

Pell Frischmann

Mynydd Fforch Dwm Wind Farm

Transport Management Plan

November 2022

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# 1 Introduction

## 1.1 Report Purpose

Pell Frischmann has been commissioned by Naturalis to undertake a Transport Management Plan (TMP) for the delivery of abnormal loads associated with the construction of 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.

This report has been prepared in accordance with instructions from Naturalis on the above project details. No liability is accepted for the use of all or part of this report by third parties. Any other persons who use any information contained herein do so at their own risk.

This document is indicative at this point in time and it is expected that a revised document will be required via planning conditions, should the site be consented and following confirmation of the exact candidate turbine. The report identifies the key points, issues and management proposals associated with the route that may require remedial works to accommodate the predicted loads. The designs of these remedial works, however, are beyond the agreed scope of works. It is the responsibility of the turbine supplier to ensure that the access route from the Port of Entry (POE) to the site is fit for purpose and that appropriate consideration for all road users has been made in accordance with the relevant health and safety legislation and ruling transport requirements.

Where references are made to work by third parties, Pell Frischmann do not accept any liabilities for these items or issues based upon them.

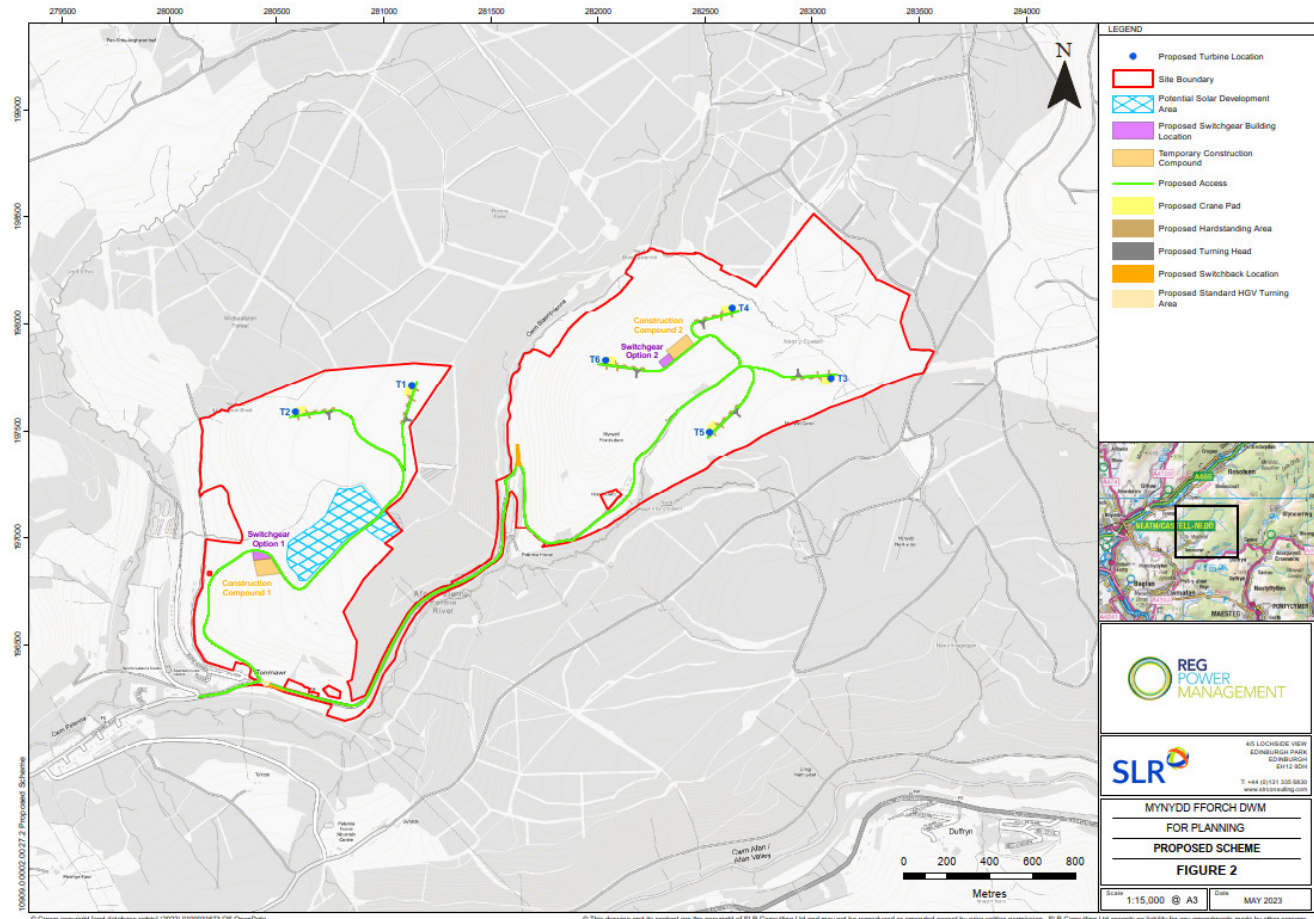
Whilst this report primarily features the requirements of those loads classed as abnormal under current legislation, it also contains elements relevant for the transport of other non-abnormal turbine components and materials.

