

Pell Frischmann

Mynydd Fforch Dwm Wind Farm

Transport Assessment

April 2023

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1 Introduction

1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by Naturalis (the Applicant) to undertake a Transport Assessment (TA) for the proposed Mynydd Fforch Dwm Wind Farm (the Proposed Development), located approximately 1km to the north east of the village of Tonmawr which is to the east of Neath.

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The report identifies the key transport and access issues associated with the Proposed Development, including the route for abnormal loads. The TA identifies where the Proposed Development may require mitigation works to accommodate the predicted traffic; however, the detailed design of these remedial works is beyond the agreed scope of this report.

1.2 Report Structure

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

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

2 Site Background

2.1 Site Location

The location of the Proposed Development is presented in Figure 1. The site is located to the east of Neath and lies within the boundaries of Neath Port Talbot County Borough Council (NPTCBC). The site is split into two sections, with access taken from two access junctions. Access to the west is taken from Tom Mawr Road and to the east from Fforch-dwn Road.

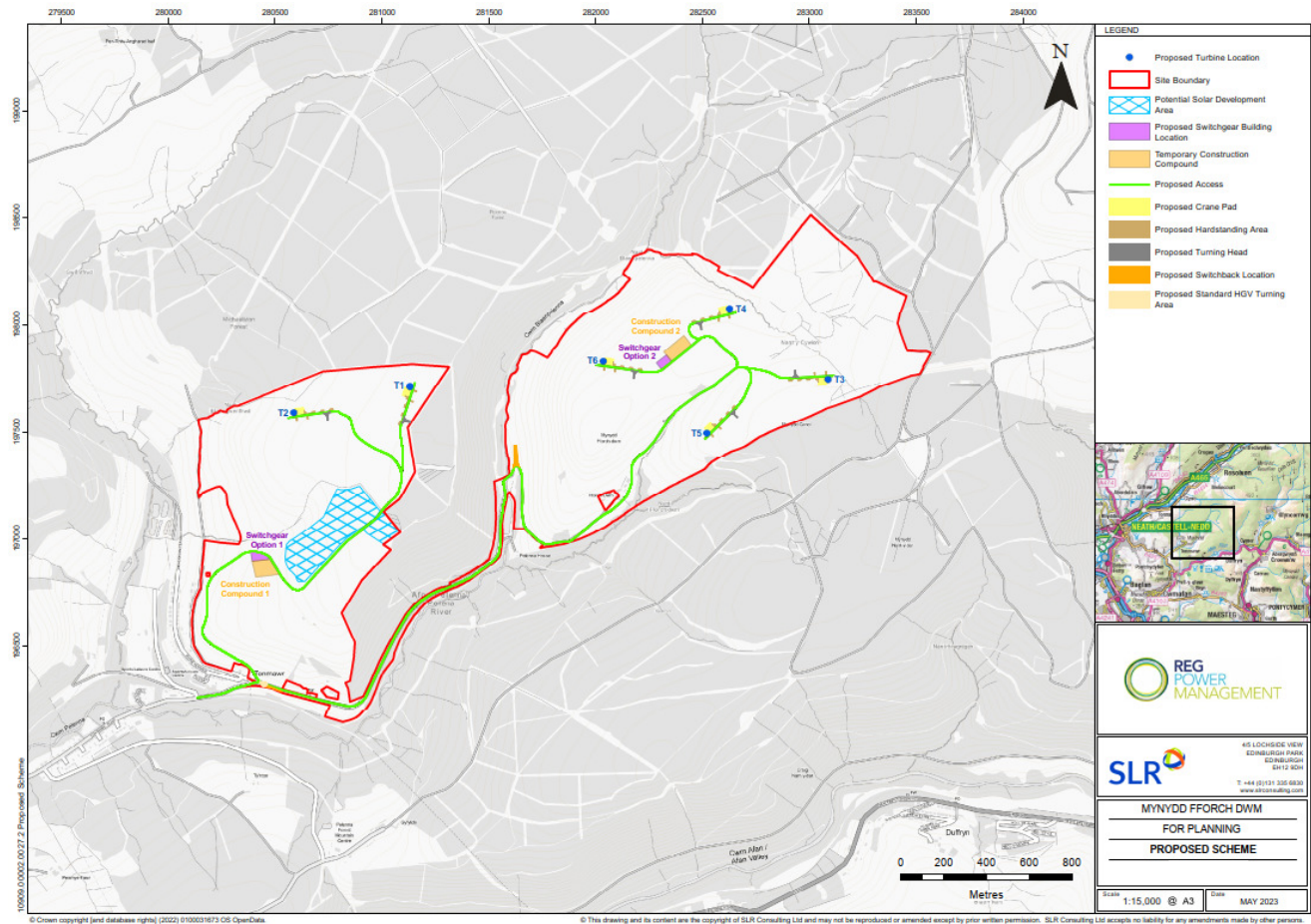


Figure 1 Site Location Plan

In summary, the Proposed Development will comprise a total of 6 wind turbines and a solar array. The development also includes associated grid connection and supporting infrastructure.

2.2 Candidate Turbine

The Applicant has indicated that they wish to consider the worst case components from a Vestas V150 or Nordex N149 for the site. Due to restrictions on the route, an indicative hub height (HH) tower has been assessed.

The details of the components have been provided by the turbine manufacturers and are detailed in Tables 1 & 2.

Table 1 Vestas V150 – Turbine Size Summary

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Blade	73.700	4.064	3.124	17.240
Base	9.790	(4.45) 4.15	4.436	71.000
Mid Tower 1	12.040	4.436	4.448	66.500
Mid Tower 2	15.400	4.448	4.440	68.500
Mid Tower 3	14.840	4.440	4.433	55.000
Mid Tower 4	19.320	4.433	4.423	56.000
Mid Tower 5	19.880	4.423	4.168	47.000
Top Tower	25.000	4.168	4.008	52.500

Table 2 Nordex N149 – Turbine Size Summary

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Blade	72.400	4.500	3.200	21.000
Base	11.510	4.300	4.300	76.500
Mid Tower 1	14.730	4.300	4.270	77.000
Mid Tower 2	18.180	4.280	4.270	71.100
Mid Tower 3	19.400	4.270	3.640	62.300
Mid Tower 4	27.000	3.640	3.620	65.800
Top Tower	31.380	3.620	3.260	53.600

The assessment has been based on the V150 Blade and V150 Mid Tower 5 combined with the flange from the base tower to provide a worst case component. The Top Tower from both turbine options can be carried using a step trailer and configured to pass under height restrictions.

The tower sections can be adjusted to provide a variety of tip heights for the project. They would however need to remain within the envelope of the section that is illustrated in the swept path assessment drawings.

2.3 Proposed Delivery Equipment

Due to the constrained nature of the route and the proximity to the port, it is proposed that blades will be carried using a Goldhofer blade lifting trailer for the entirety of the route. This trailer has the ability to lift blades up to a maximum angle of 60 degrees, lifting blades over potential constraints and shortening the length plan view. All overhead utilities and obstructions should be removed where the blade is carried in the raised position.

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



Figure 2 Blade Lifter Trailer



Figure 3 Tower Trailer

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 The Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment (IEA), 1993)

The Guidelines for the Environmental Assessment of Road Traffic was produced to promote a consistent and comprehensive method of assessing the environmental impacts associated with the traffic from major new developments.

These guidelines have been applied to the environmental assessment in ES Chapter 13 Transport and Access.

3.2.2 Future Wales – The National Plan 2040 (2021)

Future Wales is the Welsh Government's National Development Framework. It applies the key principles of Planning Policy Wales and establishes where in Wales development should take place and how these places should grow and change. Future Wales is the highest tier of development plan.

The Welsh government strongly supports the principles of developing renewable and low carbon energy to meet future demands. Decision makers must give significant weight to the need to meet Wales international commitments to generate 70% of consumed electricity by renewable means by 2030. There is a presumption in favour of large-scale wind energy developments in areas that have been pre-assessed for wind energy by the Welsh Government.

Applications for Developments of National Significance must be determined in accordance with Future Wales.

3.2.3 The Wales Transport Strategy (2021)

The Wales Transport Strategy aims to shape the Welsh Transport system over the next 20 years and states that:

“We will adopt a more strategic approach to Welsh ports and nearby development sites, recognising their role as a catalyst for co-location of manufacturing, energy, leisure, distribution and tourism.”

The National Transport Delivery Plan 2022 - 2027 outlines how The Wales Transport Strategy will be delivered.

