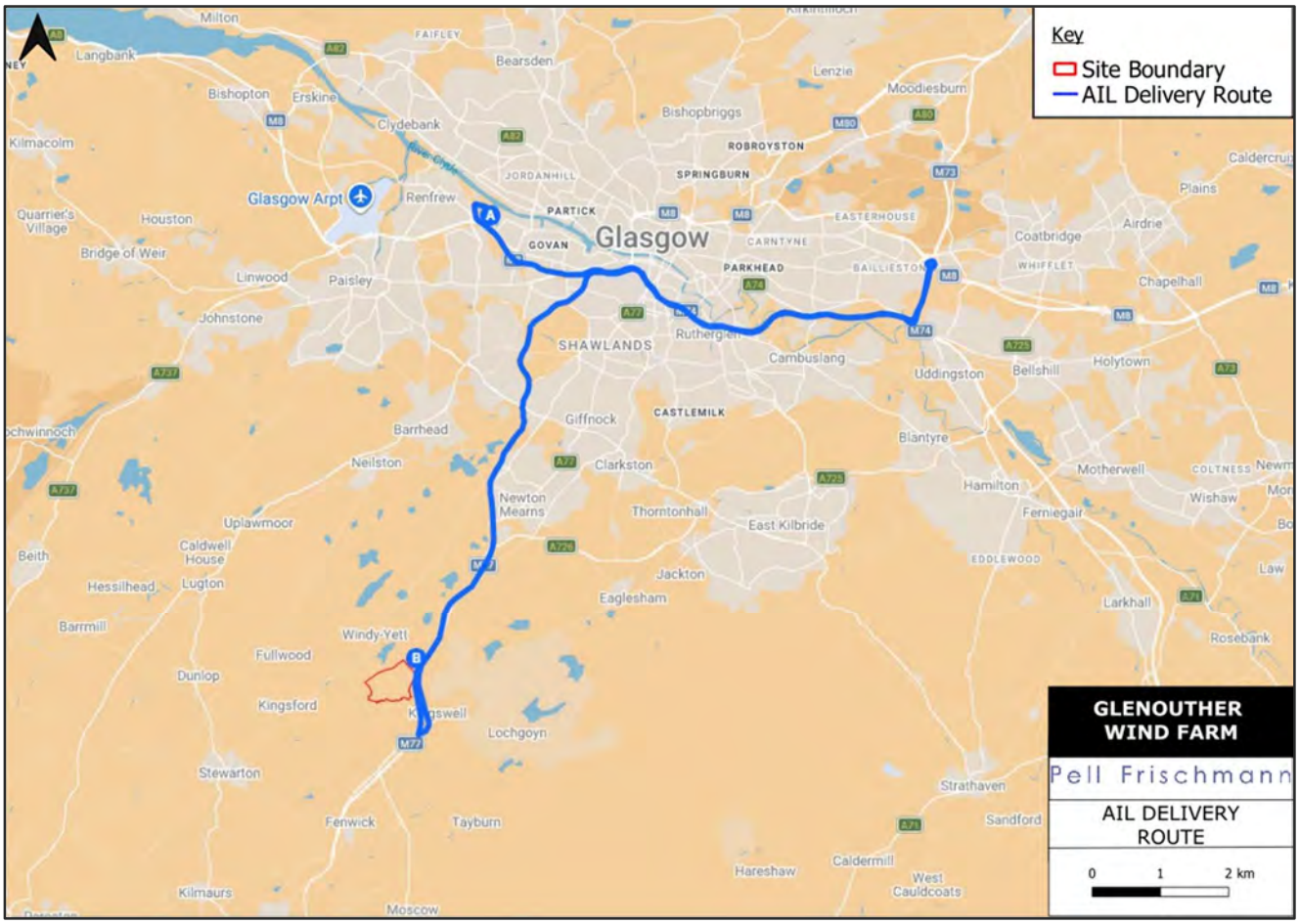
- All construction traffic enters the Site via the existing M77 service road, which is accessed via Floak Road;
- Ready-mix concrete will be sourced from local concrete suppliers, which for the purpose of this assessment will originate from the A77 from the south, near Kilmarnock and will travel through to the Site via the A77, Floak Road and the existing M77 service road;
- For the purpose of this assessment it is proposed that 100% of access track and hardstand aggregate requirements will be sourced from local quarries, such as Floak Quarry or North Drumboy Quarry, for example. As a robust assessment and to assess the potential impact on Floak Road, it is assumed that 100% of material will be delivered from North Drumboy Quarry;
- HGV deliveries associated with cabling and associated materials, etc. will arrive to Site via the M77, A77, Floak Road and the existing M77 service road from the north;

- Timber exported from the Site will be transported to a suitable processing facility, depending on the specific size, quality and grade of timber harvested. It is assumed this would depart via the M77 to the north or south;
- Staff working at the Site are likely to be based locally. It is assumed that 50 % will come from the north near Glasgow and Newton Mearns via the A77 and the remaining 50 % will come from the south near Fenwick and Kilmarnock via the A77; and
- General site deliveries are assumed to be delivered from the north via the A77 and Floak Road and via the existing M77 service road.

For the purposes of preparing EIA Report **Chapter 11** and this TA, it has been assumed that all AIL traffic will access the Site via the following route (which is shown in **Figure 9**):

- Loads will depart the KGV Docks and proceed to exit the roundabout onto Kings Inch Drive;
- At the roundabout loads will take the second exit and stay on Kings Inch Drive;
- Loads will merge onto the M8 via the ramp to Glasgow;
- Blade loads will continue east on the M8 before departing at Junction 4 and continue northbound on the M73, continuing to Junction 8 between the M73 and M8;
- At Junction 8, the loads will circumnavigate the roundabout, before rejoining the M73 southbound;
- Loads will then rejoin the M74 at Junction 4 continuing westbound. They will travel west before joining the southbound carriageway of the M77 at Junction 22 of the M8;
- Non-blade loads will use the Seaward Street Interchange to U turn and access the M77 from the M8;
- Loads will continue south on the M77 and will depart at Junction 6 where they will join the A77 eastbound;
- Loads will continue on the A77 northbound and will turn left at Floak Road and over Floak Bridge; and
- After Floak Bridge will turn left and will then use the existing M77 service road to travel south-west into the Site.

Figure 9 AIL Component Delivery Route



The AIL delivery route has been considered within High-Level Access Review provided in **Annex A**.

6.1.9 Peak Construction Traffic

Following the distribution and assignment of traffic flows to the Study Area network, the resultant daily traffic during the peak day of construction which is the delivery of ready-mix concrete for the turbine foundations is summarised in **Table 11**. Note where road links show no assignment of traffic flows, this is due to no construction traffic associated with the peak daily routing to the Site via this route.

Table 11 Peak Daily Construction Traffic

No.	Survey Location	Cars & Lights	HGV	Total
1	Floak Road	26	414	440
2	A77, south-west of junction with Mearns Road	13	0	13
3	A77, south of Floak Bridge	13	414	427
4	A77, south-west of junction with A719	13	414	427
5	A77, south-west of M77 Junction 7 on-slip road	13	414	427
6	M77, between Junctions 5 and 6	0	0	0
7	M77, near Junction 7	0	0	0

Please note that variances may occur due to rounding.

6.2 Operational Phase

In the operational phase, it is envisaged that the level of traffic associated with the Proposed Development will equate to on average two vehicle trips per week which is considered negligible and therefore no detailed assessment of the operational phase of the Proposed Development has been undertaken.

6.3 Decommissioning Phase

Prior to decommissioning of the Site, a traffic assessment will be undertaken, and appropriate traffic management procedures followed.

The decommissioning phase will result in fewer trips on the road network than the construction phase as it is considered likely that elements of infrastructure such as access tracks will be left in place and structures may be broken up on Site to allow transport by a reduced number of HGVs.

7 Traffic Impact Assessment

7.1 Construction Impact

The peak day traffic data was combined with the construction future baseline year (2030) 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 12**.

Table 12 2030 Baseline + Construction Development – Peak Day Flows and Impact

Ref No.	Survey Location	Cars & LGV	HGV	Total Traffic	Cars & LGV % Increase	HGV % Increase	Total Traffic % Increase
1	Floak Road	181	453	634	16.8%	1053.8%	226.2%
2	A77, south-west of junction with Mearns Road	1,565	332	1,897	0.8%	0.0%	0.7%
3	A77, south of Floak Bridge	1,226	549	1,774	1.1%	306.2%	31.7%
4	A77, south-west of junction with A719	2,783	519	3,302	0.5%	393.2%	14.8%
5	A77, south-west of M77 Junction 7 on-slip road	4,451	822	5,273	0.3%	101.3%	8.8%
6	M77, between Junctions 5 and 6	47,297	5,238	52,535	0.0%	0.0%	0.0%
7	M77, near Junction 7	42,916	5,012	47,928	0.0%	0.0%	0.0%

Please note minor variances due to rounding may occur.

The total traffic movements are predicted to increase by a maximum of 226.2% on Floak Road which provides access to the M77 service road, which leads through to the Site and as such all construction traffic will use. On the rest of the study area, the highest total traffic increase is 31.7%, which occurs on the A77, south of Floak Bridge.

Table 12 shows that highest HGV traffic movements increase will occur on the Floak Road, where it is estimated to increase by 1053.8%. To put the increase into perspective, Floak Road will see an additional 414 HGV movements per day or 35 HGV movements per hour over the course of a typical 12-hour shift. As this section of road already services an operational quarry (Floak Quarry), the increase in HGVs is not considered substantial in terms of overall traffic flows. It should be noted, this will occur on a maximum of five single days during the pouring of the turbine foundation and the percentage increase in HGVs will fall significantly outwith this period.

The next highest HGV traffic movement increase would occur on the A77 with increases of 393.2%, 306.2% and 101.3% increases to the south-west of the junction with the A719, south of Floak Bridge and south-west of M77 Junction 7 on-slip road, respectively. There is also an operational quarry located on the A77 (North Drumboy Quarry) and as such HGV traffic comprises part of the typical composition of traffic along the A77.

A review of existing theoretical road capacity has been undertaken using The NESA (Network Evaluation from Survey and Assignment) 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 13**.

Table 13 2030 Peak Daily Traffic Flow Capacity Review

Ref. No.	Survey Location	2030 Baseline Flow	2030 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
1	Floak Road	194	634	19,200	97%
2	A77, south-west of junction with Mearns Road	1,884	1,897	28,800	93%
3	A77, south of Floak Bridge	1,348	1,774	28,800	94%
4	A77, south-west of junction with A719	2,875	3,302	28,800	89%
5	A77, south-west of M77 Junction 7 on-slip road	4,847	5,273	28,800	82%
6	M77, between Junctions 5 and 6	52,535	52,535	91,200	42%
7	M77, near Junction 7	47,928	47,928	91,200	47%

Please note minor variances due to rounding may occur.

