

Beauly to Blackhillock to New Deer to Peterhead 400 kV Project Environmental Impact Assessment Report Volume 5 | Appendices

Appendix 13.5 – Abnormal Load Route Assessment



APPENDIX 13.5 – ABNORMAL LOAD ROUTE ASSESSMENT

1	Introduction.....	1
1.1	Background.....	1
1.2	Definition of an Abnormal Indivisible Load.....	1
1.3	Purpose of This Report.....	1
1.4	Study Approach.....	1
1.5	Report Structure.....	2
2	The Proposed Development.....	3
2.1	Introduction.....	3
2.2	Site Location.....	3
2.3	Proposed Development Timescales.....	3
2.4	Bellmouth Access Junctions.....	3
2.5	Construction Traffic Routing Assumptions.....	4
2.6	Abnormal Indivisible Loads (AILs).....	5
3	Legislative and Procedural Guidelines.....	7
3.1	Introduction.....	7
3.2	Special Types General Order (STGO) – AIL Regulations.....	7
3.3	Special Orders.....	8
3.4	Notification Requirements.....	9
4	Route Overview.....	10
4.1	Introduction.....	10
4.2	Trip Origins.....	10
4.3	Assessment Approach.....	10
4.4	Land Ownership.....	10
4.5	Proposed AIL Routes.....	11
5	Route Appraisal.....	16
5.1	Swept Path Assessment.....	16
5.2	Structures.....	16
5.3	Consultation.....	17
6	Management Strategy.....	18
6.1	Introduction.....	18
6.2	Route Enforcement.....	18
6.3	Road Clearance Scheme.....	18
6.4	Timing of Movements.....	18
6.5	Temporary Closures and Traffic Regulation Order.....	19
6.6	Lighting, Signing and Marking.....	19
6.7	Public Communication Strategy.....	19
7	Summary and Next Steps.....	20

Appendix Annexes

- Annex A – Construction Traffic Routes
- Annex B – Mobile Crane Vehicle Specifications
- Annex C – Anticipated Crane Routes
- Annex D – Photographic Evidence
- Annex E – Swept Path Analysis Results
- Annex F – Review of Structures

1 Introduction

1.1 Background

- 1.1.1 WSP UK Limited (WSP) have been commissioned by the Applicant to undertake a high-level access appraisal for the delivery of abnormal indivisible loads (AILs) and general access issues associated with the construction of the Proposed Development.
- 1.1.2 This Abnormal Load Route Assessment (ALRA) has been prepared to support the Transport Environmental Impact Assessment (EIA) within **Volume 2, Chapter 13: Transport**. This Appendix should also be read in conjunction the following from the EIA:
- **Chapter 3: Project Description, Volume 2** of the EIA; and from **Volume 5** of the EIA;
 - **Appendix 3.3: Outline Construction Environmental Management Plan (CEMP)**;
 - **Appendix 3.4: Outline Construction Traffic Management Plan (CTMP)**;
 - **Appendix 13.1: Highland Council - Transport Assessment**;
 - **Appendix 13.2: Moray Council - Transport Assessment**;
 - **Appendix 13.3: Aberdeenshire Council - Transport Assessment**; and
 - **Appendix 13.4: Network Rail - Traffic Impact Assessment**.

1.2 Definition of an Abnormal Indivisible Load

- 1.2.1 An abnormal indivisible load (AIL) is one which cannot be divided into 2 or more loads for the purpose of carriage and, on account of its length, width, height or weight, cannot be carried on a normal vehicle.
- 1.2.2 This is discussed in more detail in **Section 3** of this ALRA.

1.3 Purpose of This Report

- 1.3.1 The purpose of this report is to provide an assessment of the feasibility of the delivery of AILs from anticipated trip origins to the expected delivery points. The assessment is based on detailed vehicle swept path analysis (SPA) using computer vehicle tracking software, AutoTrack. SPA has been undertaken for the delivery of AILs between the nearest trunk road and to the bellmouths which will provide access to working areas adjacent to the alignment.
- 1.3.2 This is an outline document which accompanies the EIA and is intended to inform the worst-case scenario. Should changes be necessary to the Proposed Development design and / or AIL delivery assumption. This will be agreed in consultation with Transport Scotland (TS), The Highland Council (THC), Moray Council (MC) and Aberdeenshire Council (AC) and other stakeholders as necessary.

1.4 Study Approach

- 1.4.1 This AIL assessment has been informed by a desktop study, which reviews potential AIL routes from the Trunk Road network to the bellmouths which will provide access to working areas adjacent to the alignment.
- 1.4.2 On these routes, both horizontal and vertical clearance for the AIL and delivery vehicle have been considered. Aspects such as bridge / telephone line headroom, road width, load, and weight restrictions¹ which are known and considered to be a constraint to AIL deliveries have been marked as pinch points. No site visit has been undertaken as part of this review.

¹ Identified through a review of the Electronic Service Delivery for Abnormal Loads (ESDAL) portal

- 1.4.3 At the identified pinch points, SPA has been performed to assess the impact of AIL deliveries on the existing road infrastructure and third-party land. Based on the SPAs, potential mitigation works have been identified.

1.5 Report Structure

- 1.5.1 The scope of this study is structured as follows:

- **Section 2 The Proposed Development:** provides the context of the Proposed Development, identifies the proposed specifications of the AIL vehicles, along with details on axle spacing / loading;
- **Section 3 Legislative and Procedural Guidelines:** provides an overview of the relevant guidance and procedural documentation used to determine the category of AIL vehicles and respective requirements concerning notification procedures, speed limits and escorts;
- **Section 4 Route Option (s):** provides an outline of the trip origins and identified routes along the local road network to the working area locations;
- **Section 5 Route Appraisal:** provides an assessment of the route options, identifying pinch points, constraints, and potential mitigation requirements. This section also identifies the structures along the route and outlines consultation to be had between the applicant and the roads authority and agreement sought;
- **Section 6 Management Strategy:** details the general arrangement measures that will be adhered to during the transfer of AILs; and
- **Section 7 Summary:** provides a summary of the route options identified.