3.2.4 Planning Policy Wales Edition 11 (2020)

Planning Policy Wales Edition 11 (PPWE11) establishes the key principles for the planning system. It establishes what development plans and decisions taken by the planning system must achieve and how developments should be shaped to deliver the best possible outcomes. PPWE11 informs the preparation of development plans and development management decisions.

In relation to Transport Assessments, PPWE11 states that:

“Transport Assessments are an important mechanism for setting out the scale of anticipated impacts a proposed development, or redevelopment, is likely to have. They assist in helping to anticipate the impacts of development so that they can be understood and catered for appropriately.”

They should cover the transport impacts during the construction phase of the development, as well as when built and in use. Transport Assessments also provide an important basis for the preparation of Travel Plans. Further guidance on Transport Assessments and Travel Plans is contained in TAN 18.

3.2.5 Technical Advice Note 18 Transport (2007)

Technical Advice Note (TAN) 18 was published in March 2007. It describes how to integrate land use and transport planning and explains how transport impacts should be assessed and mitigated.

Key requirements of TAN 18 that are applicable to this development include:

- Ensuring that transport infrastructure or service improvements necessary to serve new development allow existing transport networks to continue to perform their identified functions (para 2.3, page 3).
- Submission of Transport Assessments to accompany planning applications for developments that are likely to result in significant trip generation (para 9.2, page 36).
- Access to be provided that reflects the nature and type of road and the volume and character of traffic likely to use the access and the road (para 9.16, page 39).
- Any works to the trunk road resulting from the development to be constructed to the standards applied to its own schemes (para 9.17, page 39).
- Where transport improvements are required in the vicinity of the scheme and beyond to accommodate trips associated with the development, conditions may be imposed to make its commencement / occupation subject to the completion of those works or a developer may be invited to conclude an agreement under section 278 of the Highways Act 1980 for the provision of highway works (para 9.18, page 40).

3.2.6 Welsh Transport Appraisal Guidance (2017)

Welsh Transport Appraisal Guidance (WelTAG) was published in 2017 and aims to provide a framework for thinking about proposed changes to the transport system and it contains best practice for the development, appraisal and evaluation of proposed transport interventions in Wales.

The document notes that a TA will be required where planning applications for development, including changes of use, fall into the categories identified in TAN 18.

3.3 Local Policy & Guidance

3.3.1 NPTCBC Local Development Plan (2016)

The NPTCBC Local Development Plan (LDP) was adopted in January 2016 and provides the vision for new development within the County Borough over 15 years (2011 – 2026).

With regards to transport and access, Policy RE 1 Criteria for the Assessment of Renewable and Low Carbon Energy Development notes that:

Proposals for renewable and low carbon energy development will only be permitted subject to the following criteria:

“...All renewable energy or low carbon energy development proposals will be required to demonstrate that:

- ***The development will not compromise highway safety...***

In relation to the Proposed Development Policy TR2 Design and Access of New Development notes that:

“Development proposals will only be permitted where all of the following criteria, where relevant, are satisfied:

The development does not compromise the safe, effective and efficient use of the highway network and does not have an adverse impact on highway safety or create unacceptable levels of traffic generation...”and

“...Transport Assessments and Travel Plans are provided for developments that are likely to create significant traffic generation.”

3.3.2 Joint Transport Plan for South West Wales 2015 – 2020

The Joint Transport Plan was developed to provide a framework for improving the connectivity to, from and within South West Wales for 2015 – 2020. The Local Authorities located in South West Wales include Carmarthenshire County Council, Neath Port Talbot County Borough Council, Pembrokeshire County Council and City and County of Swansea.

The Joint Transport Plan for South West Wales 2015 – 2020 replaces the Regional Transport Plan which outlined a strategy for a 20 year period as well as a programme of projects between 2010 – 2015.

With regards to the construction of energy projects such as the Proposed Development, one of the plan's objectives is:

“To implement measures which will protect and enhance the natural and built environment and reduce the adverse impact of transport on health and climate change.”

3.3.3 South West Wales Valleys Local Transport Plan (2015)

The South West Wales Valleys Local Transport Plan (SWWVLTP) sets out the priorities of local authorities for transport schemes in south west Wales for the five year period between 2015 to 2020, as well as their medium and longer term goals for up to 2030. The SEWVLTP objectives which relate to the Proposed Development are as follows:

- ***To improve the efficiency and reliability of the movement of people and freight within and beyond South West Wales to support economic growth in the City Region***
- ***To implement measures which will protect and enhance the natural and built environment and reduce the adverse impact of transport on health and climate change***

3.4 6. To improve road safety and personal security in South West Wales Policy Summary

The proposed development would not give rise to any unacceptable transport effects and suitable mitigation is proposed. The development is considered to accord with relevant Development Plan policy and national planning policy and guidance provisions.

4 Study Methodology

4.1 Introduction

There are three phases of the life of the Proposed Development. All three phases 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 all of the three phases, the construction phase is considered to have the greatest impact in terms of transport. Construction plant, bulk materials and turbine sections will be transported to site and may potentially lead to a significant increase in traffic on the study network.

The decommissioning phase involves fewer trips on the 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.

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.

It should be noted however that the 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 Scoping Direction to the Welsh Ministers in respect of the Environmental Statement (ES) which included a section considering traffic and transport. A full review of that Scoping Direction and other correspondence relating to the scope of the study is provided in the ES Report.

5 Baseline Conditions

5.1 Access Arrangement

The Proposed Development will be directly accessed from two new access junctions. The west access is taken from Ton-Mawr Road and the east from Fforch-dwn Road. The layout of the new access junctions are presented in Appendix A.

The access junctions will be designed to accommodate all predicted loads and traffic for both the construction and operational phases of the Proposed Development.

5.2 Study Area Determination

Consultation with NPTCBC was undertaken to agree the likely scope of the TA in the form of the request for a Scoping Direction. This consultation centred around data collection count sites, likely points of origin for materials to assist in developing a suitable study network.

Access for construction materials are assumed to be from the south-west, via the A465 and Neath. Abnormal loads associated with the wind turbines will be delivered from the proposed Port of Entry (PoE) Swansea to the site via the M4, A465 and via the A474, B4434, B4287, Ton-Mawr Road and Fforch-dwm Road.

The study area is therefore defined by the following road links which are shown in Figure 4.

- Fforch-dwm Road between the eastern site access and junction with Ton-Mawr Road;
- Ton-Mawr Road between Fforch-dwm Road and the junction with B4287;
- The B4287, between junction with Ton-Mawr Road and B4287 / B4434 / Greenway Road signalised junction;
- The B4434, between its junction with the A474 and Neath Abbey Road;
- The A474, between Neath Abbey Road and the B4434 Roundabout;
- The A465 between the M4 and the Aberdulais Interchange; and
- The A4107, between its junction with B4287 and its junction with the M4.