The results indicate there are no road capacity issues with the addition of peak daily construction traffic associated with the Proposed Development.

7.2 Likely Grid Connection Route Impact

Given that there is no predicted increase in peak traffic, and subject to notices under Sections 113–115 being implemented additional significant in-combination effects are predicted.

The operational phase will only result in very occasional traffic associated with general maintenance and monitoring and so does not warrant further consideration.

8 Proposed Traffic Mitigation Measures

8.1 Construction Traffic

8.1.1 Construction Traffic Management Plan (CTMP)

During the construction period, a project website, blog or social media feed will be regularly updated to provide the latest information relating to traffic movements associated with vehicles accessing the Site. This will be agreed with EAC and ARA.

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

- Agree AIL route modifications and improvements with ARA and TS and other relevant stakeholders. Works which will be required to facilitate turbine deliveries are High-Level Access Review, which is presented in **Annex A**;
- Where possible, the detailed design process will minimise the volume of material to be imported to Site to help reduce HGV numbers;
- A Staff Travel Plan, including transport modes to and from the worksite (including pick up and drop off times);
- A Transport Management Plan for AIL deliveries;
- All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- Wheel cleaning facilities may be established at the Site entrance, depending on the views of TS and the local authority;
- Normal Site working hours will be limited to between 07:00 and 19:00 Monday to Friday and 07:00 and 13:00 on Saturdays though component delivery and turbine erection may take place outside these hours i.e. depending on when police escort is available;
- Appropriate traffic management measures will be put in place on the Floak Road and the A77 leading through to the Site, to avoid conflict with general traffic including Floak Quarry traffic and Floak residents, subject to the agreement of ARA and ERC. Typical measures will include HGV turning and crossing signs and / or banksmen at the Site access and warning signs;
- Provide construction updates on the project website, social media feeds and a newsletter to be distributed to residents within an agreed distance of the Site;
- Adoption of a voluntary reduced speed limit, for example on the Floak Road and the A77 in the vicinity of the Site access junction and at other locations to be agreed with ARA, and ERC;
- All drivers will be required to attend an induction to include:
    - A toolbox talk safety briefing;
    - The need for appropriate care and speed control;
    - A briefing on driver speed reduction agreements (to slow Site traffic at sensitive locations through the villages); and
    - Identification of the required access routes and the controls to ensure no departure from these routes.

ARA, ERC and TS may request that an agreement to cover the cost of abnormal wear and tear on its road network is made. Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route will be recorded to provide a baseline of the condition of the road prior to any construction work commencing. This baseline will provide evidence of any change in the road condition during the construction phase. Any necessary repairs will be coordinated with ARA, ERC and TS. Any damage caused by traffic associated with the Proposed Development during the construction period, that would be hazardous to public traffic, will be repaired immediately.

Damage to road infrastructure caused directly by construction traffic will be remediated, and street furniture that is removed on a temporary basis will be fully reinstated.

There will be a regular road condition review, and any debris and mud will be removed from the carriageway using an onsite road sweeper to ensure road safety for all road users.

Before the AILs traverse the proposed delivery route, the following tasks will be undertaken to ensure load and road user safety:

- Ensure any vegetation which may foul the loads is trimmed back to allow passage;
- Confirm there are no roadworks or closures that could affect the passage of the loads;
- Check no new or diverted underground services on the proposed route are at risk from the abnormal loads; and
- Confirm the police are satisfied with the proposed movement strategy.

8.2 Abnormal Load Traffic

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

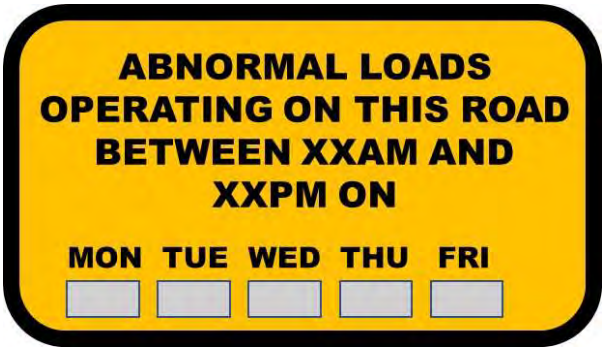
The majority of potential conflicts between construction traffic and other road users will occur with abnormal load traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.

Potential conflicts between the abnormal loads and other road users can occur at a variety of locations and circumstances. The main potential conflicts are likely to occur:

- On sections of single carriageway road or narrow road sections, for example on the Floak Road, Floak Bridge and the A77;
- At locations where there are significant changes in the horizontal alignment of the carriageway, requiring the loads to use the full carriageway width;
- Where traffic turns at a road junctions, requiring other traffic to be restrained on other approach arms; and
- In locations where high speeds of general traffic are predicted.

Advance warning signs will 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 covered 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 will be agreed post consent and will form part of the Traffic Management Proposal for the project.

The Abnormal Load Transport Management Plan will also include:

- Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates, and agreeing communication protocols and lay over areas to allow overtaking;
- A diary of proposed delivery movements to liaise with the communities to avoid key dates 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 comprising the construction contractors, the local community, local businesses and if appropriate, the police. This committee will form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

8.2.2 Public Information

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

Information will relate to expected vehicle movements from the PoE through to the Site access junction. This will assist residents in understanding the timing of the convoy movements and may help reduce any potential conflicts.

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

8.2.3 Convoy System

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

The AIL convoys will be no more than three AILs vehicles long, or as advised by the police, to permit safe transit along the delivery route, and to allow limited overtaking opportunities for following traffic where it is safe to do so.

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

8.3 A Staff Travel Plan

A Staff Travel Plan will be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport, especially car-sharing. A package of measures could include:

- Appointment of a Travel Plan Coordinator (TPC);
- Provision of public transport information;
- Mini-bus service for transport of Site staff;
- Promotion of a car sharing scheme;
- Car parking management; and
- Restrictions on parking, for example on the public road network and verges in the vicinity of the Site entrance.

8.4 Operational Phase Mitigation

The M77 service road and access tracks near the Site entrance will be well maintained and monitored during the operational life of the Proposed Development. Regular maintenance will be undertaken to keep the access track drainage systems fully operational and to ensure there are no run-off issues onto the public road network.

9 Summary and Conclusions

Pell Frischmann Consultants Ltd. has been commissioned by Land Use Consultants Ltd. on behalf of Wind Power North Four Ltd. (the Applicant) to undertake a Transport Assessment for the proposed Glenouther Wind Farm, located on Glenouther Moor, to the immediate south of Corsehouse reservoir, and approximately 4.5km north-east of Stewarton. The Site itself is wholly within the administrative area of East Ayrshire Council.

Access to the Site will be taken from the east. It is anticipated that vehicles will enter the Site via the existing junction off the A77 to the west of North Drumboy Quarry. These vehicles will then use the minor road (Floak Road) and existing bridge (Floak Bridge) crossing the M77 which provides access to nearby farms (Floak, Mid Floak and Townhead of Floak), as well as Floak Quarry. From there, vehicles will use the existing M77 service road (which is a private and gated road) to travel south-west into the Site.

The likely PoE used for the discharging of wind turbine components will be KGV Docks in Glasgow. AIL vehicles will travel from the port via Kings Inch Road, M8, M74 and M77, exiting at Junction 6 of the M77 and travelling back north via the A77. AIL vehicles will leave the A77 and travel into Site via Floak Road, Floak Bridge and the existing M77 service road.

In order to assess the impact of the Proposed Development construction traffic on the study area, an Automatic Traffic Count was undertaken on Floak Road, over a seven-day period in June 2025. To complement the Automatic Traffic Counts survey, existing traffic count data was obtained from the DfT database and the TS database for the other roads within the study area. This was factored to future levels (2030) to help determine the impact of construction traffic on the road network.

Construction traffic will result in a temporary increase in traffic flows on the road network surrounding the Proposed Development. The maximum traffic increase associated with construction of the Proposed Development is predicted to occur in month nine of the construction programme. During this month, when there will be a total of 112 vehicle movements per day, comprising 86 two-way HGV movements and 26 two-way car / LGV movements.

This is based on a flat construction profile however, assuming 22 working days per month, with the construction activities spread equally throughout the month. This, however, is unlikely to be the case given that ready-mix concrete is proposed to be used in the turbine foundations and the foundations will be constructed by means of a continuous pour. It is therefore assumed that the concrete pour for each turbine foundation would occur over one day and as such, the traffic movements associated with this element of the construction activities is considered to be the most onerous in terms of traffic impacts, with 414 HGV movements (207 inbound trips and 207 outbound trips) per turbine and 26 two way car / LGV movements for staff per day. Assuming a worst case whereby foundation concrete would be delivered on a single day in order to achieve a continuous pour, this would equate to approximately 35 two-way HGV movements per hour over the course of a typical 12 hour shift onsite. All other deliveries on this day will be suspended to allow unrestricted access for concrete deliveries.

It should be noted that this peak of construction activity would occur on a total of five single days and as such any disruption would be short-lived. Following this, the number of HGV vehicle movements will decrease significantly over the remainder of the construction programme of 20 months.

In addition, a review of the theoretical road capacity was undertaken for roads within 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 on local people and businesses associated with the construction phase traffic flows for both general construction traffic and abnormal loads associated with the delivery of the turbine components. It is considered that these can be secured by condition with the local authority.

The Proposed Development will 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. It is therefore concluded that there are no transport related matters which would preclude the construction of the Proposed Development Site and which cannot be effectively managed.

Annex A: High-level Access Review

Pell Frischmann

Glenouther Wind Farm

High-level Access Review

August 2026

10110219

Report Ref.	260803 Glenouther V162 High Level RSR - V2
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Prepared for

Force 9 Energy

272 Bath Street
Glasgow
G2 4JR

Prepared by

Pell Frischmann

93 George Street
Edinburgh
EH2 3ES

FORCE 9 ENERGY

Pell Frischmann

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Appendices

1 Introduction

Pell Frischmann (PF) has been commissioned by Force 9 Energy (the Applicant) to undertake a high-level access review to examine the issues associated with the transport of wind turbine Abnormal Indivisible Loads (AIL) associated with the development of Glenouther Wind Farm, located to the southwest of Glasgow, in the East Renfrewshire Council (ERC) administrative area.

The access review has been prepared to help inform the Applicant on the likely issues associated with the development of the site with regards to off-site transport and access for AIL traffic and examines the issues associated with transport along the whole of the access route.

The access review identifies the key issues associated with AIL deliveries and notes that remedial works, either in the form of physical works or as traffic management interventions will be required to accommodate the predicted loads.