## 2 Proposed Development

### 2.1 Site Location

The location of the Proposed Development is presented in Figure 1.

**Figure 1 Site Location Plan**



In summary, the Proposed Development will comprise a total of 7 wind turbines with a solar array and associated grid connection and infrastructure.

### 2.2 Candidate Turbines

The Applicant as indicated that they wish to consider the worst case components from a Vestas V150, or Nordex N149 turbine for the site.

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

**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. It has been assumed that the Top Tower from both turbine options can be carried using a step trailer and configured to pass under height restrictions.

Full details of the selected candidate turbine will be provided once the commercial turbine selection process has been undertaken and the Route Survey and TMP will be revised.

It is likely that the turbines used on the site will be delivered as up to 12 abnormal loads and would be escorted by the police in convoys of between two and three convoys depending upon the view of the Police. Sections that do not classify as abnormal, would not need a police escort and can be escorted by civilian escorts.

Indicative component details are noted in Table 3.

**Table 3 Indicative Turbine Components**

| Component      | Number of Components 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                              |

All the trailers used in the transport process are specifically designed for the transport of components or feature custom modifications to suit loads. All feature rear wheel steering and the nacelle and tower load adaptor trailers feature hydraulic lift capabilities to adjust ground clearances.

When not transporting components, the trailers are collapsed so that they do not exceed normal HGV dimensions.

The trailers are built to a high standard and the tractor units are designed for heavy haulage. Regular checks are undertaken on the vehicles on a daily basis as outlined in later sections of the report. As such, the mechanical state of vehicles is kept at a very high level and breakdowns or malfunctions are very rare.

## 2.3 Proposed Abnormal Load 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 will be carried in a 4+7 clamp adaptor style trailer, whereas loads such as the hub, nacelle housing, and top towers will be carried on a six-axe step frame trailer.

**Figure 2 Blade Lifting Trailer**



**Figure 3 Tower Trailer**



## 2.4 Legislative Background

The UK Government describes an Abnormal Indivisible Load (AIL) as “any load that cannot be broken down into smaller loads without undue expense or risk of damage”. AIL movements remain a reserved matter for the UK parliament.

There are four main pieces of legislation that cover AIL movements as defined by the Welsh Government (WG).

- The Road Vehicles (Construction & Use) Regulation 1986;  
This covers all aspects of the vehicles setup from the weights and dimensions through to the braking system and environmental standards.
- The Road Vehicles (Authorised Weight) Regulations 1998;  
This regulation sets the limited maximum weight of the vehicle and axle loading of different vehicle categories.
- The Road Vehicles (Authorisation of Special Types) (General) Order 2003;  
The STGO is for vehicles not covered by either of the above Regulations and covers wind turbine component delivery vehicles which are categorised as N3 for the tractor units and O4 for the specifically designed trailers. It states that the Police, the relevant highway and bridge authorities or the Secretary of State may need to be notified of vehicle movement, dependent on the size of the load. Notifications can be made online through the ‘Highway Agency’s Electronic Service Delivery for Abnormal Loads (ESDAL) System’ or in paper form using the BE16 form for Special Orders.
- The Road Vehicles Lighting Regulation 1989 (Authorisation of Special Types) (General) Order 2003;  
This regulation defines whether front, side and rear lamps and reflectors are mandatory and which ones are permitted and which are not permitted.

Applications for a ‘Vehicle Special Order’ (VSO) should be made to the Vehicle Certification Agency (VCA) and it is recommended that applications are applied for at least 8 weeks prior to planned vehicle movements.

To support the movement of abnormal loads the Police may be required to stop other traffic. In order to bolster existing powers, a Temporary Traffic Regulation Order (TTRO) will be required to cover the delivery period to allow the Police to stop and redirect where necessary.

Wherever possible in this study, Pell Frischmann has referred to specific WG guidance on the transport of abnormal wind farm loads.

## 2.5 General Construction Traffic

An estimate of the traffic associated with the construction phase of the development has been included in the Transport Chapter of the Environmental Statement (ES).