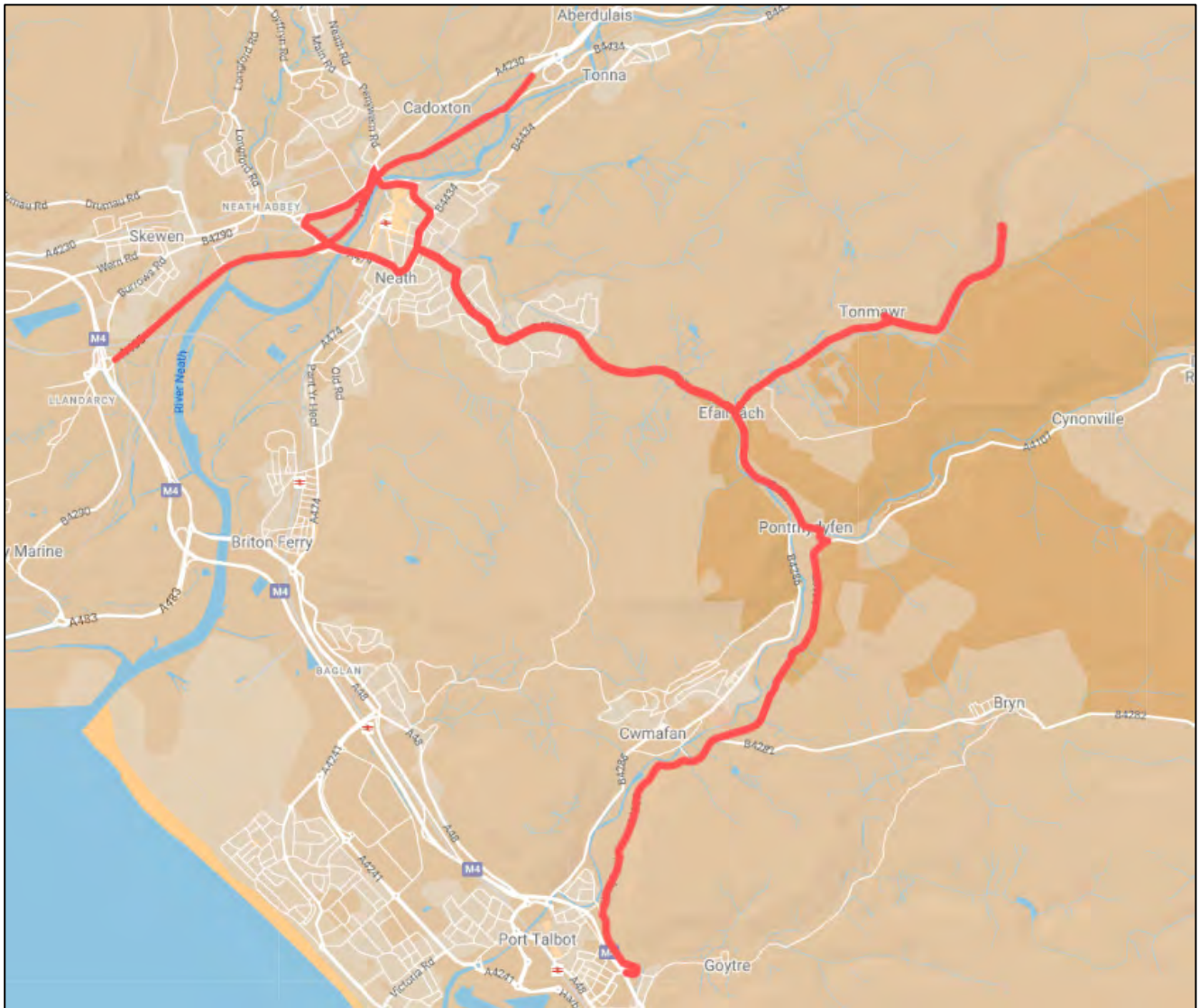


Figure 4 Study Area

5.3 Pedestrian and Cyclist Networks

There are a number of footpaths, byways and bridleways which are located within the site boundary. NPTCBC provided maps identifying and showing the location of the paths in their response to Scoping Direction, which are provided in Appendix B.

A review of the Sustrans NCN map (<https://www.sustrans.org.uk/national-cycle-network>) indicates there are no National Cycle Routes (NCRs) on the National Cycle Network (NCN) in the vicinity of the Proposed Development.

5.4 Road Access

Fforch-dwm Road mainly comprises a narrow single-track road bound by agricultural land. Dwellings are located along approximately 400 m on the road to the east its junction with Ton-Mawr Road, this section of road appears to accommodate two-way flows however evidence of parking in front of the dwellings which reduces the width of the road to one lane.

Ton-Mawr Road is a two-way single carriageway which is subject to 40 mph which reduces to 30 mph in residential areas. Lighting columns are located along the length of the road with footways located in residential

areas. On-street parking is evident in front of dwellings which reduces the width of the road in these locations to one lane.

The B4287 is a two-way single carriageway which is subject to 30 mph in the vicinity of its junction with Tom-Mawr Road and this reduces to 20 mph within Neath and through 20 mph zones. Pedestrian facilities such as paths and footways are located along the B4287 from Neath to the staggered junction for B4287 / Cimla Equestrian Centre and in the vicinity of the B4287 / Ton-Mawr Road junction. Lighting columns run along the majority of the length of the B4287 within the study area. Within Neath, there is a combination of on-street parking along the B4287 as well as parking restrictions in the form of double yellow lines. There is also evidence of parking on footways. There is a restriction on vehicles over 7.5 tonnes along the section of the B4287, to the south of its junction with Ton-Mawr Road and its junction with Glan-Pelenna.

The B4434 is a two-way single carriageway which is subject to 30 mph within the study area, in Neath. The southern section of the B4434 is mainly bound by dwellings, whilst the northern area is mainly retail and commercial in nature. Footways are located on both sides of the road and parking restrictions in the form of double yellow lines are also present.

The A474 is a two-lane dual carriageway which is mainly subject to a speed limit of 50 mph and provides a link to the trunk road network from Neath via the A465 trunk road.

The A4107 is a two-lane single carriageway that connects with the B4287, to the north, and the M4, to the west. The A4107 is mainly subject to the national speed limit which reduces to 40 mph and 30 mph in built-up areas.

Fforch-dwm Road, Ton-Mawr Road, the B4287, the B4434, the A474 and A4107 are maintained by NPTCBC.

The A465 forms part of the trunk road network and is maintained by South Wales Trunk Road Agency (SWTRA) on behalf of the Welsh Government and is subject to the national speed limit. The A465 is a two-lane single carriageway that provides a strategic connection to the M4, to the west and Merthyr Tydfil, to the east.

5.5 Existing Traffic Conditions

In order to assess the impact on the study area, a series of Automatic Traffic Count (ATC) sites were established between 24 and 30 November 2021.

The ATC count sites were as follows:

1. Fforch-dwm Road, approximately 125 m to the east of Fforch-dwm Road / Ton-Mawr Road junction; and
2. Ton-Mawr Road, approximately 160 m to the north-east of B4287 / Ton-Mawr Road.

In addition to the ATC data, further traffic count data was obtained from the Department for Transport (DfT) database for the following locations:

3. B4287, east of Cimla Community Centre (DfT Count Point 811738);
4. A465, west of Neath Abbey Interchange (DfT 30534);
5. A4107, approximately 1.15 km south of junction with B4287 (DfT 78497); and
6. A4107, north of Gwar-Y Caeau (DfT 30655).

The locations of the ATC and DfT sites are illustrated in Figure 5. These sites were identified as being areas where sensitive receptors on the access route will be located.

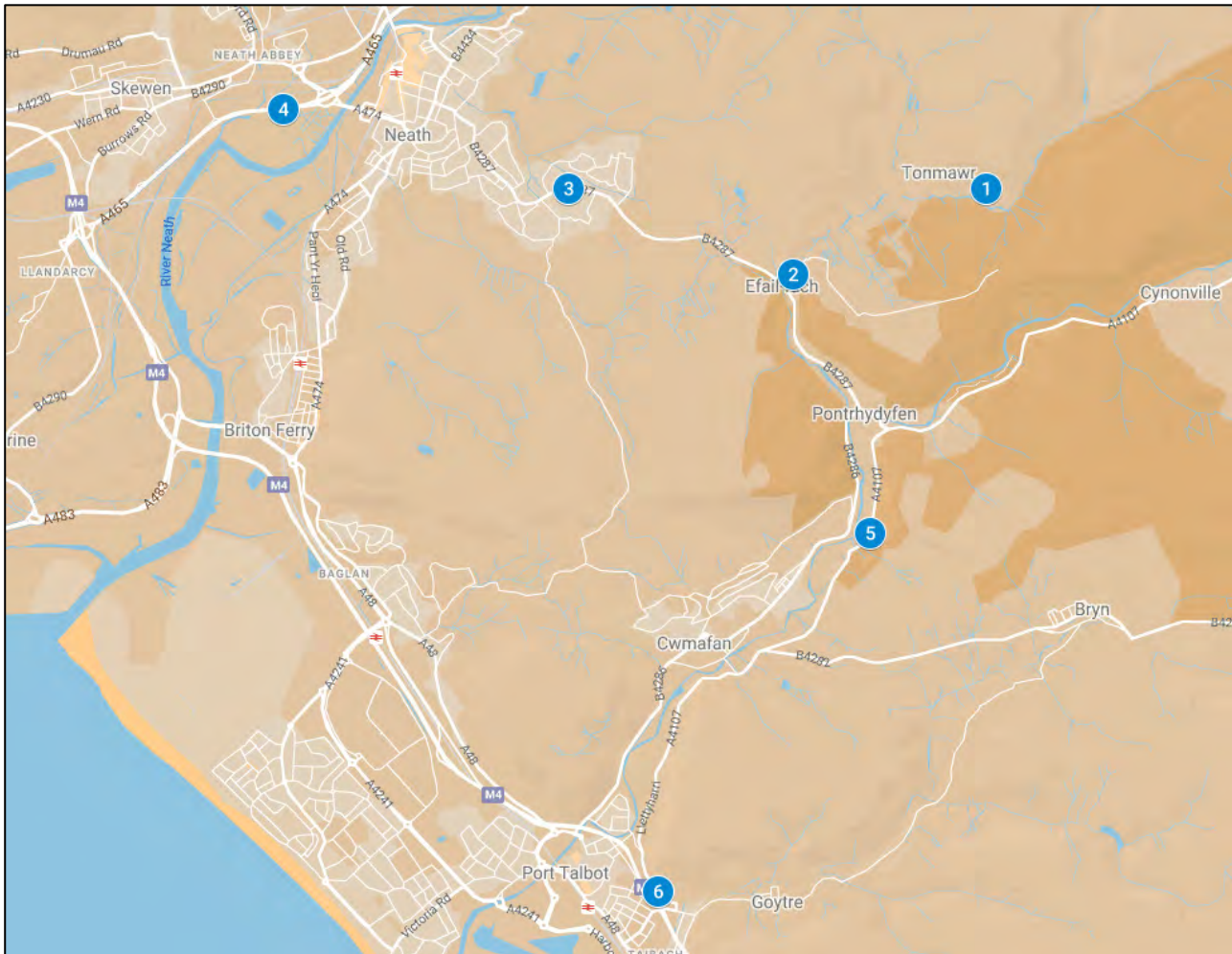


Figure 5 Traffic Count Points

The traffic counters allowed the traffic flows to be split into vehicle classes and the data have been summarised into cars / light goods vehicles (LGVs) and heavy goods vehicles (HGVs) (buses and all goods vehicles >3.5 tonnes gross maximum weight).