2 The Proposed Development

2.1 Introduction

- 2.1.1 The Proposed Development is described in full in **Chapter 3: Project Description** of the EIAR.
- 2.1.2 This chapter of the Outline CTMP considers the elements of the Proposed Development that pertain closely to transport, namely:
- the Proposed Development location;
 - indicative temporary construction compound locations;
 - access junctions;
 - construction traffic routing assumptions;
 - anticipated construction traffic vehicles;
 - Proposed Development timescales;
 - working hours; and
 - construction traffic generation.

2.2 Site Location

- 2.2.1 The Proposed Development is located within the following local authorities; THC, MC and AC , between Beaully (Fanellan Substation), and Peterhead (Netherton Hub). The Proposed Development will require construction traffic to route from the indicative temporary construction compounds (or Yards) , quarry locations, and from the trunk road network (where possible), to the construction working areas along the Proposed OHL Alignment, (hereafter referred to collectively as the 'Site'). Construction traffic will route to the Site via approximately 600 km of adopted road network to reach access points, where this traffic will leave the adopted road network onto access tracks in order to reach the Proposed Development.
- 2.2.2 These construction traffic access routes are shown within the figures of **Annex A**.

2.3 Proposed Development Timescales

- 2.3.1 It is anticipated that construction of the Proposed Development would take approximately six years, following the granting of consents, although detailed programming of the works would be the responsibility of the Principal Contractor in agreement with the Applicant.
- 2.3.2 The current programme for the Proposed Development is anticipates that construction will start on Site in 2026 and will be complete in 2032. The operational phase of the Proposed Development is expected to commence in 2030 alongside dismantling and restoration thereafter to 2032.

2.4 Bellmouth Access Junctions

- 2.4.1 All the tower installation sites will be accessed via existing or new junctions to be formed on the adopted road network and the indicative form of these proposed junctions are shown in **Figure 3.7 of Chapter 3: Project Description, within the EIAR** and the location of these in **Figures 13.5.1; 13.5.2 and 13.5.3 within Annex A**.
- 2.4.2 Within each local authority there are varying access points required:
- **Highland:** A total of 55 access points have been identified where construction traffic will access the Site from the adopted road network.
 - **Moray:** A total of 61 access points have been identified where construction traffic will access the Site from the adopted road network.

- **Aberdeenshire:** A total of 107 access points has been identified where construction traffic will access the Site from the adopted road network.

2.4.3 The formation of these junctions may be supported by the installation of temporary speed limits to support the provision of an appropriate level of visibility at each access location, using site-relevant instruments for the duration of the construction works, including Traffic Regulation Orders and Temporary Traffic Regulation Orders.

2.5 Construction Traffic Routing Assumptions

2.5.1 As previously stated, while it is anticipated that temporary construction compounds (Yards) would be required to facilitate the construction works, it is acknowledged that construction activities would also be supported by mobile crane movements which are generated throughout the construction programme for construction of some of the towers and dismantling of others existing. It is anticipated that these movements may not originate from the Yard. It is not currently known which crane suppliers would be used, and it has therefore been assumed that the mobile cranes would be transported from the trunk road network (where possible) (the A9, A82, A96, A95, and the A90 to the Site, via the most direct route.

Background to Construction Access Routing

2.5.2 In order to understand the construction routing requirements for the construction of the Proposed Development, the proposed access routes to the aforementioned access points have been split into a number of sections. Together these sections comprise the entire Study Area, or the collective construction traffic routes to be used. The methodology and assessment regarding how these sections have been derived can be found within the Transport Assessments which are located within **EIA Report Appendices 13.1: Highland Council - Transport Assessment, 13.2: Moray Council - Transport Assessment, and 13.3: Aberdeenshire Council - Transport Assessment**.

Black Bridge

2.5.3 Access in Section 1 of the Study Area will require use of the minor road, C1106 (Fanellan Road) via bellmouths located approximately 120 meters (m) west of the U1604 and approximately 100 m southeast on the U1604. It is noted that the most suitable and preferred routes to access these bellmouths uses the Black Bridge over the River Beauly close to the A831. Currently, the Black Bridge has limited structural capacity, and replacement is required to facilitate the heavy loads needed to travel to working areas.

2.5.4 The Applicant is currently working with THC to understand timescales for completion. It is considered that to align with the routing strategy for the Associated Development, Fanellan Substation (Ref: 25/00826/FUL²) that construction access take a phased routing.

2.5.5 Therefore, assessment of the Proposed Development has been divided into two sections to assess the effects due to phasing of the construction of Black Bridge. The assessment therefore has the following structure:

- Phase 1: southern route (via A862 - A833 - C1108 - U1604 and C1106 to site); and
- Phase 2: northern route (via the A862 - A831 and C1106).

2.5.6 The Phase 1 assessment constitutes the 'before construction of Black Bridge' scenario and Phase 2 constitutes the 'after construction of Black Bridge' scenario.

² THC Planning Portal, (2025). 25/00826/FUL (Online). Available at: <https://wam.highland.gov.uk/wam/applicationDetails.do?activeTab=documents&keyVal=SSPNC9IHHIS00> [this and all subsequent links were accessed on [September, 2025]].

2.6 Abnormal Indivisible Loads (AILs)

- 2.6.1 AILs are categorised as vehicles where the weight exceeds 44 tonne (t) gross weight and / or the width exceeds 2.9 m and / or the length exceeds 18.3 m. Based on these parameters, the 150 t to 250 t mobile cranes and the delivery of some plant equipment associated with the construction of the Proposed Development will fall into the category of AILs.
- 2.6.2 It has been confirmed by the Principal Contractor that these cranes will be self-driving. It is anticipated that for jobsite driving, the cranes are anticipated to have a gross weight of between 60 t and 82 t. with a max axle weight for each of 12 t and 16.5 t respectively.
- 2.6.3 Low loaders may also be used for transporting heavy plant and therefore exceed 44 t, thus qualifying under the AIL category.
- 2.6.4 The known AIL components (mobile cranes) that will need to be delivered to the working areas are considered abnormal due to their weight and width. The maximum size of mobile crane required is 16 m in length, 3 m in width, 4 m in height, and a maximum jobsite gross driving weight of tonnes (t), with 16.5 t per axle has been considered to assess the feasibility of the potential routes. The Vehicle specifications included within **Annex B** illustrate the dimensions of the potential vehicle with load. Vehicle tracking of the pinch points along the potential routes have been assessed and a summary of the results of the SPA has been tabulated and illustrated within this report.
- 2.6.5 It is anticipated that there will be a requirement for one inbound and one outbound movement associated with these cranes for sections of the Proposed OHL Alignment, for some of the tower erections and for some tower dismantling. The routes and types of crane required on each route is illustrated in the figures located within **Annex C**.
- 2.6.6 The vehicle configuration of the mobile cranes will ultimately be decided by the appointed haulier, however, the configurations outlined are a robust representation for the purposes of this assessment.
- 2.6.7 Confirmation / guidance would be sought from the appointed haulier during a trial run later once known. The dimensions of the AIL transporter assumed to be used in the movements summarised in **Table 2.1**.