Estimates have been made of the likely number and type of heavy vehicle movements including abnormal loads requiring access to the site to deliver plant, equipment and materials for the various activities and stages of construction (two-wheel vehicle access is not included).

Heavy goods vehicles (HGVs) are required during the construction process for:

- Mobilisation – the initial delivery of plant and equipment to the site;
- Daily service and deliveries – for example the delivery of concrete; and
- Demobilisation (the reverse of mobilisation).

An assessment of the likely significance of effects of the traffic associated with the proposed wind farm during construction and operation has been undertaken. Based on existing traffic data, the estimated volume of construction traffic, the implementation of mitigation measures such as an appropriate traffic management plan

and suitable liaison with the relevant authorities, an assessment of the residual effect has been made. The residual traffic and transport effects are temporary and have been assessed as having no significant or lasting impact.

### 3 Access Strategy

The Proposed Development is split over two hills, Mynydd Blaenafon (western hill) and Mynydd Fforch-dwm (eastern hill). Two new access junctions will be provided from the public road to allow access to newly constructed access tracks from Ton-Mawr Road and Fforch-dwm Road respectively.

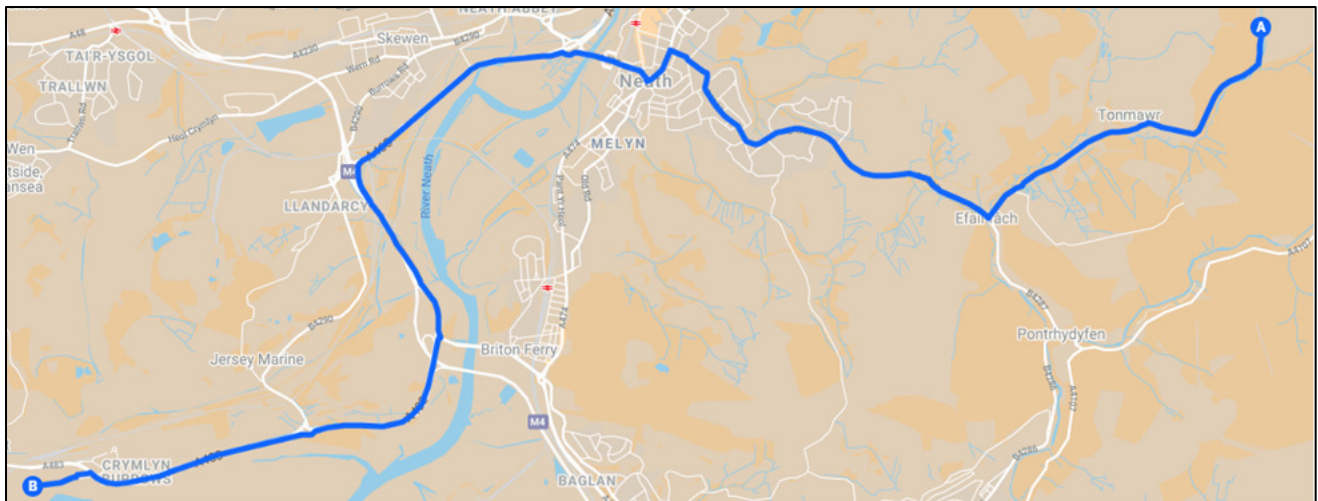
The access junctions to the new access tracks will be designed to accommodate all predicted loads and traffic for both the construction and operational phases of the proposed development.

The proposed Port of Entry (PoE) is Swansea. The port is the closest suitable port to site and as such is in line with the Government's "Water Preferred" policy towards AIL movements. The port has been used by renewables deliveries in the past for a number of wind farms, including Mynydd y Betws, Pen y Cymoedd and Brechfa.

The proposed access route is illustrated in Figure 4 and is as follows:

- 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 depart the A465 at Neath and would join the A474;
- 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 in reverse up to the turbine positions. Loads for the eastern portion will cross an improved bridge and will enter the site access tracks.

**Figure 4 AIL Component Delivery Route**



## 4 Access Constraints

### 4.1 Route Survey

A detailed Route Survey from the port access gates through to the site access junction has been undertaken and is provided in Annex A of this report. This includes swept path assessments of the proposed route for the worst case turbine sections.

### 4.2 Traffic Management Areas

As most of the route is either dual carriageway or urban roads, there is no little scope to provide temporary or new laybys along the route. Trailing traffic can pass the convoy on dual carriageways where the Police decide it is appropriate. Similar overtaking or rerouting of traffic around the convoy can occur in urban areas.