In order to estimate 2022 flows which are not affected by traffic restrictions associated with the Covid-19 pandemic, 2019 traffic data was obtained from the DfT database. National Road Traffic Forecast (NRTF) low growth factors were applied to the 2019 DfT flows in order to forecast 2022 flows. The low growth factor for 2019 to 2022 is 1.022. NRTF low growth factors were also applied to the 2021 ATC surveyed flows in order to forecast 2022 flows. The low growth factor for 2021 to 2022 is 1.005.

Table 3 summarises the 24-hour average daily traffic data collected at the count sites.

Table 3 24-hour Average Traffic Data (2022)

Ref. No.	Location	Cars / LGV	HGV	Total
1	Fforch-dwm Road	104	23	127
2	Ton-Mawr Road	1,476	227	1,703
3	B4287, east of Cimla Community Centre	8,564	109	8,674
4	A465, west of Neath Abbey Interchange	42,827	2,094	44,921
5	A4107, approximately 1.15 km south of junction with B4287 (DfT 78497)	4,094	66	4,161
6	A4107, north of Gwar-Y Caeau	5,970	111	6,081

Please note minor variances due to rounding may occur.

The ATC sites used to provide traffic volume data were also used to collect speed statistics. The two-way five-day average and 85th percentile speeds observed at the count locations are summarised in Table 4.

Table 4 Speed Summary (mph)

Ref. No.	Location	Mean Speed	85% ile Speed	Speed Limit
1	Fforch-dwm Road	21.7	28.4	30.0
2	Ton-Mawr Road	27.0	33.3	30.0

The speed survey data indicates that there are issues with speeding along Ton-Mawr Road. This indicates that traffic management will be required at this location and that South Wales Police may wish to consider enforcement spot checks in this area.

13.5.1013.4.11 Comments by some members of the public were noted at the consultation events on the accuracy of the ATC traffic data. Following these events, new ATC surveys were undertaken, however the counter equipment was damaged on two separate occasions and as such it has not been possible to include this data in the updated report.

5.6 Accident Review

Road traffic accident data for the five-year period commencing 01 January 2019 through to the 31 December 2021 was obtained for the B4287 and AIL delivery route within the study area from the online resource crashmap.co.uk which uses data collected by the police about road traffic crashes occurring on British roads.

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

A summary analysis of the incidents indicates that:

- A total of 25 accidents were recorded within the review area, of which 22 were classified as slight, one was classified as serious and two fatalities were recorded;
- One accident which was classified as fatal occurred along the B4287, Tyn-y-Waun near the southbound bus stop which is shown on Google Maps. The accident involved two cars and resulted in three casualties.
- One accident which was classified as fatal occurred on the A465, to the east of the Neath Abbey Industrial Estate Access. The accident involved a pedestrian and a car and resulted in one fatality.
- A total of five motorcycles were involved in accidents within the review area, of which five were classified as slight.
- HGVs were involved in a total of three accidents of which two accidents were classified as slight and one was classified as serious.
- Two accidents involved cyclists which were both classified as slight. One accident was recorded to only involve bicycles, while the other incident also involved a car.
- One accident involved a pedestrian which, as noted above, resulted in a fatality.
- Within the survey period a total of four accidents were recorded at the mini roundabout at B4287 / Westernmoor Road / Beechwood Avenue, which were all classified as slight. Two of these incidents involved motorcycles.
- Three accidents were recorded at the A474 / Windsor Road / Alford Road roundabout, which were all classified as slight. All three incidents involved cars and two involved motorcycles and one involved a bicycle.
- A total of six incidents were recorded at the Neath Abbey Interchange, which were all classified as slight. All six incidents involved cars, while one also involved a motorcycle.

5.7 Future Baseline Traffic Conditions

5.7.1 2025 Traffic Flows, excluding Committed Development Trips

Construction of the project is anticipated to commence in 2025 if consent is granted and is expected to last up to 12 months depending on weather conditions.

To assess the likely effects during the construction phase, base year traffic flows were determined by applying an NRTF low growth factor to the surveyed and obtained flows.

The NRTF low growth factor for 2022 to 2025 is 1.016. This factor was applied to the 2022 traffic data presented in Table 3 to estimate the 2025 Base traffic flows presented in Table 5.

Table 5 24-hour Average Traffic Data, excluding Committed Development Trips (2025)

Ref. No.	Location	Cars / LGV	HGV	Total
1	Fforch-dwm Road	106	23	129
2	Ton-Mawr Road	1,500	231	1,730
3	B4287, east of Cimla Community Centre	8,701	111	8,812
4	A465, west of Neath Abbey Interchange	43,512	2,128	45,640
5	A4107, approximately 1.15 km south of junction with B4287	4,160	67	4,227
6	A4107, north of Gwar-Y Caeau	6,066	113	6,178

Please note minor variances due to rounding may occur.

5.8 Committed Development

5.8.1 Onshore Wind Farm Planning Applications

A review of surrounding planning applications has been undertaken to determine committed developments, i.e. those that have been granted planning consent and that are of significance with regards to traffic generation.

A review of the NPTCBC planning portal has been undertaken. Applications that require a Transport Assessments or are similar renewable projects are considered significant.

NPTCBC has requested that the assessments consider two developments, namely:

- P2018/0493: Adventure Holiday Park located to the south east of the development site. A copy of the Transport Assessment was obtained and by converting the peak hour flows noted in the report, it was noted that daily trips through Traffic Survey Point 5 would be 1,020 two way flows and 480 two way flows through Survey Point 6; and
- P2014/0825: Foel Trawsnant Wind Farm located to the south. A total of 164 two way construction flows are predicted for this scheme and would only pass through Traffic Survey Point 6.

The traffic flows from these committed developments will be included in the future baseline traffic data for the A4107.

The review noted that within the study area road network, there were no other planning applications that were either significant traffic generators or developments with planning consent.

There are a number of renewable and energy projects located close to the proposed development, including Melincourt Wind Farm, Y Bryn Wind Farm and Upper Ogmores Wind Farm. These projects are either not consented (and therefore cannot be considered as committed development) or use access routes that do not impact on the study area road network (with the sole exception of the A465).

Given the nature of the A465, the capacity of the road is such that cumulative construction traffic volumes would not have a detrimental impact on the capacity or operation of the road. As such, no committed development trips need to be included in the assessment.

6 Trip Generation and Distribution

6.1 Construction Phase

6.1.1 Trip Derivation

During the 12-month construction period, the following traffic will require access to the Site:

- staff transport, in either cars or staff mini-buses;
- construction equipment and materials, deliveries of machinery and supplies such as concrete batching materials and crushed rock; and
- abnormal loads consisting of the wind turbine sections and also a heavy lift crane.

Average monthly traffic flow data were used to establish the construction trips associated with the Site based on the assumptions detailed in the following sections.

It should be noted that there may be variances in the following calculations due to rounding. These are not considered to be material.

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 three staff per turbine during the short peak period of construction is likely, the maximum number of staff expected onsite could be around 18 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 24 vehicle trips per day during the peak period of construction.

6.1.3 Abnormal Indivisible Load Deliveries

The turbines are broken down into components for transport to the Site. The nacelle, blade and tower sections are classified as Abnormal Indivisible Loads (AIL) due to their weight, length, width and/or height when loaded. For the purposes of the report, the 'worst case' numbers of components requiring transport are illustrated in Table 6.