Table 2.1: Mobile Crane Specifications

Vehicle Type	150 t	250 t
Overall Vehicle Length (m)	14.48	15.99
Overall Width (m)	2.75	3.00
Overall Height (m)	4.00	4.00
Max Track Width (m)	2.45	2.55
Wall to Wall Turning Radius (m)	8.81	9.69
Gross Vehicle Weight (t)	62	82
Maximum Axel Weight (t)	12	16.5

- 2.6.8 At the time of writing, the origin of these crane movements is also unknown, however it is anticipated that these could be delivered via the trunk road network.
- 2.6.9 As previously stated, the cable drums and any necessary equipment are to be transported on low loaders. These have been assessed separately within the transport assessments located within **Volume 5 of the EIA**, in:
- **Appendix 13.1: Highland Council - Transport Assessment;**
 - **Appendix 13.2: Moray Council - Transport Assessment;** and

- **Appendix 13.3: Aberdeenshire Council - Transport Assessment.**

2.6.10 It is considered that as this ALRA of the mobile crane provides robust assessment.

3 Legislative and Procedural Guidelines

3.1 Introduction

- 3.1.1 An ALL is a type of load that cannot be divided into two or more loads for transportation by road. The vehicle and its load are classed as an abnormal load³ when it has:
- a weight of more than 44,000 kg;
 - an axle load of more than 10,000 kg for a single non-driving axle and 11,500 kg for a single driving axle;
 - a width of more than 2.9 m; and
 - a rigid length of more than 18.65 m.
- 3.1.2 National Highways (NH) is a central government-operated company which is responsible for managing the public road network within England on behalf of the Department for Transport (DfT). Within Scotland, this is the responsibility of TS.
- 3.1.3 The Road Vehicles (Construction & Use) Regulations 1986⁴ (C&U) describes the different types and classification of permitted vehicles for use on the road, for example motor cars, motorbikes, buses, lorries, mobile cranes, and tracked vehicles. It also states the maximum dimensions for each type of vehicle, its gross weight, number of axles, braking system, type of tyres, maximum speed, exhaust system and mirrors.
- 3.1.4 The Road Vehicles (Authorised Weight) Regulations 1998⁵ (AW) details the imposed maximum weight (gross and per axle) of different types of vehicles relating to the number of axles within each category of vehicle.
- 3.1.5 Vehicles not conforming to the Regulations specified above are subject to those outlined within The Road Vehicles (Authorisation of Special Types) (General) Order 2003⁶ (STGO). It specifies when the Police, Roads Authority or Secretary of State is to be notified of an intended vehicle movement, and the number of days' notice required before the movement takes place.
- 3.1.6 The following sections show how the legislative and procedural guidelines apply to the Proposed Development and deliveries of ALLs.
- 3.1.7 It is expected that the mobile crane movements will comply with the requirements set out for their relevant category (A, B or C) in the Road Vehicles (Authorisation of Special Types) (General) Order 2003.

3.2 Special Types General Order (STGO) – ALL Regulations

- 3.2.1 STGO vehicles are further categorised into three weight categories, as follows:
- Category 1 - Maximum Gross Weight: 50,000 kg, C&U Regulation axle limit (46,000 kg if the combination has less than 6 axles and does not comply in all other respects with the Authorised Weight Regulations)⁷;
 - Category 2 - Maximum Gross Weight: 80,000 kg, 12,500 kg axle limit⁸; and
 - Category 3 - Maximum Gross Weight: 150,000 kg, 16,000 kg axle limit⁹.
- 3.2.2 For all categories, the following advice is provided with regards to width:

3 Transport Scotland, (2014). TS Interim Amendment No45 (Rev 01) Management of Abnormal Indivisible Loads. (Online). Available at:

<https://www.transport.gov.scot/media/6077/ts-ia-45-management-of-abnormal-loads-28-3-14.pdf>

4 Legislation.gov.uk, (1986). The Road Vehicles (Construction and Use) Regulations 1986. (Online). Available at: <https://www.legislation.gov.uk/uksi/1986/1078/contents>

5 Legislation.gov.uk, (1998). The Road Vehicles (Authorised Weight) Regulations 1998. (Online). Available at:

<https://www.legislation.gov.uk/uksi/1998/3111/contents/made>

6 Legislation.gov.uk, (2003). The Road Vehicles (Authorisation of Special Types) (General) Order 2003. (Online). Available at:

<https://www.legislation.gov.uk/uksi/2003/1998/contents>

7 Legislation.gov.uk, (2003). The Road Vehicles (Authorisation of Special Types) (General) Order 2003, Schedule 1, Part 4, Paragraphs 28-29. (Online). Available at:

<https://www.legislation.gov.uk/uksi/2003/1998/schedule/1/part/4/crossheading/restrictions-relating-to-weight-category-1-ailvs-and-ailvcombinations>

8 Legislation.gov.uk, (2003). The Road Vehicles (Authorisation of Special Types) (General) Order 2003, Schedule 1, Part 4, Paragraphs 30-31. (Online). Available at:

<https://www.legislation.gov.uk/uksi/2003/1998/schedule/1/part/4/crossheading/restrictions-relating-to-weight-category-2-ailvs-and-ailvcombinations>

9 Legislation.gov.uk, (2003). The Road Vehicles (Authorisation of Special Types) (General) Order 2003, Schedule 1, Part 4, Paragraphs 32-33. (Online). Available at:

<https://www.legislation.gov.uk/uksi/2003/1998/schedule/1/part/4/crossheading/restrictions-relating-to-weight-category-3-ailvs-and-ailvcombinations>

- loads wider than 5 m can only be conveyed if authorised by special order (the VR1 procedure under STGO). The VR1 must be carried on the vehicle and at least 10 days notification is required prior to the movement date; and
- the load cannot exceed 6.1 m width under STGO Regulations¹⁰.