The detailed assessment and subsequent designs of any remedial works are beyond the agreed scope of works between PF and the Applicant at this point in time.

It is the responsibility of the turbine supplier to ensure that the entirety of the proposed access route is suitable and meets with their satisfaction (depending upon contract). The turbine supplier will be responsible for ensuring that the finalised proposals meet with the appropriate levels of health and safety consideration for all road users and are in line with the relevant legislation at the time of delivery.

2 Definitions & Terminology

2.1 Definition of Abnormal Indivisible Load

The Department for Transport, of which National Highways (NH) is an executive agency, state that the strict definition of an AIL refers to a load which cannot, without undue expense or risk of damage, be divided into two or more loads for the purpose of carriage on roads which, owing to its dimensions or weight, cannot be carried on a vehicle which complies with the 'standard vehicle regulations' as follows:

- The Road Vehicles (Construction and Use) Regulations 1986 (as amended)
- The Road Vehicles (Authorised Weight) Regulations 1998 (as amended)
- The Road Vehicles Lighting Regulations 1989 (as amended)

All equipment should be stripped of its ancillaries before they are transported. NH will only accept that further dismantling is not required where it cannot be economically achieved due to the requirement for its construction within factory environments or where extremely high tolerances have to be maintained.

2.2 Legislation

Conventional heavy goods vehicles have an operating weight limit of 44 tonnes. The category known as AIL covers those vehicles where the gross weight exceeds 44 tonnes. An AIL is defined as that which cannot be carried under Construction and Use (C&U) Regulations. Items which, when loaded on the load carrying vehicle, exceed the weights encompassed by the C&U Regulations, but do not exceed Special Order Permission Limits are governed by Special Types General Order (STGO) Categories 1 to 3 depending on size.

Where dimensions exceed 6,100 mm in width, 30,000 mm in rigid length or 150 tonnes gross weight, a Special Order from NH is required.

Special Order category AIL movements are authorised by the NH Abnormal Loads team, an executive agency of the Department for Transport, based in Birmingham.

2.3 Water Preferred Policy

The Department for Transport has adopted a ‘water-preferred’ policy for the transport of AILs. This means that, where an application is sought for the movement of a Special Order or VR1 category load (more than 5.0 m width) by road, the Department, via NH and Transport Scotland (TS), will turn down the application where it is feasible for a coastal or inland waterway route to be used instead of road.

NH advise that this decision is based on a number of factors including whether the load is divisible, the availability of a suitable route, the amount of traffic congestion that is likely to be caused and the justification for the load to be moved.

The NH Abnormal Loads Team is the department responsible for the authorisation of Special Order AILs and government policy is that the closest available port of access should be used for the delivery of such oversized items.

2.4 Third-Party Land & Land Ownership

A review of third-party land should be undertaken by the client to ensure that no additional land rights are required to enable deliveries or mitigation works. PF accepts no responsibility for the accuracy of land ownership assumptions, all of which should be confirmed across the entire access route by a qualified land agent.

The limits of road adoption can vary depending upon the location of the site and the history of the road agencies involved. The adopted area is generally defined as land contained within a clear boundary where the road agency holds the maintenance rights for the land. In urban areas, this is usually defined as the area from the edge of the footway across the road to the opposing footway back edge.

In rural areas, the area of adoption can be open to greater interpretation as defined boundaries may not be clearly identifiable. In these locations, the general rule is that the area of adoption is between established field boundary lines or a maximum 2 m from the road edge. This can vary between area and location.

2.5 Abbreviations

AIL	Abnormal Indivisible Load
C&U	Construction and Use
ERC	East Renfrewshire Council
ESDAL	Electronic Service Delivery for Abnormal Loads
KGV	King George V Docks
LHA	Local Highway Authority
NH	National Highways
HV	High-Voltage
OHL	Overhead Line
OS	Ordnance Survey
PF	Pell Frischmann
POE	Port of Entry
SPA	Swept Path Assessment
STGO	Special Types General Order
TS	Transport Scotland
TTRO	Temporary Traffic Regulation Order

3 Candidate Turbine

The Applicant has indicated that they wish to consider the worst-case components from the Vestas V162 turbine 200 m tip height for the route assessment. The details of the components have been provided by Vestas and are detailed in **Table 3-1** below.

Table 3-1: V162 Turbine Component Summary

Component	Length [m]	Width [m]	Height / Min. Diameter [m]	Weight [te]
Blade	79.967	4.460	3.800	34.961
Base Tower	11.510	4.550	4.150	87.000
Mid 1 Tower	18.760	4.150	4.400	87.000
Mid 2 Tower	26.040	4.400	4.400	84.000
Mid 3 Tower	29.960	4.400	4.150	73.000
Top Tower	30.000	4.150	3.980	66.000

The blade and worst-case tower section dimensions have been used for the subsequent assessment of the proposed loads along the access routes.

4 Port of Entry

As the loads are classified as Special Order, due to a rigid length in excess of 30 m, in accordance with the Water Preferred Policy, the proposed Port of Entry (POE) is King George V Docks (KGV), which is the closest suitable port to the site.

The port has sufficient quay and storage space and is well located for the strategic trunk road network.

Loads can be offloaded by geared vessel or onshore mobile cranes, and this port has been used for the delivery of components for a number of wind farms / electrical infrastructure projects and is therefore well-proven as being capable of dealing with AILs of the size considered in this access review.

5 Site Location

The proposed development site is located to the south of Windy-Yett, East Renfrewshire. **Figure 5-1** illustrates the site location.

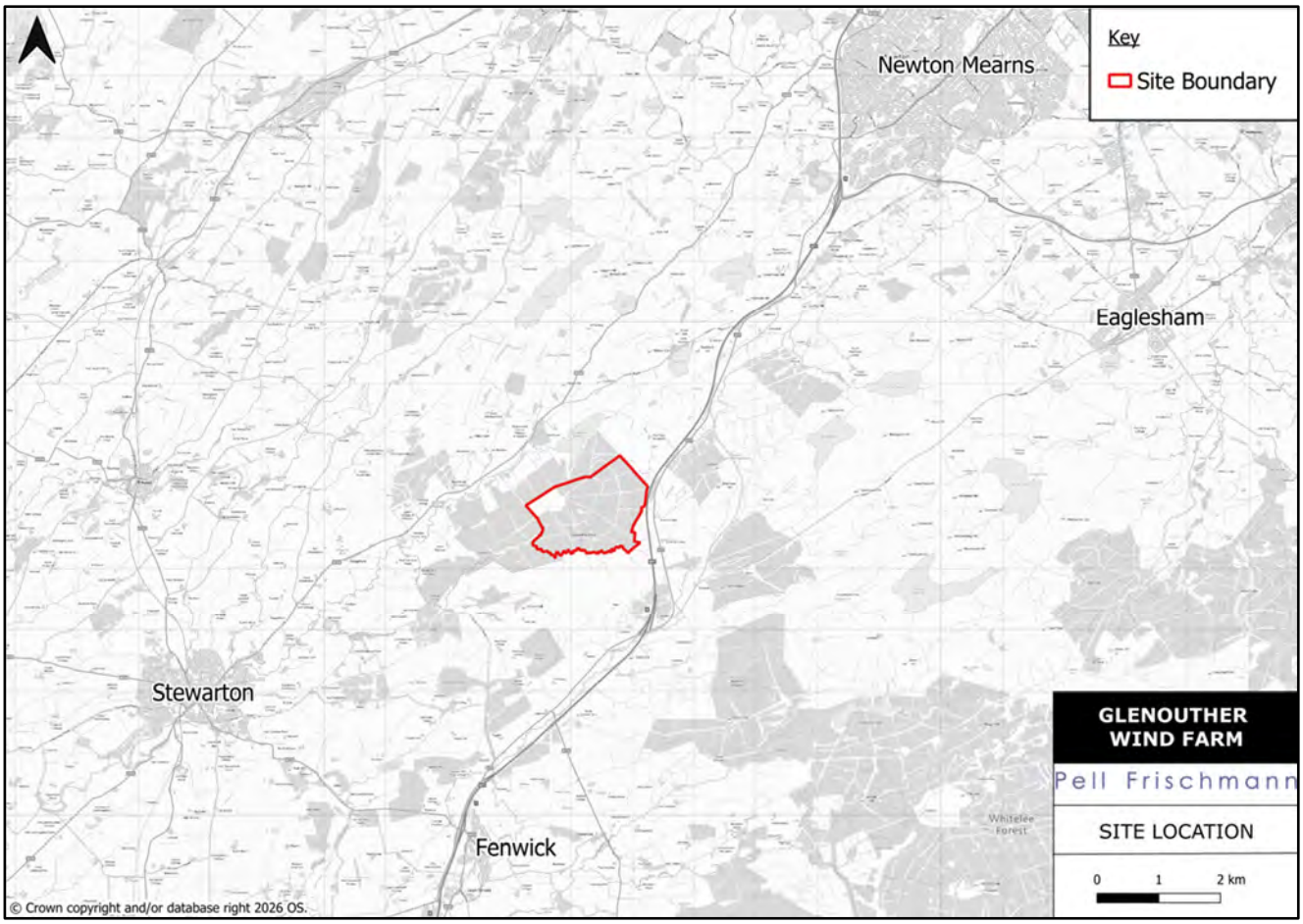


Figure 5-1: Site Location Plan

6 Weight Review

A weight review has been undertaken via the Electronic Service Delivery for Abnormal Loads (ESDAL) contacts database using the National Highways website www.esdal.com.

All of the relevant Local Highway Authorities (LHA) are noted in **Table 6-1**, and all have been contacted to ascertain if there are any relevant constraints that should be noted. Where comments are received, these are included within **Tables 9-1** and **9-2** and **Appendix C**. Where no comments have been received, this does not confirm the suitability or otherwise of the structures and a full review will be required with the LHAs.

Table 6-1: ESDAL Contacts

Organisation	Email Address
Amey (South West Scotland)	swabloads@amey.co.uk
Ayrshire Roads Alliance (on behalf of EAC)	abloads@ayrshireroadsalliance.org
East Renfrewshire Council	david.mitchell@eastrenfrewshire.gov.uk
M8 DBFO (Scottish Roads Partnership)	m8dbfo.abloads@amey.co.uk
Police Scotland	OSDAbnormalLoadsScotland@scotland.police.uk
Renfrewshire Council	stephen.heron@renfrewshire.gov.uk
Transport Scotland	abnormalloads@transport.gov.scot

7 Access Routes

7.1 Route 1 (Blades Only)

The proposed access route for the blades to the site access junction is as follows:

- Loads will depart KGV Dock, Glasgow and join the eastbound M8 via Kings Inch Drive;
- Loads will travel east to M73 Junction 2 Baillieston Roundabout via the M8, M74 and M73 where they would circumnavigate the roundabout before returning west via the M73, M74 and M8;
- At M8 Junction 22, loads will then join the southbound M77;
- Loads will exit M77 southbound at Junction 6 and turn left onto A77 northbound;
- Loads will turn left onto the Floak Farm access road northbound and turn left to the site access.