In addition to the turbine deliveries, 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 onsite. Smaller erector cranes will also be present to allow the assembly of the main cranes and to ease the overall erection of the 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 turbine components will be delivered per convoy. This will result in 25 convoys on the network, with a total of 148 escort journeys (74 trips in and 74 trips out).

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

Table 6 Turbine Components

Component	Number of Movements per Turbine
Rotor Blades	3
Tower Sections	6
Nacelle	1
Hub	1
Drive Train	1
Nose Cone	1
Transformer	1
Ancillary	1
Site Parts*	0.2

*Sections that are common to multiple turbines

6.1.4 General Deliveries

Throughout the construction phase, general deliveries will be made to site via HGV. These will include fuel, site office supplies and staff welfare. At the height of construction, it is assumed that up to 40 journeys to site are made (20 in and 20 out) per month.

6.1.5 Material Deliveries

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

This assessment assumes that ready-mix concrete deliveries will arrive at the Site from the south via the A465 and B4287. It is anticipated that a total of 1,168 journeys will be made (584 inbound trips and 584 outbound trips).

Foundation reinforcement calculations for the turbine bases and the substation are detailed in Table 7 below.

Table 7 Reinforcement Deliveries

Element	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Turbine Foundation	560	30	16	32
Substation & Other Foundations	50	30	2	4

The access tracks will generally be 5.5m in width and will be designed to accommodate 13 tonne axle loads. In addition to the tracks, existing road widening works, crane pads and compound / substation platforms will be constructed. Aggregate for these works will be imported into the site and no onsite borrowpit working are proposed.

The aggregate material requirements are presented in Table 8.

Table 8 Aggregate Materials

Element	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Combined aggregate requirement	127,702	20	6386	12,772

The access tracks, crane hardstands and compounds will require geotextile in the foundations. Geotextile will be delivered to the Proposed Development in rolls. A total of 151 large rolls may be required onsite and will be delivered by HGV, which will result in a total of 16 journeys (8 inbound trips and 8 outbound trips).

Cables will connect each turbine to the internal substation. Trip estimates for the cable materials are provided in Tables 9, 10 and 11.

Three cables are to be provided within each cable trench and will be backfilled with cable sand. Geotextiles will be used to shield the trench and ducting will be used to protect the cable when it runs under roadways.

Table 9 Cable Trip Estimate

Element	Total Cable Length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Journeys
Cables	24,000	500	48	6	12

Table 10 Cable Sand Trip Estimate

Element	Volume / Installation (m ³)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Cable Sand	2700	20	216	432

Table 11 Cable Ducting Trip Estimate

Element	Length (m)	Inbound Trips	Total Journeys
Ducting	500	5	10

A switching station will be constructed onsite which will require deliveries of building materials and structural elements and will result in 110 journeys (55 inbound trips and 55 outbound trips).

The resulting traffic generation estimates have been plotted on to the indicative construction programme to illustrate the peak journeys on the network. Table 14 illustrates the trip generation throughout the construction programme.

The peak of construction occurs in Month 5 with 162 journeys (24 Car / Lights and 138 HGV journeys).

Table 12 Construction Traffic Profile

Activity	Class	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
Site Establishment	HGV	100	50									100	50
General Site Deliveries	HGV	40	40	40	40	40	40	40	40	40	40	40	40
Infrastructure Aggregate Deliveries	HGV	2554	2554	2554	2554	2554							
Ready Mix Concrete Deliveries	HGV				292	292	292	292					
Reinforcement	HGV				18		18						
Substation Building Materials	HGV						10	50	40	10			
Cable and Ducting Deliveries	HGV					11		11					
Cabling Sand	HGV					108	108	108	108				
Geotextile Deliveries	HGV		4	4	4	4							
Cranes	HGV							40				40	
Solar Farm Deliveries	HGV									50	50	50	
Turbine Deliveries	HGV								61	61	61		
AIL Escorts	Car & LGV								50	50	50		
Commissioning and restoration	Car & LGV											120	120
Staff	Car & LGV	257	515	515	515	515	515	515	515	515	515	515	257
Total HGV	HGV	2694	2648	2598	2908	3009	468	541	249	161	151	230	90
Total Cars / LGV	Car & LGV	257	515	515	515	515	515	515	565	565	565	635	377
Total Movements		2952	3163	3113	3423	3524	983	1056	814	726	716	865	467
Total HGV per Day	HGV	122	120	118	132	138	21	25	11	7	7	10	4
Total Cars / LGV per Day	Car & LGV	12	23	23	23	24	23	23	26	26	26	29	17
Total per Day		134	144	142	156	162	45	48	37	33	33	39	21

Please note minor variances due to rounding may occur.
Daily trip calculations are based on an assumed average of 22 work days per month.

6.1.6 Distribution of Construction Trips

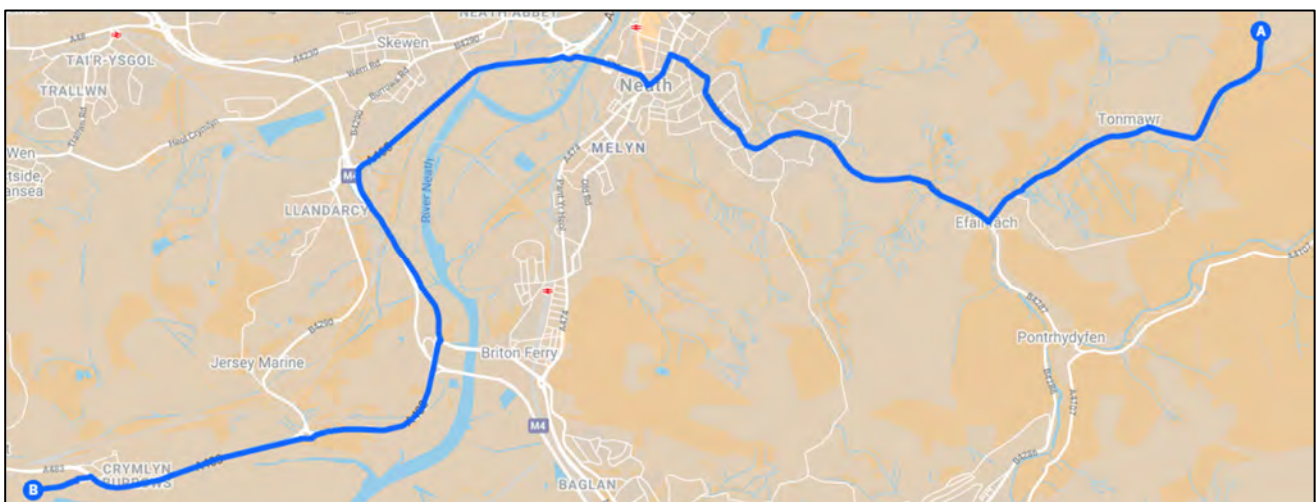
The distribution of development traffic on the network will vary depending on the types of loads being transported. The assumptions for the distribution of construction traffic during the peak months will be as follows:

- All construction traffic will use Ton-Mawr Road, with traffic for the Mynydd Fforch-dwm portion of the site accessing via Fforch-dwm Road. Traffic for the Mynydd Blaenafon section of the site will access the site from Ton-Mawr Road;
- Aggregate / bulk materials and ready-mix concrete will be delivered to the Site from the south via the M4, A465 and B4287;
- Staff working at the Site are likely to be based locally. It is assumed that the majority will be based in Neath, with a small proportion based in either Swansea or Port Talbot; and
- General site deliveries will arrive via the M4, A465 and B4287. These are generally smaller rigid HGV vehicles.

Loads relating to turbine components will be delivered on the route illustrated in Figure 6.

- Loads would depart the port and access the A483 Fabian Way (Eastbound) using a contraflow manoeuvre;
- Loads would proceed eastbound and would join the M4 at Junction 42. They would then continue to Junction 43, where they would depart the motorway and would then join the A465 (Northbound);
- Loads would utilise a proposed cut through of the safety barriers on the A465 to cross onto oncoming traffic lanes before using the A474 onslip to depart the A465. Once the candidate turbine has been selected, post consent, a revised option to undertake a more conventional transit of the junction will be undertaken;
- Loads would continue east on the A474 before turning left onto the B4434;
- Loads would turn right onto the B4287 travelling east;
- At the village of Efail-fach loads will turn left onto the Ton-Mawr Road; and
- Loads will turn right onto the Fforch-dwm Road and continue to the proposed site entrance. Loads for the western portion of the site will access from Ton-Mawr Road via a new access track to the turbine installations and will be towed up to the turbine positions. Loads for the eastern portion will cross an improved bridge and will enter the site access tracks.