3.2.3 For all categories, the following advice is provided with regards to length:

- the overall length of the vehicle(s) and load may be up to 30 m, or greater if authorised by special order from the Secretary of State (SOS). In any combination of vehicles on which a load rests, including any articulated vehicle, the 30 m does not include the length of the drawing vehicle; and
- an articulated vehicle or trailer, which is abnormal only in respect of length for carrying indivisible loads of exceptional length, can operate under normal C&U Regulations.

3.2.4 With regards to speeds, those that apply to each of the weight categories are set out in **Table 3.1**.

Table 3.1 Speed restrictions for Category 1, 2 or 3 AILVs or AILV-combinations

Category	Motorway	Dual Carriageways	Other roads
Category 1	60 mph	50 mph	40 mph
Category 2 -3	40 mph	35 mph	33 mph

Source: Drivers and Vehicle Standards Agency, 2018¹¹

3.2.5 It should be noted that although the speeds referenced above are the legal limits, the actual achievable speed of the vehicle configuration may be lower.

3.3 Special Orders

3.3.1 While it is expected that the AIL for this Proposed Development will be moving under STGO Cat 2 or 3 requirements. Should the requirements for an AIL transport vehicle which does not comply with the Road Vehicles (Authorisation of Special Types) (General) Order 2003 (STGO), then this would require a special order issued by:

- TS or NH on abnormal loads not covered by C&U and STGO; or
- the Vehicle Certification Agency (VCA) on special vehicles and divisible loads outside the scope of C&U and STGO.

3.3.2 In addition to the above, hauliers are generally advised to inform statutory authorities if total vehicle heights are likely to exceed 5.0 m (although it should be noted that there is no legal overall laden height restriction but TS state this should not exceed 4.95 m (16'3")).

3.3.3 To apply for a VR1, the following information will need to be supplied to the DfT:

- name and address of person / organisation making the application;
- details of persons / organisations who will be using the vehicles, if different from the previous;
- the number of vehicles involved;
- type of vehicles involved, their make, model, registration, and / or chassis (serial) numbers of motor vehicles or trailers. These will be listed on any order issued;
- details of the vehicles e.g., number of axles, individual axle weights, and gross vehicle weights (both in kg), plus dimensions (in m);

¹⁰ Legislation.gov.uk, (2003). The Road Vehicles (Authorisation of Special Types) (General) Order 2003, Schedule 1, Part 4, Paragraphs 24. (Online). Available at: <https://www.legislation.gov.uk/uksi/2003/1998/schedule/1/part/4/crossheading/maximum-width>

¹¹ DfT, (2018). Guidance Special types enforcement guide - Updated 27 September 2018. (Online). Available at: <https://www.gov.uk/government/publications/special-types-enforcement-guide/special-types-enforcement-guide>

- in the case of vehicle combinations, overall weights (in kg) and dimensions (in m); and
- details of the C&U Regulations with which the vehicles do not comply and the reasons why they cannot comply: The Regulations are specified on the VR1, and it should be made clear that failure to comply with non-specified Regulations or supplying incorrect data would invalidate the VR1.

3.3.4 On receipt of the application, the Vehicle Certification Agency (VCA) will evaluate the application and contact the applicant should further information be required. Various organisations including the Police, Local Authorities, and other interested parties, both within and outside of the DfT may be consulted; especially in respect of the conditions to be imposed. Following receipt of all information, and assuming that there are no technical reasons or objections from any of the parties consulted, the VR1 will be prepared and dispatched by email within 10 working days.

3.3.5 VR1s are issued for varying periods of time at the discretion of the TS Typically, they are issued for a period of up to five years. The following sets out the speed limits of VR1 loads:

- articulated vehicles weighing between 150 and 250 tonnes: 25 mph;
- draw-bar Trailer vehicles weighing between 150 and 250 tonnes: 20 mph;
- girder frame trailers: 12 mph; and
- girder frame trailers: 12 mph.

3.4 Notification Requirements

3.4.1 Mobile crane movements will comply with the requirements set out for their relevant category (A, B or C) in the Road Vehicles (Authorisation of Special Types) (General) Order 2003; including providing appropriate notice to the Police, THC, MC, and AC road and bridge authorities, and other stakeholders as necessary, and where relevant, consultation with owners of structures such as bridges and tunnels that have weight restrictions.

4 Route Overview

4.1 Introduction

- 4.1.1 This section describes the approach undertaken to identify potential routes to transport the largest ALLs to the bellmouths which provide access to the working area locations from the anticipated point of origin, (the trunk road network). Routes have been assessed against the type of road, horizontal alignment, settlement patterns, and available height and weight restrictions in order to identify pinch points.
- 4.1.2 A 'pinch point' is defined as a location where constraints relating to each of the design characteristics referenced below are likely to prevent or significantly impede abnormal load access.
- horizontal road alignment;
 - vertical road alignment; and
 - weight / height restrictions.

4.2 Trip Origins

- 4.2.1 At the time of writing, the origin of these mobile crane movements is also unknown, however it is anticipated that these could be delivered via the trunk road network via the most suitable route. Therefore, as previously stated, construction traffic is expected to route between the trunk road network to the bellmouth locations which provide access to the construction working areas along the Proposed Development.
- 4.2.2 It is anticipated that a combined inbound and outbound journey will be required at some of the tower locations throughout the alignment.

4.3 Assessment Approach

- 4.3.1 A desktop assessment has been undertaken using Ordnance Survey (OS, 2025¹²), Google Maps Street View (Google, 2025a¹³) (Google, 2025b¹⁴) and has considered road type, horizontal and vertical alignment, settlement patterns and available height and weight restrictions¹⁵.
- 4.3.2 The assessment route has been selected based on the consideration of the above, and the suitability of each route will depend on the final vehicle specification chosen by the Principal Contractor deemed suitable.