The proposed access route is illustrated in **Figure 7-1**.

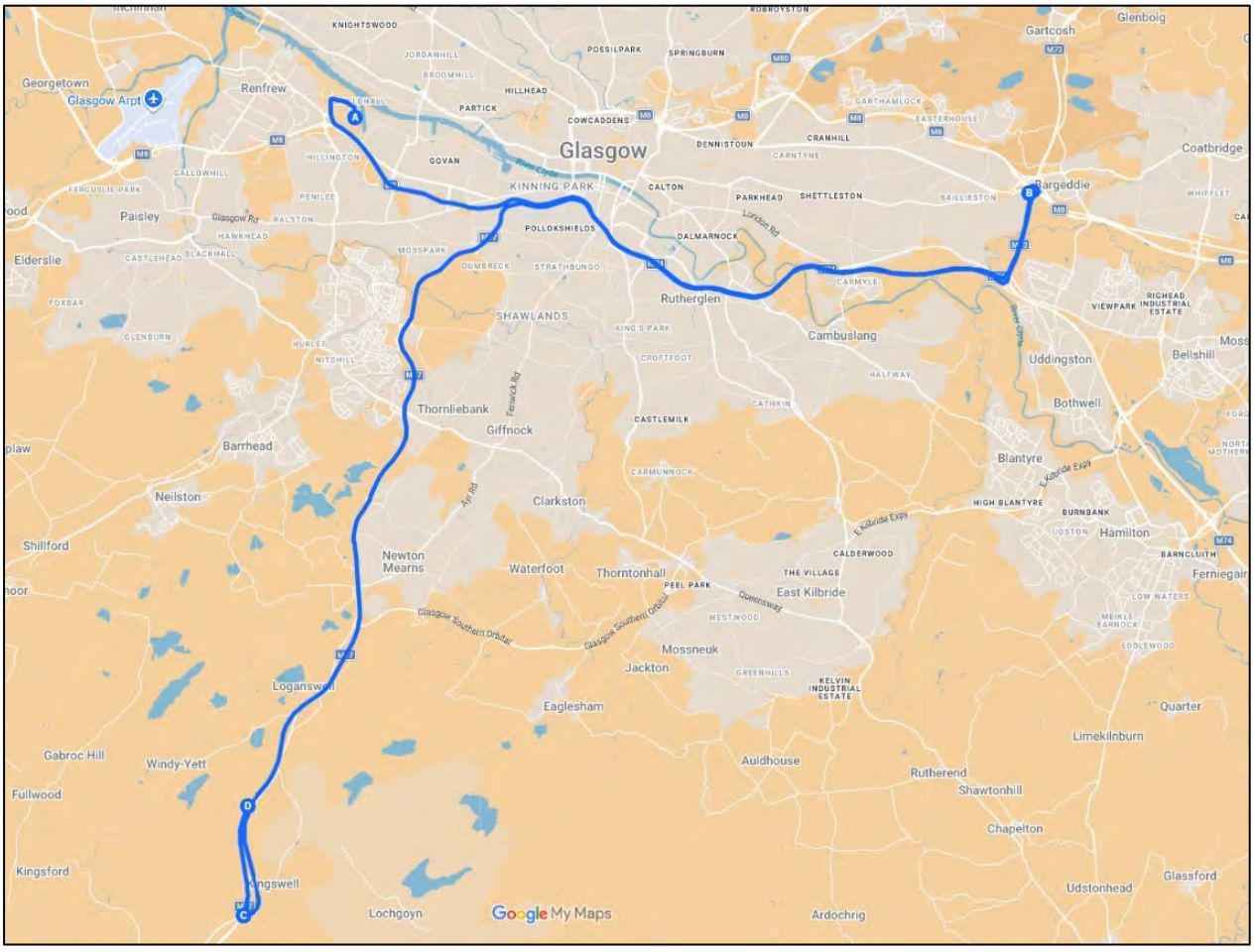


Figure 7-1: Proposed Access Route 1

7.2 Route 2 (Towers Only)

The proposed access route for the towers to the site access junction is as follows:

- Loads will depart Route 1 and depart M74 eastbound at Junction 21;
- Loads will turn right onto Seaward Street southbound and immediately turn right to join M74 westbound at Junction 21;
- Route 2 then re-joins Route 1 to continue to site.

The proposed access route is illustrated in **Figure 7-2**.

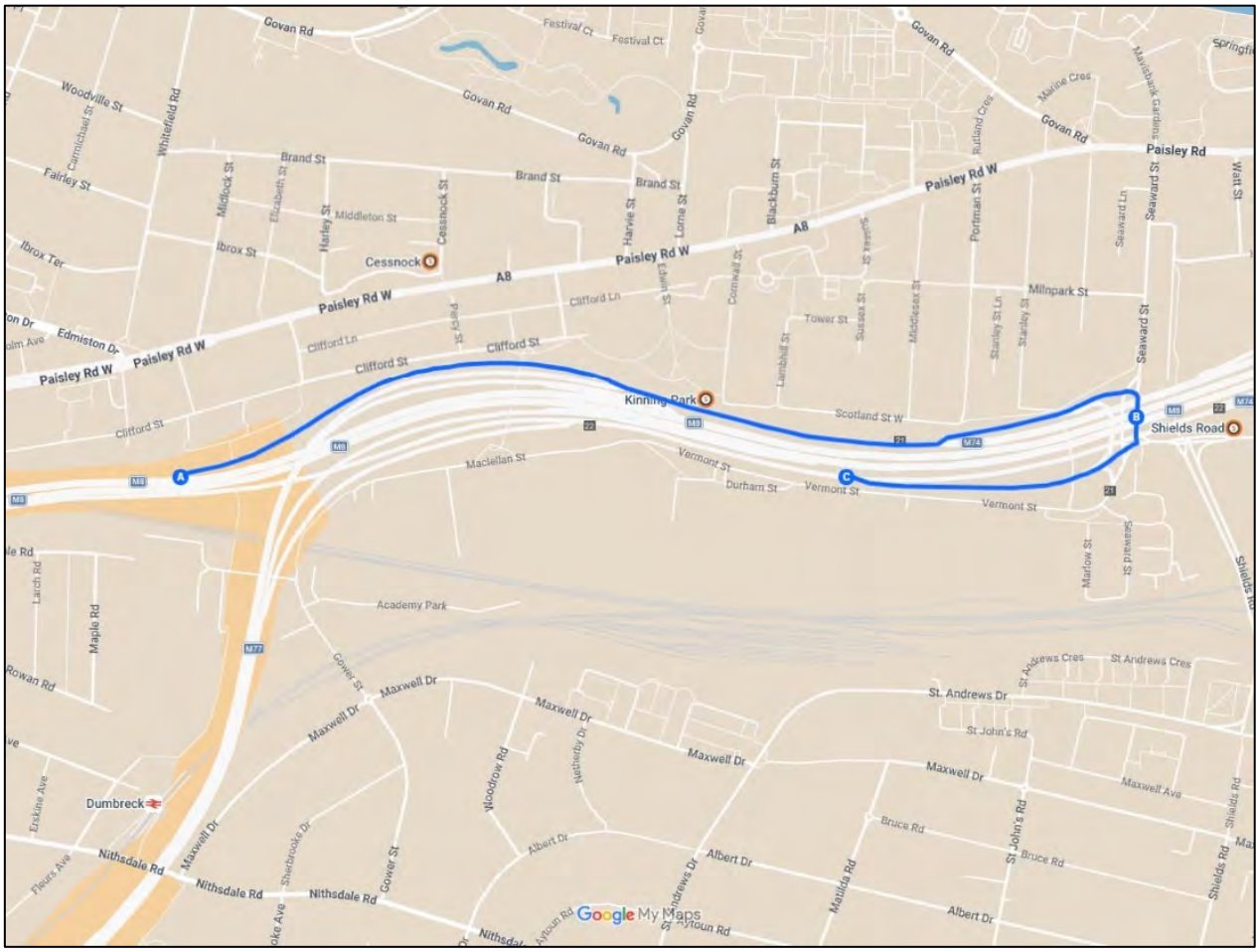


Figure 7-2: Proposed Access Route 2

8 Delivery Equipment

To provide a robust assessment scenario based upon the known issues along the access route, it has been assumed that all blades would be loaded onto a blade lifting trailer to reduce the need for mitigation in constrained sections of the route, shown in **Figure 8-1**. This trailer can lift blades up to a maximum angle of 60 degrees to clear potential constraints.

Figure 8-1: Blade Lifter

Towers would be loaded onto a 4+7 clamp adaptor style trailer shown in **Figure 8-2**, whereas loads such as the hub, nacelle housing and top towers would be carried on a six-axle step frame trailer.

Figure 8-2: Tower Clamp Trailer

These configurations are subject to confirmation by the chosen haulier at the time of their commissioning.

As the loads are classified as Special Order, due to a rigid length in excess of 30 m, a full Police Escort would be required along the full length of the route.

9 Route Constraints

9.1 Route Constraint Assessment

The constraints noted during the review are provided in **Tables 9-1** and **9-2** below. These cover the constraints of note from the port access gate through to the site access junction and are classified in terms of risk to delivery as follows (N.B. the below list is not exhaustive):

High Risk

- Building / overbridge conflict
- Third-party landowner(s) access permission
- Reprofiling / ground works
- Bridge design / construction
- Overhead line removal / relocation
- Tree clearance (where the full trunk or a significant portion of the crown is to be removed)

Medium Risk

- Land searches to confirm extent of available adopted land
- Topographical survey
- Detailed junction / access track design
- Structural assessment / overbridging
- Overhead line survey
- Vertical elevation check
- Bridge parapet removals
- Street furniture removals
- Tree / vegetation pruning (where pruning that is not expected to prevent regrowth is required)
- Vegetation clearance
- Use of dedicated abnormal load bypass

Low Risk

- Temporary load bearing surface to be laid
- Existing load bearing surface to be utilised
- Parking restrictions
- Loads to oversail street furniture using trailer hydraulics

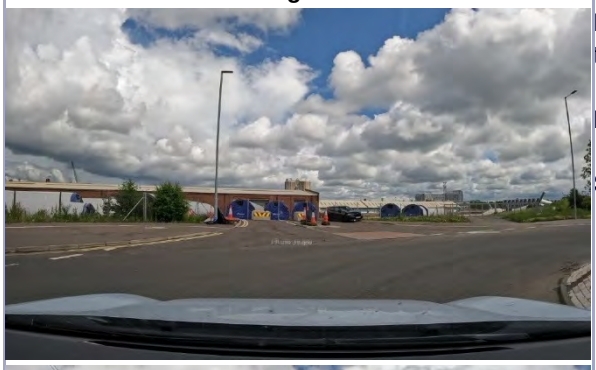
Risk has been indicatively assessed in terms of enabling works time, potential cost and complexity.