Figure 6: Proposed Access Route



Following the distribution and assignment of traffic flows to the study area network, the resultant daily traffic during the peak of construction are summarised in Table 13.

Table 13 Peak Construction Traffic

Ref. No.	Location	Cars / LGV	HGV	Total
1	Fforch-dwm Road	8	50	58
2	Ton-Mawr Road	24	138	162
3	B4287, east of Cimla Community Centre	22	138	160
4	A465, west of Neath Abbey Interchange	2	138	140
5	A4107, approximately 1.15 km south of junction with B4287	2	0	2
6	A4107, north of Gwar-Y Caeau	2	0	2

Please note minor variances due to rounding may occur.

6.2 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 or operational phases as it is considered likely that elements of infrastructure such as access tracks will be left in place and structures may be broken up onsite to allow transport by a reduced number of HGVs.

7 Traffic Impact Assessment

7.1 Construction Impact

The peak month traffic data was combined with the future year (2025) 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 14.

Table 14 Peak Construction Traffic

Ref. No.	Location	Cars / LGV	HGV	Total	Car & LGV % Increase	HGV % Increase	Total Traffic % Increase
1	Fforch-dwm Road	114	74	187	7.57%	214.96%	45.13%
2	Ton-Mawr Road	1,524	369	1,892	1.60%	59.84%	9.36%
3	B4287, east of Cimla Community Centre	8,723	249	8,972	0.25%	124.61%	1.82%
4	A465, west of Neath Abbey Interchange	43,514	2,266	45,780	0.00%	6.49%	0.31%
5	A4107, approximately 1.15 km south of junction with B4287	5,182	67	5,249	0.05%	0.00%	0.05%
6	A4107, north of Gwar-Y Caeau	6,548	273	6,820	0.03%	0.00%	0.03%

Please note minor variances due to rounding may occur.

The total traffic movements are not predicted to increase by more than 46% on all of the study network. Within close proximity of the site access junctions (Fforch-dwm Road and Ton-Mawr Road), the increase in traffic levels is the highest. Whilst the increase in traffic flows are statistically significant, they are generally caused by the relatively low flows on these two road links, which will see an additional 164 journeys (82 inbound trips and 82 outbound trips). This represents approximately eight additional inbound journeys every hour during peak construction activities.

It should also be noted the construction phase is transitory in nature and the peak of construction activities is short-lived. After Month 5, traffic flows significantly reduce to between 45 and 48 journeys per day (24 inbound and 24 outbound trips).

A review of existing road capacity has been undertaken using the Design Manual for Roads and Bridges, Volume 15, Part 5 "The NESA Manual". The theoretical road capacity has been estimated for each of the road links for a 24-hour period that makes up the study area. The results are summarised in Table 17.

Table 15 2024 Daily Traffic Data

Ref. No.	Location	2024 Baseline Flow	2024 Base + Development Flows	Theoretical Road Capacity (12 hr)	Spare Road Capacity %
1	Fforch-dwm Road	129	6720	187	97.2%
2	Ton-Mawr Road	1,730	38400	1,892	95.1%
3	B4287, east of Cimla Community Centre	8,812	38400	8,972	76.6%
4	A465, west of Neath Abbey Interchange	45,640	163200	45,780	71.9%
5	A4107, approximately 1.15 km south of junction with B4287	4,227	38400	5,249	86.3%
6	A4107, north of Gwar-Y Caeau	6,178	38400	6,820	82.2%

Please note minor variances due to rounding may occur.

The results indicate that there are no road capacity issues caused by the Proposed Development and that spare capacity exists within the local road network to accommodate construction phase traffic.

8 Proposed Traffic Mitigation Measures

8.1 Construction Phase

The following measures will be implemented through a Construction Traffic Management Plan (CTMP) during the construction phase. The CTMP will be agreed with NPTCBC and SWTRA prior to construction works commencing:

- Agree AIL route modifications and improvements with NPTCBC and SWTRA and other relevant stakeholders. Details of the proposed mitigation measures are presented in the Transport Management Plan report provided;
- Where possible the detailed design process will minimise the volume of material to be imported to the Proposed Development to help reduce HGV numbers. This includes an investigation to determine if onsite concrete batching can be undertaken to reduce traffic numbers;
- A site worker Staff Travel Plan, including transport modes to and from the worksite (including pick up and drop off times);
- 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 entrances, depending the views of NPTCBC;
- Normal site working hours will be limited to between 0700 and 1900 (Monday to Friday) and 0700 and 1300 (Saturday) though component delivery, foundation pours and wind turbine erection may take place outside these hours. No work is proposed on Sundays and public holidays unless otherwise agreed with the Council;
- Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the Site;
- Adoption of a voluntary speed limit of 15 mph for all construction vehicles through Neath, Cimla and the section from Efail-fach through to each site access junction; and
- All drivers will be required to attend an induction to include:
 - o a tool box talk safety briefing;
 - o the need for appropriate care and speed control;
 - o a briefing on driver speed reduction agreements (to slow site traffic at sensitive locations through the villages); and
 - o identification of the required access routes and the controls to ensure no departure from these routes.

NPTCBC may require an agreement to cover the cost of abnormal wear and tear on the road network leading from the A465 to site.

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 state of the road prior to any construction work commencing. This baseline will inform any change in the road condition during the construction stage of the Proposed Development. Any necessary repairs will be coordinated with the relevant authorities. Any damage caused by traffic associated with the Proposed Development, during the construction period that will be hazardous to public traffic, will be repaired immediately.

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

There will be a regular road edge review and any debris and mud will be removed from the public road to keep the road clean and safe during the initial months of construction activity, until the site entrance and immediate access track works are complete.

8.2 Transport Management Plan

There are a number of traffic management measures that could help reduce the effect of abnormal load convoys. A framework Transport Management Plan (TMP) for abnormal loads accompanies the application in Appendix C.

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;
- Provision of public transport information;
- Mini-bus service for transport of Site staff;
- Promotion of a car sharing scheme; and
- Car parking management.

8.4 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.

Information will relate to expected vehicle movements from the port of entry through to the main site entrance. This will assist residents becoming aware of the convoy movements and may help reduce any potential conflicts.

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

8.5 Convoy System

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

The abnormal loads convoys will be no more than three AILs 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 South Wales Police who have sole discretion on when loads can be moved.

8.6 Onsite Measures via a Path Management Plan (PMP)

Consideration will be given to pedestrians and cyclists alike due to potential interactions between construction traffic and users of the PRow network. These measures will be formulated into a Path Management Plan.

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

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

Users of the PRoWs will be separated from construction traffic through the use of barriers (where permitted and appropriate) and this will ensure that safe access to the Site for recreational purposes will be maintained. Crossing points will be provided where required, with path users having right of way. Appropriate Traffic Signs Manual Chapter 8 compliant temporary road signage would be provided to assist at these crossings for the benefit of all users.

The British Horse Society recommendations on the interactions between HGV traffic and horses states that horses are normally nervous of large vehicles, particularly when they do not often meet them. Horses are flighty animals and will run away in panic if really frightened. Riders will do all they can to prevent this but, should it happen, it could cause a serious accident for other road users, as well as for the horse and rider.

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

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

The British Horse Society recommends the following actions that will be included in the Site training for all HGV staff:

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

Discussions with local equestrian groups will be held during the construction period to keep riders informed of works and activities. These discussions will also allow the contractors to tailor their tool box talks to specific equestrian issues.

8.7 Operational Phase Mitigation

Access tracks will be well maintained and monitored during the operational life of the development. Regular maintenance will be undertaken to keep the access track drainage systems fully operation and to ensure there are no run-off issues onto the public road network.

9 Summary and Conclusions

Pell Frischmann has been commissioned by Naturalis to undertake a Transport Assessment for the proposed Mynydd Fforch Dwm Wind Farm (the Proposed Development), located east of Neath.