4.4 Land Ownership

- 4.4.1 Adopted roads are those managed and maintained by the local roads' authority¹⁶. Limits of road adoption can vary. Within urban areas, the adopted area is generally the made land contained within a boundary where the road agency holds the maintenance rights for the land, even if this is built on land owned by a third party. At a high level this is usually the footway back edge across the road to the opposite footway / edge. In rural areas, the limits of adoption are open to greater interpretation as defined boundaries which are not readily visible. In these locations, it is considered that the area of adoption is between established fence / hedge lines (if present) or a maximum of 2 m from the roads edge. At this indicative stage, assumptions have been made for the assessment using this outline.

12 Ordnance Survey, (OS), (2025). OS Map. (Online). Available at: <https://www.ordnancesurvey.co.uk/>

13 Google (2023a). Google Earth. (Online). Available at: <https://earth.google.com>

14 Google (2023b). Google Earth. (Online). Available at: <https://www.google.co.uk/maps>

15 Transport Scotland, (TS), (2025). Freight transport. (Online). Available at: <https://www.transport.gov.scot/our-approach/industry-guidance/freight-transport/#64816>

16 Legislation.gov.uk (1984). Roads (Scotland) Act 1984. (Online). Available at: <https://www.legislation.gov.uk/ukpga/1984/54/contents>

4.5 Proposed AIL Routes

4.5.1 The proposed access routes have been identified in **Section 2.9** as the Study area sections and are shown in **Table 4.1**.

4.5.2 Initial points of interest (POIs) or Pinch Points have been identified through a review of Google Streetview on each of these routes. These routes are assessed further through SPA (tabulated within **Section 5**) and are illustrated in the figures within **Annex C** and supported by corresponding photographic evidence within **Annex D**. Trunk Roads have been excluded from this assessment.

Table 4.1: Proposed Development Study Area Sections

Local Authority	Section Number - Description	Road	Proposed Study Area Section
Highlands	Section 1 Fanellan to River Beauly	A862	Between the C1102 and the A831
	Section 1 Fanellan to River Beauly	A831	Between the A862 and the C1106
	Section 1 Fanellan to River Beauly	C1106	Between the A831 and the U1604
	Section 1 Fanellan to River Beauly	C1106	Between the U1604 and AP
	Section 1 Fanellan to River Beauly	A833	Between the A862 and the C1108
	Section 1 Fanellan to River Beauly	C1108	Between the A833 and the U1604
	Section 1 Fanellan to River Beauly	U1604	Between the C1108 and C1106
	Section 2 - River Beauly to Cnoc na Moine	A862	Between C1114 and the C1102
	Section 2 - River Beauly to Cnoc na Moine	C1102	Between the A862 and the U1668
	Section 2 - River Beauly to Cnoc na Moine	U1568	Between the C1102 and the U2362
	Section 2 - River Beauly to Cnoc na Moine	U2362	Between the U1668 and AP
	Section 2 - River Beauly to Cnoc na Moine	C1100	Between the A862 and AP
	Section 3 - Cnoc na Moine	A862	Between A82 (T) and the C1114
	Section 3 - Cnoc na Moine	C1114	Between the A862 and U1560
	Section 3 - Cnoc na Moine	U1560	Between the C1114 and AP
	Section 4 - Cnoc na Moine to River Ness	C1060	Between the A82 (T) and AP
	Section 5 - River Ness to Knocknagael	A8082	Between A9 and A82
	Section 5 - River Ness to Knocknagael	B862	Between the A8082 and AP
	Section 5 - River Ness to Knocknagael	C1064	Between the A8082 and the U1096
	Section 5 - River Ness to Knocknagael	U1096	Between the C1064 and AP
	Section 6 - Knocknagael to the Daviot Wood	B851	Between the A9 (T) and the B861
	Section 6 - Knocknagael to the Daviot Wood	B861	Between the B851 and AP
	Section 6 - Knocknagael to the Daviot Wood	C1068	Between the A9 (T) and AP
	Section 7 - Daviot Wood to The Highland Main Line	B851	Between the A9 (T) and AP
	Section 7 - Daviot Wood to The Highland Main Line	B9154	Between the A9 (T) and the C1056
	Section 7 - Daviot Wood to The Highland Main Line	C1056	Between the B9154 and AP
	Section 8 - The Highland Main Line to Dalcharn	B9090	Between the A96 (T) and the C1056
	Section 8 - The Highland Main Line to Dalcharn	C1056	Between the B9090 and AP