Full details of the mitigation measures are shown on the SPA drawings included in **Appendix B**.

9.2 Route Constraint Tables

Table 9-1 details constraints from port access gate through to the proposed site access location.

Table 9-1: Route 1 Constraint Points and Details (Blade Lifter and Tower Clamp Trailer)

POI	Key Constraint	Details	
1	**KGV AIL exit / IKEA Glasgow roundabout**  	Direction of travel Loads will exit KGV Dock and take the third exit at the roundabout onto Kings Inch Drive northbound. Document reference N/A Mitigation measures Swept path assessment	Doc. No. N/A Risk level Medium
2	**Kings Inch Drive roundabout** 	Direction of travel Loads will take the first exit at the roundabout to continue on Kings Inch Drive westbound. Document reference N/A Mitigation measures Swept path assessment	Doc. No. N/A Risk level Medium
3	**Kings Inch Drive IKEA Roundabout** 	Direction of travel Loads will take the second exit at the roundabout to continue on Kings Inch Drive westbound. Document reference N/A Mitigation measures Swept path assessment	Doc. No. N/A Risk level Medium

POI	Key Constraint	Details	
4	**Braehead Shopping Centre Roundabout** 	Direction of travel Loads will take the second exit at the roundabout to continue on Kings Inch Drive westbound. Document reference N/A Mitigation measures Swept path assessment	Doc. No. N/A Risk level **Medium**
5	**Kings Inch Dr / M8 Jct 25A LH turn**  	Direction of travel Loads will turn left at the junction onto the M8 Junction 25A eastbound entry slip road southbound. Document reference N/A Mitigation measures Swept path assessment	Doc. No. N/A Risk level **Medium**
6	**M8 Jct 25A eastbound entry slip road**  	Direction of travel Loads will continue on M8 Junction 25A eastbound entry slip around a left-hand bend and then merge onto M8 eastbound. Document reference N/A Mitigation measures Swept path assessment	Doc. No. N/A Risk level **Medium**

POI	Key Constraint	Details	
7	**M8 / M74 Jct 22 Interchange** 	Direction of travel Loads will take the exit to merge onto M74 eastbound. Document reference N/A Mitigation measures No mitigation measures required *Note: - tower loads will deviate from Route 1 at this point and re-join from POI 16 to 23.*	Doc. No. N/A Risk level N/A
8	**M74 eastbound HV OHL no.1** 	Direction of travel Loads will continue on M74 eastbound. Document reference N/A Mitigation measures (blades only) Blades to be lowered beneath HV OHL	Doc. No. N/A Risk level **Low**
9	**M74 eastbound HV OHL no.2** 	Direction of travel Loads will continue on M74 eastbound. Document reference N/A Mitigation measures (blades only) Blades to be lowered beneath HV OHL	Doc. No. N/A Risk level **Low**
10	**M74 / M73 Junction**  	Direction of travel Loads will exit M74 at Junction 4 and join M73 northbound. Document reference N/A Mitigation measures (blades only) No mitigation measures required	Doc. No. N/A Risk level N/A

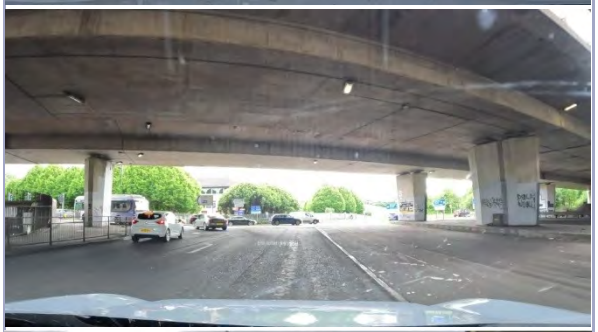
POI	Key Constraint	Details	
11	**M73 Jct 2 Baillieston Roundabout**   	Direction of travel Loads will exit M73 northbound at Junction 2 and take the fourth exit at Baillieston Roundabout onto M73 southbound. Document reference N/A Mitigation measures (blades only) Swept path assessment	Doc. No. N/A Risk level Medium
12	**M73 / M74 Junction**  	Direction of travel Loads will turn right onto M74 westbound. Document reference N/A Mitigation measures (blades only) No mitigation measures required	Doc. No. N/A Risk level N/A
13	**M74 westbound HV OHL no.1** 	Direction of travel Loads will continue on M74 westbound. Document reference N/A Mitigation measures (blades only) Blades to be lowered beneath HV OHL	Doc. No. N/A Risk level Low

POI	Key Constraint	Details	
14	**M74 westbound HV OHL no.2** 	Direction of travel Loads will continue on M74 westbound. Document reference N/A Mitigation measures (blades only) Blades to be lowered beneath HV OHL	Doc. No. N/A Risk level **Low**
15	**M74 / M8 merge** 	Direction of travel Loads will merge onto M8 westbound. Document reference N/A Mitigation measures (blades only) Swept path assessment	Doc. No. N/A Risk level **Medium**
16	**M8 / M77 Junction** 	Direction of travel Loads will take the exit to merge onto M77 southbound. Document reference N/A Mitigation measures No mitigation measures required *Note: - tower loads re-join Route 1 from this POI to site.*	Doc. No. N/A Risk level N/A
17	**M77 HV OHL** 	Direction of travel Loads will continue on M77 southbound. Document reference N/A Mitigation measures Blades to be lowered beneath HV OHL	Doc. No. N/A Risk level **Low**

POI	Key Constraint	Details	
18, 19	**M77 Jct 6 / A77 Junction**  	Direction of travel Loads will exit M77 southbound at Junction 6 and turn left onto A77 northbound. Document reference Swept path assessment Mitigation measures Land to be reprofiled Land searches to confirm extent of available adopted land Street furniture removals Tree / vegetation pruning Raised blade to oversail street furniture	Doc. No. SK01 Risk level **High** **Medium** **Medium** **Medium** **Low**
20	**A77 HV OHL** 	Direction of travel Loads will continue on A77 northbound. Document reference N/A Mitigation measures Overhead line survey. It is strongly recommended that a full overhead utility search is carried out along the length of this section prior to deliveries to ensure that all necessary lines are diverted. Blades to be lowered beneath HV OHL	Doc. No. N/A Risk level **Medium** **Low**
21	**A77 / Floak Farm access junction** 	Direction of travel Loads will turn left onto Floak Farm access road northbound. Document reference Swept path assessment Mitigation measures Street furniture removals Temporary load bearing surface to be laid Raised blade to oversail vegetation	Doc. No. SK02 Risk level N/A

POI	Key Constraint	Details	
22	**Floak Farm access road S-bend**  	Direction of travel Loads will continue on Floak Farm access road around an S-bend. Document reference Swept path assessment Mitigation measures Bridge parapet removals Vegetation clearance Tree / vegetation pruning Street furniture removals Traffic control measures required Temporary load bearing surface to be laid Raised blade to oversail vegetation	Doc. No. SK02 Risk level Medium Medium Medium Medium Medium Low Low
23	**Site access junction**   	Direction of travel Loads will turn left onto the site access track. Document reference Swept path assessment Mitigation measures Tree clearance Carriageway widening Vegetation clearance Traffic control measures required Street furniture removals Temporary load bearing surface to be laid Raised blade to oversail bridge parapet and street furniture	Doc. No. SK02 Risk level High High Medium Medium Medium Low Low

Table 9-2: Route 2 Constraint Points and Details (Tower Clamp Trailer)

POI	Key Constraint	Details	
24	**M74 Jct 21 eastbound exit slip** 	Direction of travel Loads will exit M74 eastbound at Junction 21. Document reference N/A Mitigation measures (towers only) Swept path assessment	Doc. No. N/A Risk level Medium
25	**Seaward Street Junction**    	Direction of travel Loads will turn right onto Seaward Street southbound and right again onto M8 westbound. Document reference N/A Mitigation measures (towers only) Swept path assessment *Note: - tower loads re-join Route 1 from POI 16 to site.*	Doc. No. N/A Risk level Medium

10 Swept Path Assessment Terminology

The detailed Swept Path Assessment (SPA) drawings for the locations assessed are provided in **Appendix B** for review. The drawings illustrate tracking undertaken for the worst-case loads at each location.

The colours illustrated on the swept paths are:

- Grey / Black – Ordnance Survey (OS) / topographical base mapping,
- Cyan – indicative road edge,
- Green – vehicle body outline (body swept path),
- Red – tracked pathway of the wheels (wheel swept path) and
- Purple – the oversail tracked path of the load where it encroaches out with the trailer (load swept path).

Where mitigation works are required, the extents of the overrun and oversail areas are illustrated and fully detailed on the SPA drawings. Additional land areas to those indicated in the SPA drawings may be required to facilitate the construction of the proposed physical mitigation measures depending on the site conditions and topography. The extent of any additional areas required to construct the mitigation works highlighted within this study and the detailed design of said mitigation works is beyond the scope of this study and should be confirmed on detailed topographical survey data.

Please note that where SPA have been undertaken using OS base mapping, AutoCAD based aerial mapping and historic topographical data, there can be errors in these data sources.

Where provided by the client, topographical data has been utilised. Please note that PF cannot accept liability for errors on the data source, be that OS base mapping, aerial mapping, historic topographical surveys or client supplied data. Where applicable, mapping has been augmented with aerial imagery for illustration only. The accuracy of this mapping cannot be confirmed by PF.

Please note that turbine supplier guidance suggests that the minimum road width for the safe transport of AIL components is 4.5 m. All public roads and onsite access tracks should comply with this standard unless a relaxation has been agreed with suppliers.

The need to widen public roads will require engagement with the relevant road authority and may constitute permanent or temporary surfacing.

11 Summary

11.1 Summary of Route Survey Review

Pell Frischmann Consultants (PF) has been commissioned by Force 9 Energy (the Applicant) to undertake a high-level access review to examine the issues associated with the transport of wind turbine Abnormal Indivisible Loads (AIL) associated with the development of Glenouther Wind Farm, located to the southwest of Glasgow, in the East Renfrewshire Council (ERC) administrative area.

This report identifies the key points and issues associated with the proposed routes and outlines the issues that will need to be considered for successful delivery of the components.

The access review has been based upon Vestas V162 200 m tip height wind turbine components and has been undertaken on the basis of a blade lifter and a tower clamp trailer.