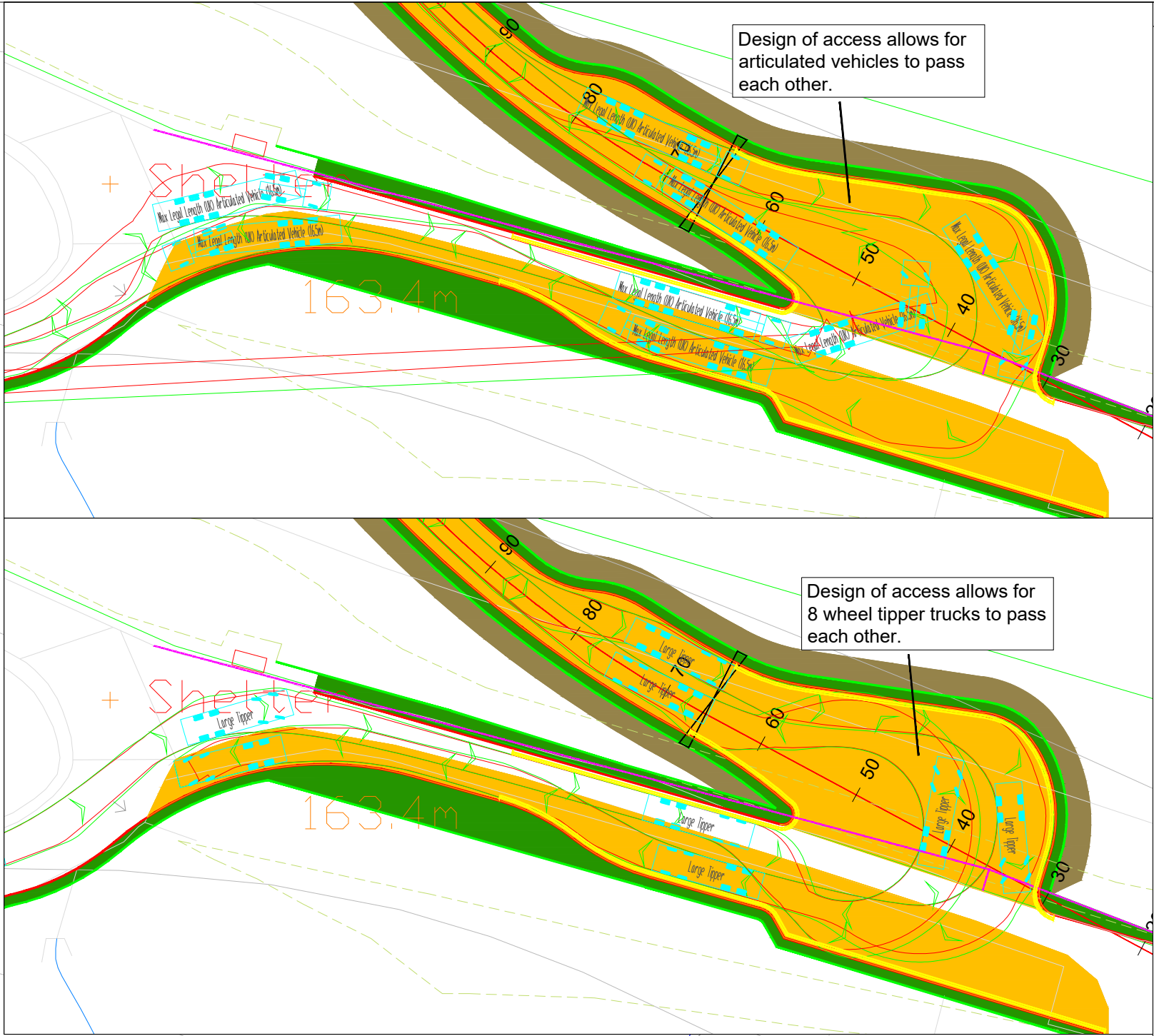
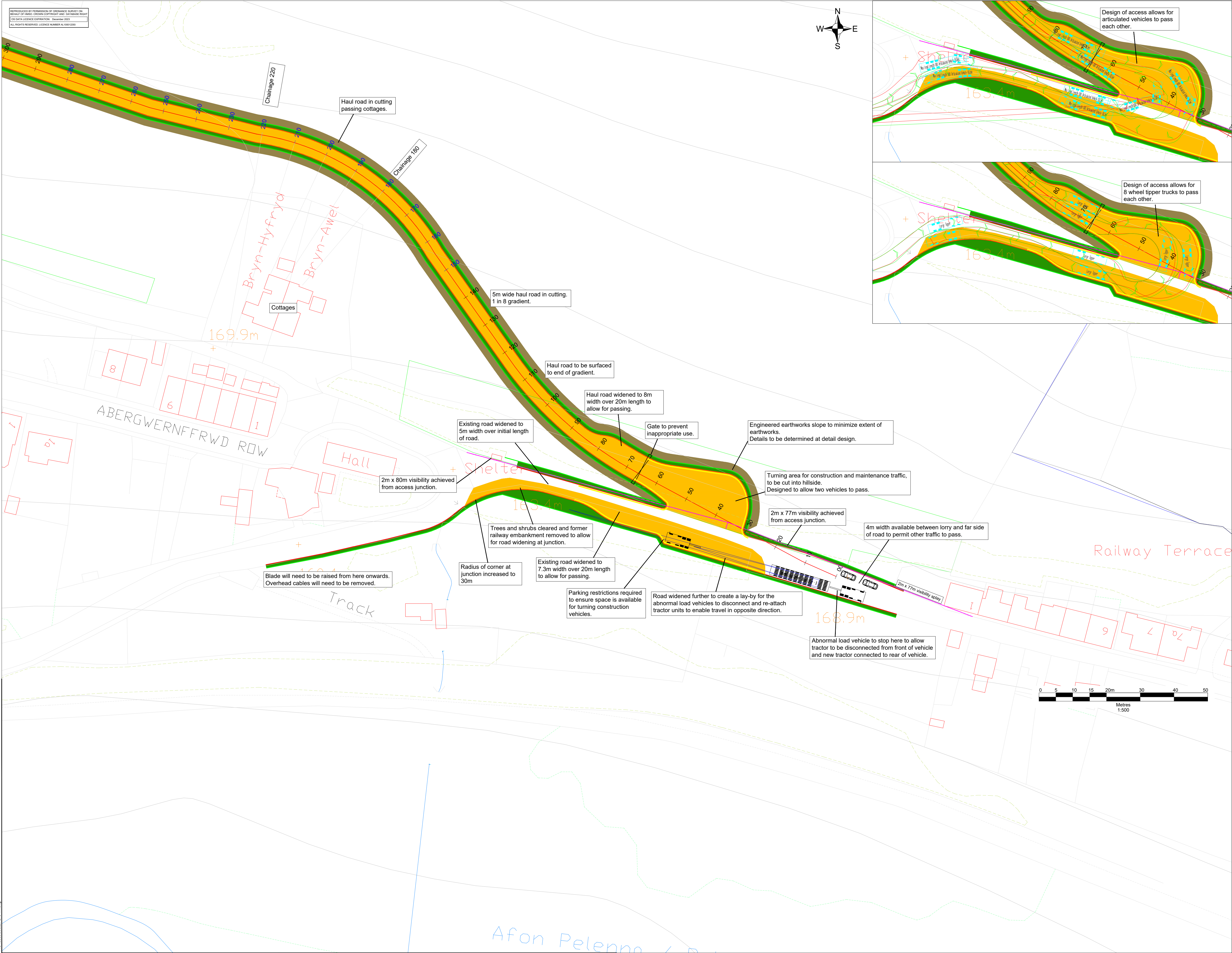
Existing traffic data established a base point for determining the impact during the construction phase and was factored to future levels to help determine the effect of construction traffic on the local road network.

The construction traffic will result in a temporary increase in traffic flows on the road network surrounding the Proposed Development. The maximum traffic effect associated with construction of the Proposed Development is predicted to occur in Month 5 of the construction programme. During this month, an average of 138 HGV movements is predicted per day and it is estimated that there will be a further 24 car and light van movements per day to transport construction workers to and from the Site.

A series of mitigation measures and management plans have been proposed to help mitigate and offset the impacts of both the construction and operational phase traffic flows.

No link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Proposed Development. The effects of construction traffic are temporary in nature and are transitory.