Local Authority	Section Number - Description	Road	Proposed Study Area Section
	Section 8 - The Highland Main Line to Dalcharn	U1169	Between the C1056 and AP
	Section 9 - Dalcharn to Acheneim Wood	B9090	Between the C1056 and the C1154
	Section 9 - Dalcharn to Acheneim Wood	U3151	Between the B9090 and the U1169
	Section 9 - Dalcharn to Acheneim Wood	U1169	Between the U3151 and AP
	Section 9 - Dalcharn to Acheneim Wood	C1154	Between the B9090 and the U3138
	Section 9 - Dalcharn to Acheneim Wood	U3138	Between the C1154 and the U1169
	Section 9 - Dalcharn to Acheneim Wood	U1169	Between the U3138 and AP
	Section 10 - Acheneim Wood to Muckle Burn	C1154	Between the U3138 and AP
	Section 10 - Acheneim Wood to Muckle Burn	C1161	Between the C1154 and the U3114
	Section 10 - Acheneim Wood to Muckle Burn	U3114	Between the C1161 and AP
	Section 11 - Muckle Burn to Cairn Duhie	B9090	Between the C1154 and the B9091
	Section 11 - Muckle Burn to Cairn Duhie	B9091	Between the B9090 and the A939
	Section 11 - Muckle Burn to Cairn Duhie	A939	Between the B9091 and AP
	Section 11 - Muckle Burn to Cairn Duhie	C1173	Between the A939 and AP
	Section 11 - Muckle Burn to Cairn Duhie	B9007	Between the A939 and AP
Moray	Section 12 - Cairn Duhie to Johnstripe	A940	Between A96 and AP
	Section 12 - Cairn Duhie to Johnstripe	C11E	Between A940 and AP
	Section 12 - Cairn Duhie to Johnstripe	U88E (North)	Between A940 and AP
	Section 12 - Cairn Duhie to Johnstripe	U88E (South)	Between U88 (North) and AP
	Section 13 - Johnstripe to Moss of Bednawinny	B9011	Between A96 and the C37E
	Section 13 - Johnstripe to Moss of Bednawinny	C37E	Between B9011 and B9010
	Section 13 - Johnstripe to Moss of Bednawinny	B9010	Between C37E and the C12E
	Section 13 - Johnstripe to Moss of Bednawinny	C12E	Between B9010 and the U109E
	Section 13 - Johnstripe to Moss of Bednawinny	U109E	Between C12E and AP
	Section 14 - Moss of Bednawinny to Glenlatterach Reservoir	B9010	Between A96 at Elgin and the C12E
	Section 14 - Moss of Bednawinny to Glenlatterach Reservoir	C12E	Between B9010 and C13E
	Section 14 - Moss of Bednawinny to Glenlatterach Reservoir	C13E	Between C12E and AP
	Section 15 - Glenlatterach Reservoir to Glen of Rothes	A941	Between A96 and AP
	Section 16 - Glen of Rothes to Teindland	B9103	Between A96 and AP
	Section 16 - Glen of Rothes to Teindland	U129E	Between B9103 and AP
	Section 16 - Glen of Rothes to Teindland	U129E (East)	Eastern branch of the U129E
	Section 16 - Glen of Rothes to Teindland	U20E	Between B9103 and AP
	Section 17 - Teindland to River Spey	B9015	Between A96 and AP
	Section 17 - Teindland to River Spey	U22E	Between B9015 and U19E
	Section 17 - Teindland to River Spey	U19E	Between U22E and AP
	Section 18 - River Spey to West of Keith	U14E	Between B9104 and AP

Local Authority	Section Number - Description	Road	Proposed Study Area Section
	Section 18 - River Spey to West of Keith	U13E (North)	Between A96 and AP
	Section 18 - River Spey to West of Keith	U13E (South)	Between A96 and AP
	Section 18 - River Spey to West of Keith	U65H	Between A96 and AP
	Section 19 - West of Keith to Coachford substation	B9016	Between A96 and AP
	Section 19 - West of Keith to Coachford substation	C74H	Between B9016 and U41H at Forgieside
	Section 19 - West of Keith to Coachford substation	U41H	Between C74H at Forgieside and AP
	Section 19 - West of Keith to Coachford substation	B9017	Between A96 and the U49H
	Section 19 - West of Keith to Coachford substation	C74H	Between B9017 and U41H at Fieldhead
	Section 19 - West of Keith to Coachford substation	U41H	Between C74H at Fieldhead and AP
	Section 19 - West of Keith to Coachford substation	U49H	Between B9017 and AP
	Section 19 - West of Keith to Coachford substation	A95	Between B9017 and A96
	Section 19 - West of Keith to Coachford substation	B9017	Between A96 and the U51H
	Section 19 - West of Keith to Coachford substation	U51H	Between B9017 and AP
	Section 19 - West of Keith to Coachford substation	U50H	Between B9017 and AP
	Section 19 - West of Keith to Coachford substation	U35H	Between A96 and AP
	Section 19 - West of Keith to Coachford substation	U44H	Between A96 and AP
Aberdeenshire	Section 20 - Coachford to Huntly	U111S	Between the A96 (T) and AP
	Section 20 - Coachford to Huntly	C111S	Between the A96 (T) and AP
	Section 20 - Coachford to Huntly	C106S	Between A96 (T) and AP
	Section 20 - Coachford to Huntly	U108S	Between C106S and AP
	Section 20 - Coachford to Huntly	B9022	Between A96 (T) and AP
	Section 21 - Huntly to Turriff	A97	Between A96 (T) and B9001
	Section 21 - Huntly to Turriff	C100S	Between A97 and AP
	Section 21 - Huntly to Turriff	U104S	Between C100S and AP
	Section 21 - Huntly to Turriff	U103S	Between C100S and AP
	Section 21 - Huntly to Turriff	C82S	Between A97 and AP
	Section 21 - Huntly to Turriff	U102S	Between A97 and AP
	Section 21 - Huntly to Turriff	C88S	Between A97 and U88S
	Section 21 - Huntly to Turriff	U89S	Between C88S and AP
	Section 21 - Huntly to Turriff	B9001	Between A97 and AP
	Section 21 - Huntly to Turriff	C87S	Between B9001 and U91S
	Section 21 - Huntly to Turriff	U90S	Between C87S and AP
	Section 21 - Huntly to Turriff	U91S	Between C87S and AP
	Section 21 - Huntly to Turriff	B9024	Between B9001 and U33S
	Section 21 - Huntly to Turriff	U94L	Between B9024 and AP
	Section 21 - Huntly to Turriff	U83bL	Between U94L and AP