Due to the transport configurations being classified as Special Order, in accordance with the Water Preferred Policy, KGV has been considered as Port of Entry (POE) for the project as it is the closest marine facility to site capable of dealing with this size of cargo. Also, due to the Special Order classification of the loads, full Police escort will be required along the length of the route.

The route travels west from KGV on Kings Inch Drive, joins M8 eastbound at Junction 26A and merges onto M74 eastbound. Due to a lack of height beneath the overbridges at the M74 Junction 21 / Seaward Street junction, blade loads continue on M74 eastbound, travel east to M73 Junction 2 Baillieston Roundabout via the M8, M74 and M73 where they would circumnavigate the roundabout before returning west via the M73, M74 and M8. Tower loads would exit the M74 at Junction 21, turn right onto Seaward Street southbound and turn right again onto M8 westbound when they would re-join the blade loads. The route then uses the M77 southbound, A77 northbound and Floak Farm access road to site.

A review of the current structural capability of the route has been carried out; however, a response had not been received from Amey (South West Scotland) at the time of writing this report, therefore, the route has not been confirmed as structurally capable of accommodating the AILs. Ayrshire Roads Alliance, ERC, M8 DBFO (Scottish Roads Partnership) and Renfrewshire Council have approved the use of their structures along the routes.

A full route survey review of the routes from KGV to the M77 / A77 junction is required including Swept Path Assessments (SPA) in order to confirm the mitigation measures required.

SPA of the route from the M77 / A77 junction to site has been undertaken, which show that the route is considered negotiable with street furniture removals, tree and vegetation clearance and pruning; land reprofiling, carriageway widening, bridge parapet removals, areas of temporary load bearing surface and oversail of bridge parapets, vegetation and street furniture. The raised blade is to oversail sections of carriageway at the identified locations with traffic control measures required to accommodate. The raised blade is also to be lowered beneath the identified High-Voltage (HV) Overhead Lines (OHL) along the route; however, a full OHL survey is recommended prior to deliveries to ensure that all necessary lines are diverted. Land searches are required at the identified locations in order to confirm the extent of the adopted highway.

No consideration has been given to the on-site transport and offloading of the AILs from the delivery vehicles following arrival on site as part of this report.

The report is presented to the Applicant for consideration. Various road modifications and interventions are required to successfully access the site. If these are assessed, approved and undertaken, access to the site is considered feasible.

11.2 Further Actions

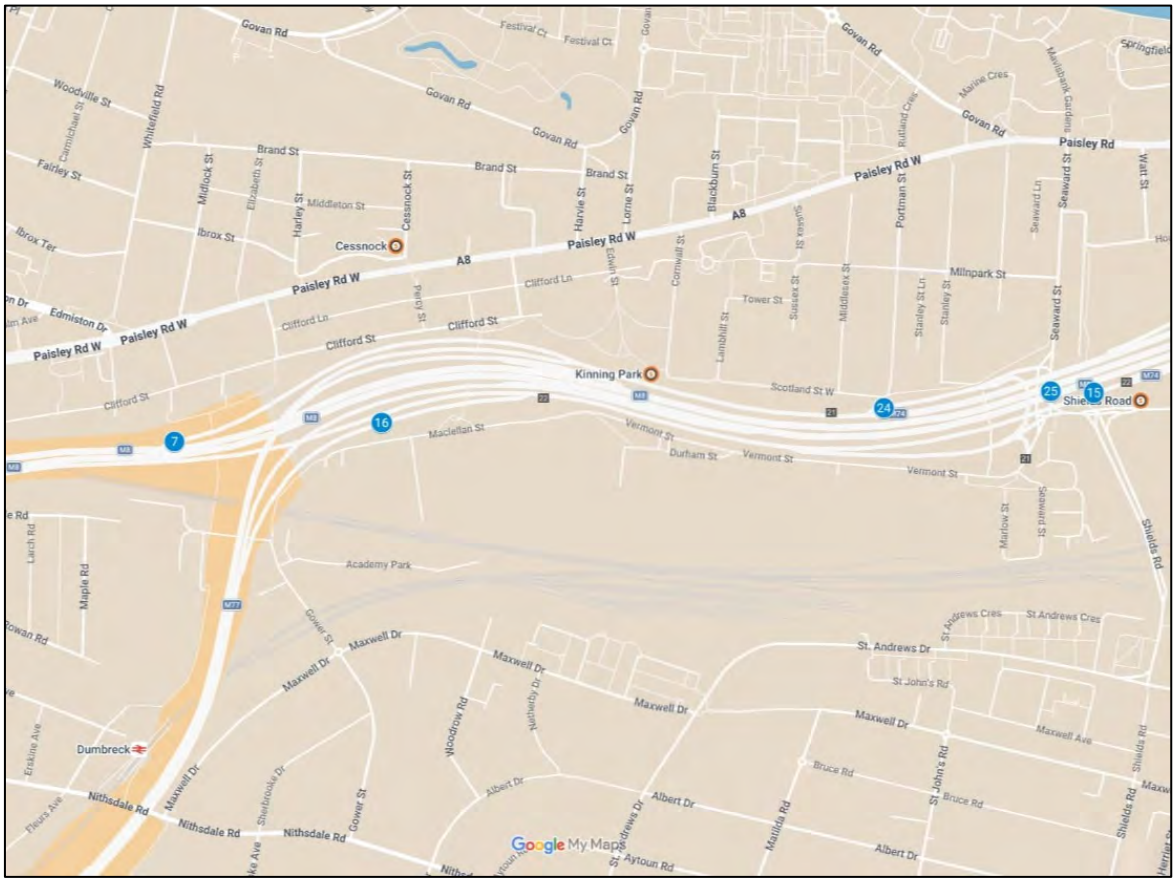
The following actions are recommended to pursue the transport and access issues further:

- Undertake SPA at the identified locations to confirm mitigation measures;
- Obtain response from Amey (South West Scotland) on current structural capability of the route to accommodate proposed AILs;
- Conduct a test run to confirm negotiability and identified mitigation measures;
- Undertake discussion with the affected utility providers and roads agencies;
- Prepare detailed mitigation design proposals to help inform the land option / consultee discussions;
- Obtain the necessary land options;
- Obtain the necessary statutory licences to enable the mitigation measures; and
- Develop a detailed operational Transport Management Plan to assist in transporting the proposed loads.

Appendix A Points Of Interest

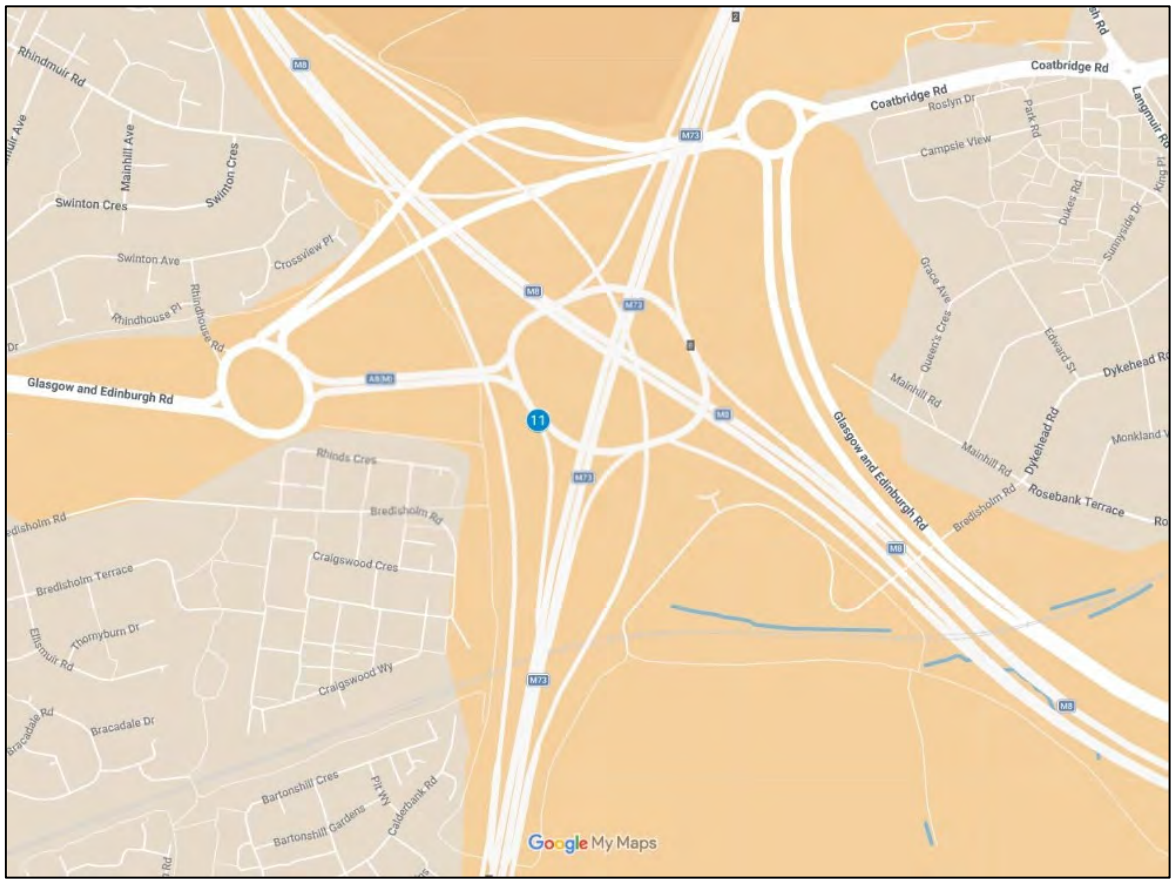
An electronic version of the POI plans can be found here:

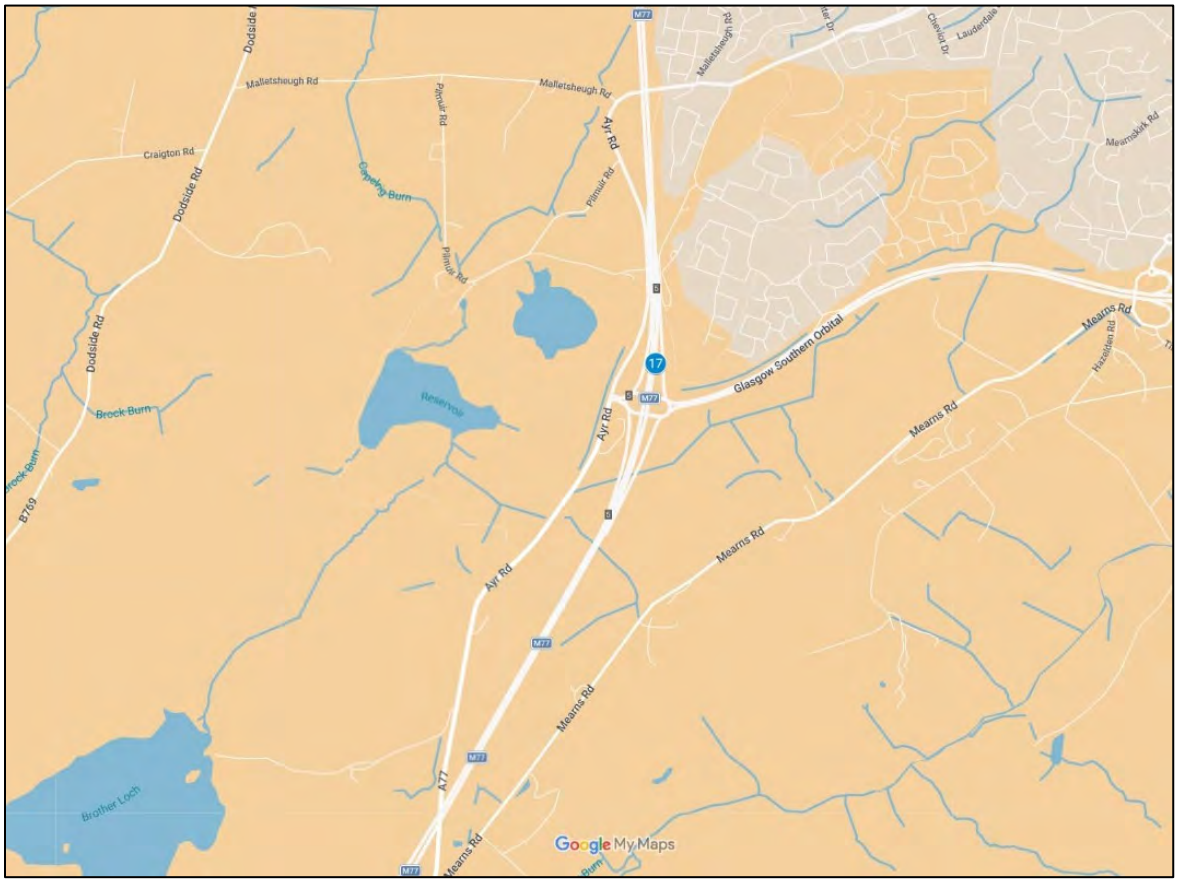
https://www.google.com/maps/d/edit?mid=1BwOZdSvPQZWb6HPhirkes2Yn7PUWfwc&usp=sharing




Cambuslang Rd
River Clyde
Main St
Hamilton Rd
Woodside Ave
Eastfield Burn
Bogleshole Rd
Dukes Rd
Google My Maps


A74
Hamilton Rd
Calderpark Ter
A721
Glasgow Rd
North Calder Water
River Clyde
Greyfriars Rd
Blantyre Farm Rd
B758
Google My Maps


Rhindmuir Rd
Mainhill Ave
Swinton Cres
Swinton Ave
Crossview Pl
Rhindhouse Pl
Rhindhouse Rd
Glasgow and Edinburgh Rd
A8/M8
M8
M73
M77
11
Coatbridge Rd
Roslyn Dr
Campsie View
Park Rd
Dukes Rd
Sunnyside Dr
Grace Ave
Queens Cres
Edward St
Dykehead Rd
Mainhill Rd
Monkland
Rosebank Terrace
Bredisholm Rd
Rhiods Cres
Craigswood Cres
Craigswood Wy
Thermyburn Dr
Ellismuir Rd
Bracadale Dr
Bartonshill Cres
Bartonshill Gardens
Pitt Wy
Caldarbank Rd
Google My Maps


Dodside
Malletsheugh Rd
Craigton Rd
Dodside Rd
Pitmuir Rd
Ayr Rd
Meanmakk Rd
Glasgow Southern Orbital
Mearns Rd
Hazelden Rd
Brock Burn
Reservoir
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17
Brother Loch
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Kingswell Rd
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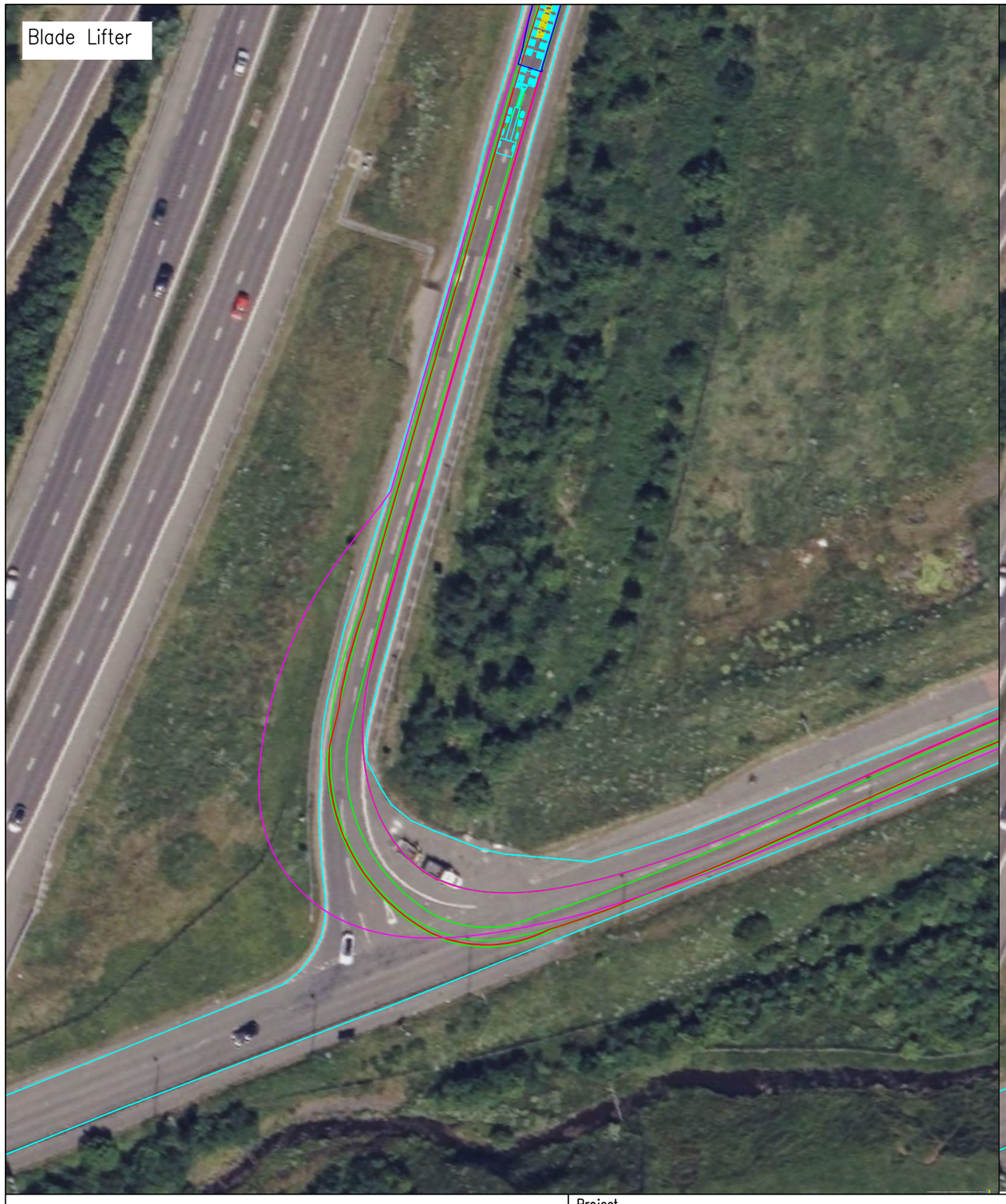
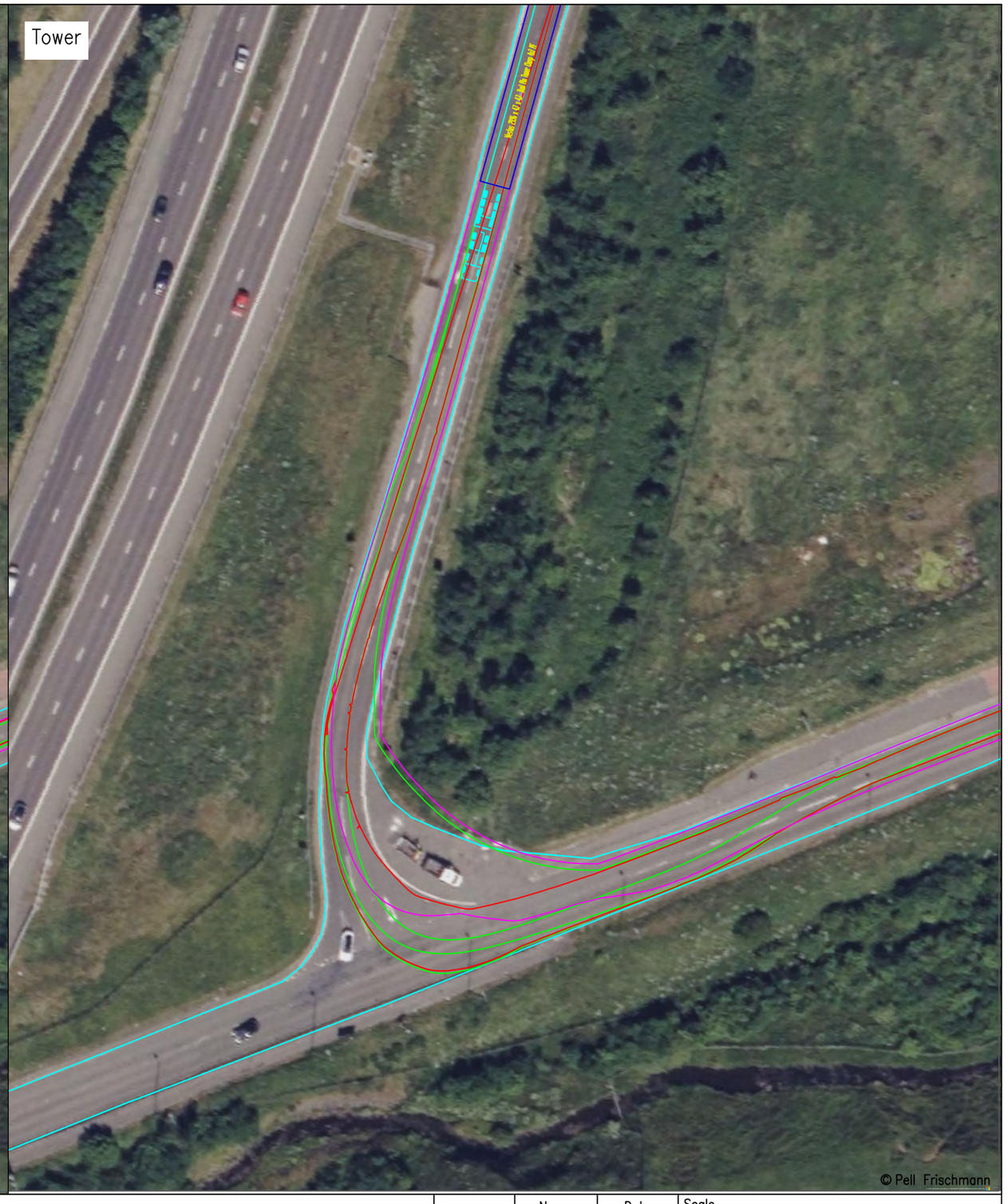
Appendix B Swept Path Assessments





Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Force 9 Energy

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Glenouther Wind Farm

Drawing Title: V162 200TH

SPA Location: M77/A77

	Name	Date
Drawn	TO	21/05/2025
Designed	TO	21/05/2025
Checked	CN	21/05/2025
Point of Interest		1

Scale: 1:750 @ A3

File No.: 250521 V162 SPA.dwg

Drawing Status: Draft

Drawing No.: SK01

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 00

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Force 9 Energy

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Glenouther Wind Farm

Drawing Title: V162 200TH

SPA Location: M77/A77

	Name	Date
Drawn	TO	21/05/2025
Designed	TO	21/05/2025
Checked	CN	21/05/2025
Point of Interest		1

Scale: 1:750 @ A3

File No.: 250521 V162 SPA.dwg

Drawing Status: Draft

Drawing No.: SK01A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 00

Blade Lifter

Tower

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Force 9 Energy

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Glenouther Wind Farm

Drawing Title: V162 200TH

SPA Location: M77 Overpass

	Name	Date
Drawn	TO	21/05/2025
Designed	TO	21/05/2025
Checked	CN	21/05/2025
Point of Interest		1

Scale: 1:1250 @ A3

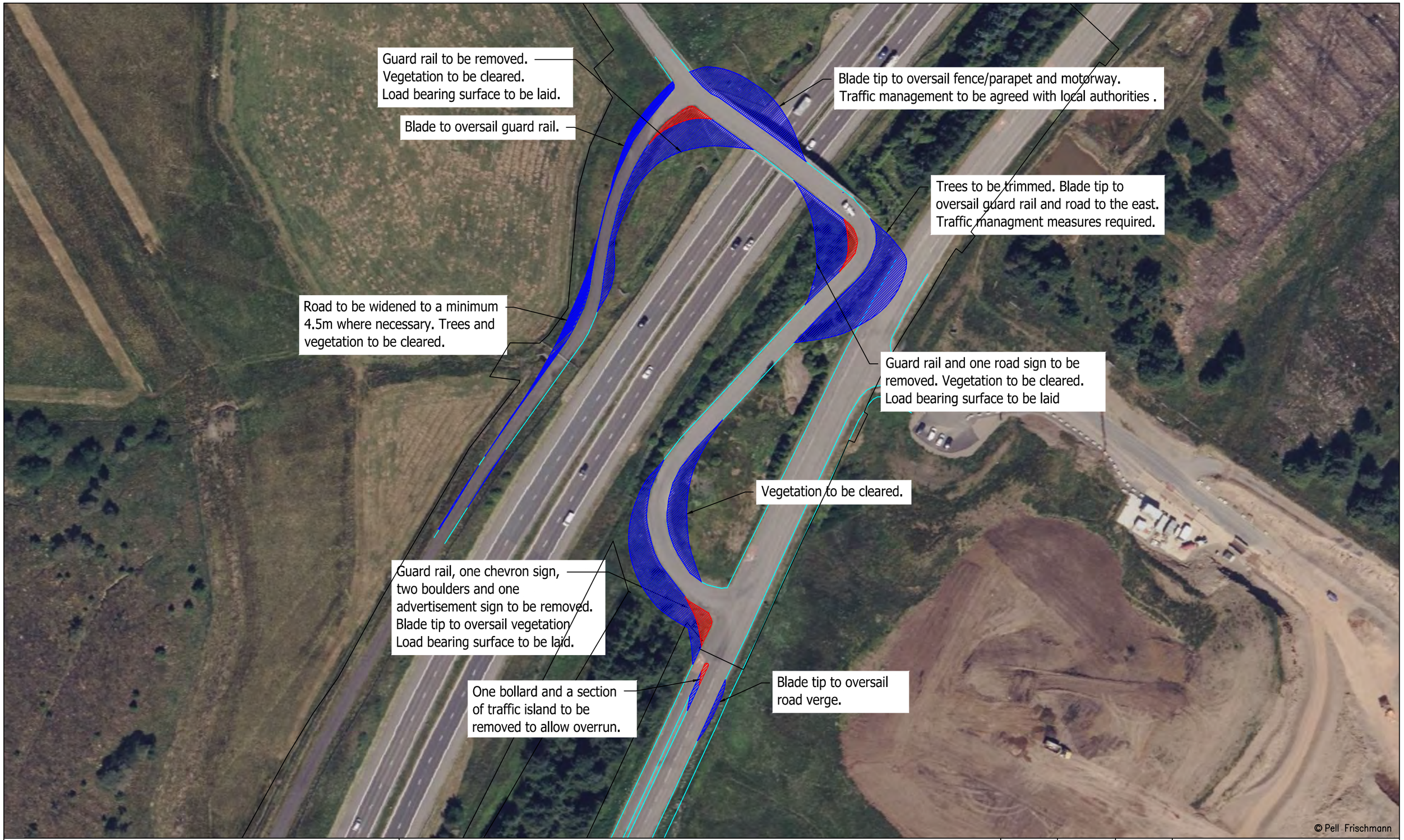
File No.: 250521 V162 SPA.dwg

Drawing Status: Draft

Drawing No.: SK02

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 00



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Force 9 Energy

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Overrun | Oversail

Project: Glenouther Wind Farm

Drawing Title: V162 200TH

SPA Location: M77 Overpass

	Name	Date
Drawn	TO	21/05/2025
Designed	TO	21/05/2025
Checked	CN	21/05/2025
Point of Interest		1

Scale: 1:1250 @ A3

File No.: 250521 V162 SPA.dwg

Drawing Status: Draft

Drawing No.: SK02A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 00

Appendix C ESDAL Responses

From: Smith, Kirsty
Sent: 17 June 2026 08:15
To: Sally Weston
Cc: Field, Nathan
Subject: RE: 10110219 Glenouther Wind Farm Vestas V162 structural feasibility request [OFFICIAL]

Official

CLASSIFICATION: OFFICIAL

Hi Sally,

In principle ARA have no concerns regarding this route. Once load/axle configurations are confirmed further assessment may be required. However, as both of the EAC bridges on this route have a small span this is unlikely.

Thanks,

Kirsty Smith BEng (Hons) EngTech MICE
Team Leader - Design | Ayrshire Roads Alliance
Opera House
8 John Finnie Street
Kilmarnock
KA1 1DD

From: Mitchell, David
Sent: 11 June 2026 14:49
To: Sally Weston
Subject: Re: 10110219 Glenouther Wind Farm Vestas V162 structural feasibility request

OFFICIAL

Hi Sally,

East Renfrewshire Council's only asset affected by the proposed route is Floak Road.
At this stage, our primary concern relates to the overall length of the vehicles and their ability to safely negotiate the bends along this section of the route. However, it is expected that these matters will be fully addressed and demonstrated as part of your swept path assessment.

Thanks

David Mitchell
Asset Inspector (Structures)
East Renfrewshire Council

From: Sally Weston
Sent: 10 June 2026 16:40
To: Mitchell, David
Subject: RE: 10110219 Glenouther Wind Farm Vestas V162 structural feasibility request

Hi David,

Thanks for getting back to me.

Yes, the loads will exit the M77 southbound at junction 6, turn left onto A77 northbound, turn left onto the Floak Farm / Precon Concrete access road, and then left onto the proposed site access track (at point D on the screenshot below).

We're undertaking swept path assessments of this section, which is the reason for proposing the blade lifter trailer rather than a more conventional superwing carrier.

Attached are the load tables for the vehicles and below are screenshots of the blade lifter from the turbine manufacturer, however, we do not have any additional vehicle information at this time, unfortunately.

Many thanks,

Sally

Sally Weston MRINA CEng
Associate

From: Mitchell, David
Sent: 10 June 2026 15:22
To: Sally Weston
Subject: Re: 10110219 Glenouther Wind Farm Vestas V162 structural feasibility request

OFFICIAL

Good afternoon, Sally

Unfortunately, the maps provided are unclear near Floak farm.

Could you please confirm the route is as follows: M77, southbound to Junction 6, turning left onto the A77, continuing northbound on A77 for 2.8km, turning left onto unnamed road leading across flyover bridge towards Floak farm?

If the above route is correct, the overbridge is the responsibility of M77, Balfour Beattie / Connect.

A swept path analysis, taking in the bend at the bridge would be required, as well as noting that there is a cattle grid at the other side of the bridge.

Could you also provide all loads and dimensions, as these are also unclear in the attachment.

Thanks

David Mitchell
Asset Inspector (Structures)
East Renfrewshire Council

From: M8DBFO Abloads
Sent: 08 June 2026 11:35
To: Sally Weston; Adam Brown
Cc: M8DBFO Abloads
Subject: RE: 10110219 Glenouther Wind Farm Vestas V162 structural feasibility request

Sally, only the proposed route for blades enters our M8DBFO area.

We currently have blades and other components utilising the route via M74 / M73 / Baillieston Interchange and return with no issues experienced to date.

Regards,

Stuart Hunter
Operations Manager | Transport Infrastructure

From: Stephen Heron
Sent: 16 June 2026 11:54
To: Sally Weston
Subject: RE: 10110219 Glenouther Wind Farm Vestas V162 structural feasibility request

OFFICIAL

Hi Sally,

No new issues getting from KGV docks onto M8 from initial review.

Regards
Stephen

Stephen Heron
Roads Infrastructure and Operations Manager
Environment, Housing and Infrastructure
Renfrewshire Council

From: Irene Cartin On Behalf Of Transport Scotland
Sent: 09 June 2026 08:06
To: Sally Weston
Subject: RE: 10110219 Glenouther Wind Farm Vestas V162 structural feasibility request
Importance: High

Good Morning Sally,

Thank you for your email. Transport Scotland would not make comment on any feasibility study as this would be the operating companies responsibility.

I noted that you have included the operating company in your email so they will be in contact as soon as they can with their findings.

Kind Regards
Irene Cartin
Current Working Days: Tue, Wed & Thur
Network Administrator
Roads Delivery