Appendix A Site Access Junctions



NOTES

Revision	By	Chk'd By	Date	Comments



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Site
Myrdd Fforch Dwm Wind Farm
Tonmawr, Wales

Project
HAUL ROAD TONMAWR

Drawing Title
CUTTING DETAIL NEAR COTTAGES
CHAINAGE 180 TO 220

Scale
As shown at A1

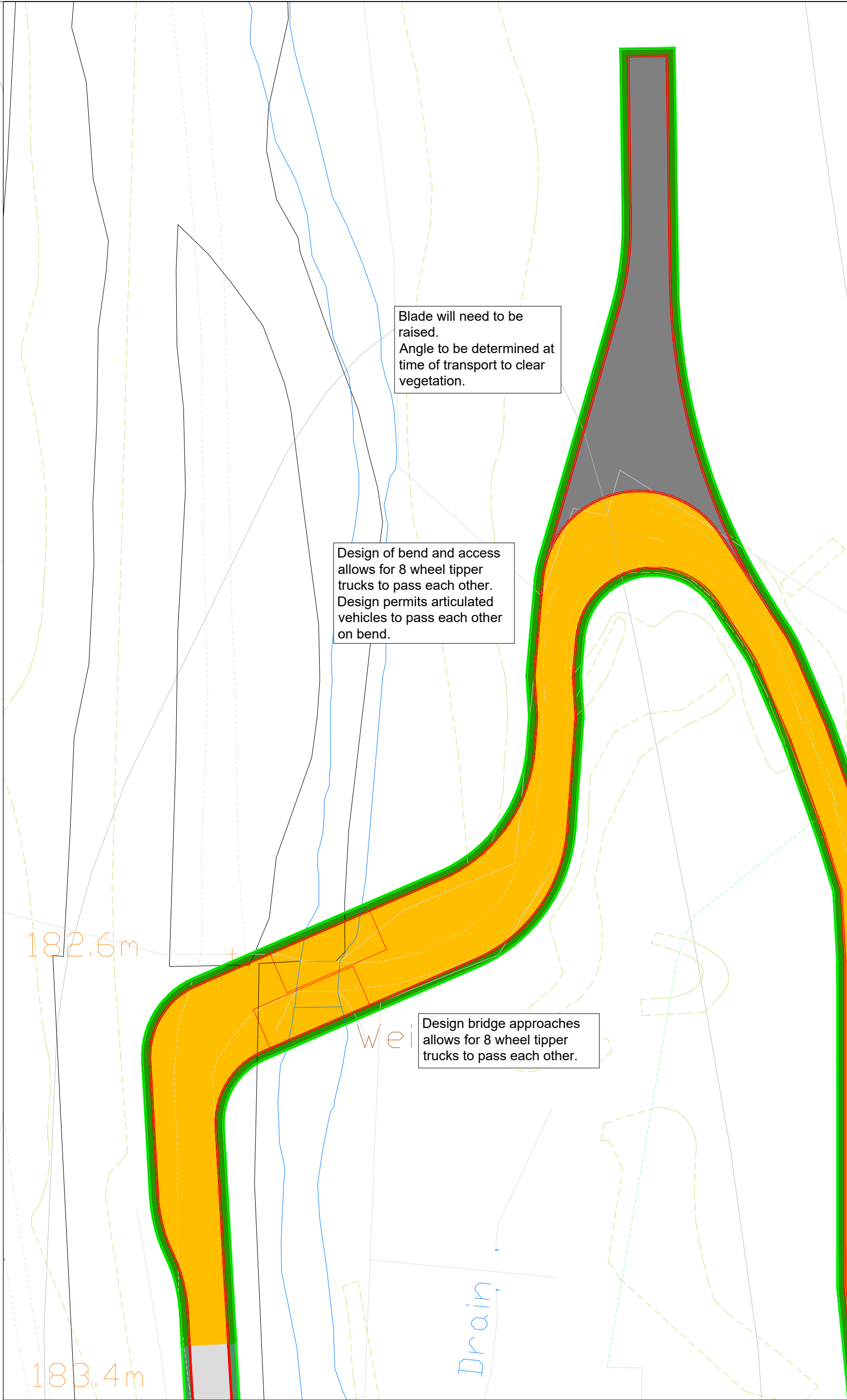
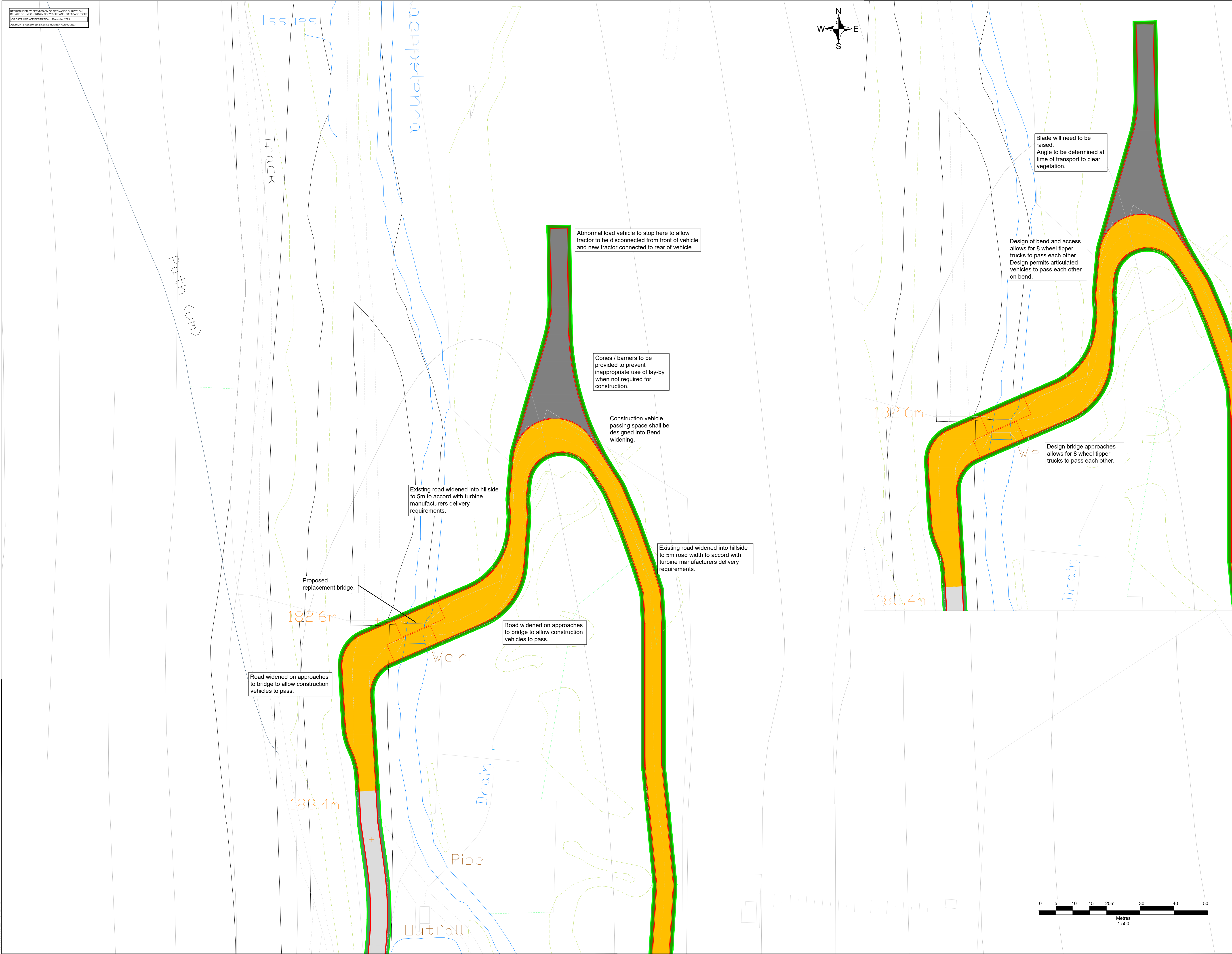
Date
November 2022

Drawing Number
410.10909.00002.H210.R0

Revision
R4

DRAFT

410_10909_00002_H210_R4.dwg



NOTES

Revision	By	Chk'd By	Date	Comments



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Site Myrdd Fforch Dwm Wind Farm Tonmawr, Wales	
Project HAUL ROAD NANT BLAENPELENNNA	
Drawing Title BRIDGE OVER NANT BLAENPELENNNA WATERCOURSE AND ROAD CHANGE OF DIRECTION	
Scale As shown at A1	Date DECEMBER 2022
Drawing Number 410.10909.00002.H410	Revision R2
DRAFT	

Appendix B Active Travel Maps



COUNTRYSIDE AND WILDLIFE

Nicola Pearce
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Drawing Title: P2022/0350 (Map 1)

Plot Ref: Fforch Dwm Windfarm
Fforch Dwm Farm
Pontrhydyfen
Port Talbot
SA12 9SS.

Date: 12th May 2022

Key

- Footpath
- Byway
- Bridleway
- Planning App Area

0 250 m



COUNTRYSIDE AND WILDLIFE

Nicola Pearce
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Drawing Title: P2022/0350 (Map 2)

Plot Ref: Fforch Dwm Windfarm
Fforch Dwm Farm
Pontrhydyfen
Port Talbot
SA12 9SS.

Date: 12th May 2022

Key

- Footpath
- Byway
- Bridleway
- Planning App Area

0 250 m