Local Authority	Section Number - Description	Road	Proposed Study Area Section
	Section 21 - Huntly to Turriff	U33S	Between B9024 and AP
	Section 22 - Turriff to New Deer	B9024	Between U33S and A947
	Section 22 - Turriff to New Deer	C22S	Between B9024 and AP
	Section 22 - Turriff to New Deer	U24S	Between C22S and AP
	Section 22 - Turriff to New Deer	C25S	Between C22S and U24S
	Section 22 - Turriff to New Deer	U24S	Between C25S and AP
	Section 22 - Turriff to New Deer	A947	Between B9025 and B9170
	Section 22 - Turriff to New Deer	U25S	Between A947 and AP
	Section 22 - Turriff to New Deer	B9170	Between A947 and AP
	Section 22 - Turriff to New Deer	C21S	Between B9170 and AP
	Section 22 - Turriff to New Deer	C21S	Between B9170 and AP
	Section 22 - Turriff to New Deer	C26S	Between B9170 and U1S
	Section 22 - Turriff to New Deer	U1S	Between C26S and AP
	Section 22 - Turriff to New Deer	U1S	Between C26S and AP
	Section 22 - Turriff to New Deer	U130S	Between B9170 and AP
	Section 22 - Turriff to New Deer	C29S	Between B9170 and C1S
	Section 22 - Turriff to New Deer	U1S	Between C29S and AP
	Section 23 - New Deer to Maud	A950	Between B9106 and A981
	Section 23 - New Deer to Maud	A981	Between A950 and B9028
	Section 23 - New Deer to Maud	C127B	Between A981 and AP
	Section 23 - New Deer to Maud	U122B	Between C127B and AP
	Section 23 - New Deer to Maud	C123B	Between A981 and AP
	Section 23 - New Deer to Maud	B9028	Between A981 and AP
	Section 23 - New Deer to Maud	B9029	Between A981 and AP
	Section 23 - New Deer to Maud	A981	Between B9028 and B9170
	Section 23 - New Deer to Maud	B9170	Between A981 and C125B
	Section 23 - New Deer to Maud	C125B	Between B9170 and AP
	Section 24 - Maud to Mintlaw	A950	Between C56B and B9106
	Section 24 - Maud to Mintlaw	B9030	Between A950 and AP
	Section 24 - Maud to Mintlaw	C97B	Between B9030 and C100B
	Section 24 - Maud to Mintlaw	C100B	Between C97B and AP
	Section 24 - Maud to Mintlaw	B9106	Between A950 and AP
	Section 24 - Maud to Mintlaw	B9106	Branch of B9106 connecting into the B9029
	Section 24 - Maud to Mintlaw	B9029	Between B9106 and C103B
	Section 24 - Maud to Mintlaw	C103B	Between B9029 and AP
	Section 25 - Mintlaw to Peterhead	A950	Between A90 (T) and C56B
	Section 25 - Mintlaw to Peterhead	C56B	Between A950 and C38B
	Section 25 - Mintlaw to Peterhead	C38B	Between A950 and A952
	Section 25 - Mintlaw to Peterhead	U55B	Between C38B and AP
	Section 25 - Mintlaw to Peterhead	C39B	Between C38B and AP

Local Authority	Section Number - Description	Road	Proposed Study Area Section
	Section 25 - Mintlaw to Peterhead	U52B	Between C38B and AP
	Section 25 - Mintlaw to Peterhead	A952	Between C38B and U52B
	Section 25 - Mintlaw to Peterhead	U52B	Between A952 and AP
	Section 25 - Mintlaw to Peterhead	U70B	Between A952 and AP

5 Route Appraisal

5.1 Swept Path Assessment

- 5.1.1 As previously stated, initial points of interest (POIs) or Pinch Points have been identified through a review of Google Streetview, of which the resulting indicative routes are shown in **Section 4**. The following section provides further detail and further POIs identified on the assessment routes. This includes identification of the location, obstacle and potential mitigation measures required for the AIL transfer vehicle to safely manoeuvre between the trunk road network and destinations for AILs.
- 5.1.2 For the purpose of this assessment, it has been assumed that the AIL would straddle both running lanes on carriageway sections.
- 5.1.3 The severity of each constraint has been graded to indicate the estimated extent of mitigation works required. The following risk grading system has been used:
- **Grey**: No identified constraints (i.e. Subject to consultation and agreement with THC, MC and AC);
 - **Green**: Minor works (i.e. localised carriageway widening / over-run area, cut-back vegetation, remove debris etc.);
 - **Amber**: Moderate works (i.e. fixed object removal including street signs / street furniture, removing trees, earthworks required etc.);
 - **Red**: Major works (i.e. construction of new structures / road sections, PRIs, major earthworks, third-party land requirements etc.); and
 - **Black**: Potential unresolvable issues with no current viable solution with current load size and method of transport.
- 5.1.4 Risk has been assessed in terms of enabling works time and complexity.
- 5.1.5 The drawing results of the SPA are not included; however, the results are included in the form of the SPA figures and summary tables for the Mobile Cranes are presented in **Annex E**.
- 5.1.6 The first table summarises the POIs expected mitigation works for the Highland Area, Second table for the Moray Area and a third table summarises the expected mitigation works for the Aberdeenshire Area. For the avoidance of doubt, assessment results for any combined routes, are replicated in each table.

5.2 Structures

- 5.2.1 TS / BEAR North West unit / Amey North East unit, Network Rail and THC, MC and AC have been consulted to advise on the current structural capacity of the routes proposed.
- 5.2.2 At the time of writing this report, the above consultees are yet to comment on the structural capacity of their assets. However, as mobile cranes route routinely across the UK for a variety of operators, e.g. construction sites, oil and gas, shipyards, and infrastructure projects, it is considered that the majority of structures should be suitable. It is acknowledged that some locations within the study area are more remote, and therefore there is potential for assets to require further inspection. It is anticipated that as most of the structures are short span that these would be suitable for alternative engineering solutions, should they fail further structural assessment, (if any are to require this).

- 5.2.3 As part of a separate planning application for Fanellan Substation (Reference: 25/00826/FUL¹⁷) THC have advised that structure no. C1160010 (Black Bridge Kilmorack) requires further assessment before the heavy delivery vehicles can be approved to cross the structure. The following is confirmed by THC that for structure no. A08620090 (Lovat Bridge):

"There will be no routing of abnormal loads over Lovat bridge without detailed inspections and assessments being undertaken and the findings accepted by THC Structures Team".

- 5.2.4 It is also noted however that although the Electronic Service Delivery for Abnormal Loads (ESDAL) portal¹⁸ states there are no signed restrictions, a previous route feasibility study for the Fanellan Substation project, found that the Beaully Rail Overbridge (A08620100) and a Culvert at Teawig (A08620090C38) both had a maximum vehicle axle load of 14.6 t on previously assessed vehicles. Depending on what mobile crane is used, these structures may require further assessment. However, it is considered that for the majority of construction traffic (HGV and LGV / Car) movements, these structures pose no constraints to routing.
- 5.2.5 Full details of all the review of the structures on the ESDAL portal, including their location are summarised in Annex F.

5.3 Consultation

- 5.3.1 In terms of agreeing a delivery route, THC, MC and AC and other relevant stakeholders will be consulted and a route agreed before any trial run. The mobile crane supplier and vehicles specification are yet to be confirmed. Therefore, the AIL assessment identifies the potential mitigation measures indicatively required at a number of locations. All relevant permits for abnormal load transportation will be arranged prior to commencement of deliveries.
- 5.3.2 A Section 48 Agreement of the Roads (Scotland) Act 1984¹⁹ will be secured between THC, MC and AC and the developer to cover the associated road works, needed to facilitate the delivery of the abnormal loads. The THC, MC and AC will be contacted in due course.

¹⁷ The Highland Council, (2025). Planning – Planning Application Documents – 25/00826/FUL (Online). Available at:

<https://wam.highland.gov.uk/wam/applicationDetails.do?activeTab=documents&keyVal=SSPNC9IHHIS00>

¹⁸ National Highways, (2025). Abnormal loads and the ESDAL system. (Online). Available at: <https://nationalhighways.co.uk/road-safety/abnormal-loads-and-the-esdal-system/>

¹⁹ Legislation.gov.uk, (1984). The Roads (Scotland) Act 1984. (Online). Available at: <https://www.legislation.gov.uk/ukpga/1984/54/contents>

6 Management Strategy

6.1 Introduction

- 6.1.1 It is essential that the movements are thoughtfully planned and undertaken to ensure they progress safely on the road network.
- 6.1.2 Those responsible for transporting abnormal loads by road are required by law to plan and execute each movement in agreement with THC, MC and AC, including TS where required to ensure the incident-free passage of every load from origin to destination.
- 6.1.3 An Outline Construction Traffic Management Plan (Outline CTMP) has been prepared separately covering the construction of the Proposed Development located within **Volume 5, Appendix 3.4: Outline Construction Traffic Management Plan**. The Outline CTMP is a outline document, fixed at the time of submission to inform the EIA and is intended to be expanded into a detailed CTMP. The indicative measures proposed will be developed and expanded as the Proposed Development progresses up to the construction process stage. The Outline CTMP will be further developed by the Principal Contractor, in conjunction with THC, MC, and AC, TS and other appropriate stakeholders.
- 6.1.4 The following sets out the general traffic management strategy that would be employed by the Principal Contractor.

6.2 Route Enforcement

- 6.2.1 The AIL route identified will be strictly enforced unless further notification is given. All main and sub-contracting companies involved in the Proposed Development will be monitored to ensure they follow the correct routes and do not use other 'shortcuts'. The routes will be clearly defined in all sub-contracts and clearly signposted for all drivers to see. Any contractor not adhering to the relevant route guidance will be disciplined. On-site monitoring and spot checks will assist in this.

6.3 Road Clearance Scheme

- 6.3.1 Access routes for the Proposed Development have been selected to minimise the need for road clearance, particularly in settlements. However, should the need arise for clear roads to allow for the transport of abnormal loads along narrow sections of the proposed access routes, the intended procedure to be followed is set out in this section.
- 6.3.2 At delivery times, road parking in settlements along the route may be restricted to allow for this and shall be achieved through communication with the local residents, businesses, THC, MC and AC. If required, the Applicant via the Principal Contractor will produce leaflets which will be provided in advance to residents along the route, indicating the areas which should be kept clear of parked vehicles and the times and durations for which this is required.

6.4 Timing of Movements

- 6.4.1 The mobile cranes and low loaders will be delivered to Site in sufficient time to meet the agreed assembly / installation programme and in accordance with the requirements of Police Scotland, THC, MC and AC and TS. A detailed delivery plan will be prepared prior to the actual delivery, and sufficient notice will be given to all relevant parties / stakeholders. Mobile crane movements will comply with the requirements set out for their relevant category (A, B or C) in the Road Vehicles (Authorisation of Special Types) (General) Order 2003; including providing appropriate notice to the Police, THC, MC and AC road and bridge authorities and where relevant consultation with owners of structures such as bridges and tunnels that have weight restrictions.

6.5 Temporary Closures and Traffic Regulation Order

- 6.5.1 At the discretion of the Principal Contractor, temporary road closures may be required in order to deliver some of the larger abnormal loads. The Principal Contractor will liaise with the local community, businesses and key services to ensure they are fully informed in advance should a road closure scheme be required.
- 6.5.2 Any required Temporary Traffic Regulation Orders (TTRO) will be obtained prior the transport of the abnormal loads.

6.6 Lighting, Signing and Marking

- 6.6.1 Lighting, signing, and marking will be in accordance with:
- Code of Practice Lighting and Marking for Special Order, VR1, STGO and C&U loads²⁰; and
 - Using abnormally large or heavy vehicles on the road²¹.

6.7 Public Communication Strategy

- 6.7.1 The delivery of abnormal loads is likely to cause some delay to local road users and, in some cases, restrict access along certain routes. To ensure residents, local business and key services are made aware of such restrictions, the Principal Contractor will implement a comprehensive communications strategy, which could include, but is not limited to; letter drops, radio spots, notices within local papers, temporary road signage, website updates on the Applicant's website and other social media outlets.

20 National Highways. (2021). Code of Practice Lighting and Marking for Special Order, VR1, STGO and C&U loads. (Online) Available at: <https://nationalhighways.co.uk/road-safety/abnormal-loads-and-the-esdal-system/advice-for-hauliers/#lighting>

21 DfT, (2018). Guidance Special types enforcement guide - Updated 27 September 2018. (Online). Available at: <https://www.gov.uk/government/publications/special-types-enforcement-guide/special-types-enforcement-guide#introduction>

7 Summary and Next Steps

- 7.1.1 WSP were commissioned by the Applicant to undertake a desktop Access Appraisal for the delivery of abnormal loads in the form of mobile cranes associated with the Proposed Development, located throughout THC, MC and AC local authority areas between Beaulay (Fanellan Substation), and Peterhead (Netherton Hub).
- 7.1.2 The AIL access study indicates that 150 t and 250 t mobile cranes can be successfully transferred from the trunk road network to the bellmouths providing access to the working areas with the provision of potential accommodation works identified within this study. The report identifies key points of interest along the route, presenting indication of where SPA of the pinch points has been undertaken and illustrating where accommodation works are necessary. The results of the SPA will need to be confirmed by topographical survey and trial run.
- 7.1.3 While the study identifies constraints regarding some of the structures on the assessment routes, it is considered that further consultation with THC, MC and AC would be necessary and that some of these structures may potentially require detailed assessment as the Proposed Development progresses through to delivery.