### 4.3 Initial Structures Review

An Electronic Service Delivery for Abnormal Loads (ESDAL) consultation will be undertaken once the exact turbine model to be used on the site has been selected following the commercial tendering process, post consent.

### 4.4 BE16 Permits and Movement Orders

The BE16 permits and movement orders for the movement of the convoys will be applied for by the haulier, once selected by the successful turbine supply firm. The application will detail the movement dates and will confirm any potential road works conflicts and will include a detailed weight review and assessment with all of the relevant ESDAL contacts.

Movement orders will be applied for by the haulier following the granting of the BE16 permits and will be agreed with the Police. This will agree the convoy composition and dates / times of transit.

### 4.5 Use of Banksman

All steering of loads using manual steering will be undertaken by civilian escort drivers. A suitably qualified and approved contractor will support the manoeuvring of loads in constrained sections. The lead traffic management operative will be in contact with the lead escort driver to arrange communications.

The traffic management contractor will also be required to erect warning road signs (at locations advised by the road agencies), to remove cones from temporary use areas and to remove items such as bollards from the roundabout islands.

### 4.6 AIL Movement Co-ordinator

The turbine supplier will appoint their haulier in advance of the movements occurring. The haulier will make the various applications for the AIL movements and shall appoint its senior driver or other responsible person as their Movement Co-ordinator.

The Movement Co-ordinator will act as the main point of contact for the Council, South Wales Trunk Road Agent (SWTRA), trunk road officers, National Highways, planning authorities and the Police. The Co-ordinator will be in place two months prior to loads moving and will be responsible for the implementation of the TMP and for any changes and or updates.

### 4.7 Temporary Traffic Regulation Order

A Temporary Traffic Regulation Order (TTRO) will be applied for in advance of the convoy movement to provide further powers to the Police to allow them to escort the abnormal load convoys.

On the trunk road sections of the route, it is likely that existing rolling trunk road orders would be used and this will be confirmed with the WG prior to the mobilisation phase.

A separate TTRO order will be made for the non-trunk road sections of the route with the local authority and will be made at least 6 months in advance of the first convoy to allow for test runs, as well as the full deliveries.

## 4.8 Land Requirements

A legal land review has been undertaken for all areas where third party works are noted. All land required to deliver the infrastructure associated with the wind farm is either within land controlled by Naturalis or is located within the extents of the adopted highway or is owned by the local authority.

No third-party land rights are required to enable the development of this TMP.

## 4.9 Road Condition Review

A before and after condition review of the road infrastructure changed or altered following use by abnormal loads will be undertaken before and after deliveries. Any damage caused will be repaired at the developer's cost following the post-delivery inspection.

## 5 Convoy Movement Strategy

### 5.1 Convoy Management Strategy

The abnormal loads would be transported in a convoy with Police escorts. The convoy would be made up of the following vehicles:

- 3-4 Police outrider motorcyclists, providing close and advance escort protection;
- 1 police command vehicle, providing a control point for the outriders, located at either the front or rear of the convoy, depending upon movement instructions;
- 1 traffic management vehicle (operating in specific sections such as those in urban areas to provide additional traffic management support to the Police) providing traffic management support to the convoy. Please note that this vehicle would be manned by specifically trained personnel to assist with close convoy traffic management. Other traffic management teams could be stationed along the route to assist at specific points where socket signage, etc are required;
- 1 -3 abnormal loads. For blade deliveries, one blade delivery per convoy is proposed; and
- 1 civilian escort. This vehicle is located behind the last abnormal load and provides steersman support to the AIL drivers.

The convoy is controlled by the Police when on the public highway. All movements are under their instruction.

The Police have previously indicated that they wish to keep the convoy moving as much as possible and will operate a “rolling roadblock”, by continuing ahead of the convoy and halting oncoming traffic where and when required.

Unconstrained sections, where oncoming traffic will be able to pass safely whilst the convoy is moving are referred to as “free running”. Sections where at specified points oncoming traffic will be held by Police to enable the convoy to navigate a constrained length of carriageway are referred to as “held running”.

Oncoming traffic at junctions will be held back by Police escorts to allow the safe passage where loads are manoeuvring. The motorway and dual carriageway sections of the route will not present significant issues for other road users. The loads will remain in Lane 1 or hard shoulders where available. Other road users will be able to safely pass the loads.

Where loads project outwith dual carriageway lanes, the Police have advised that they would not wish passing traffic to pass. To overcome this, the Police have indicated that over-sail of hard shoulders / verges is permitted, or that the convoy would stop to allow overtaking where the officer in charge deems it prudent.

- The convoy would continue to site on the access tracks.

### 5.2 Delivery Timings

The delivery timings have been based upon the experience of other deliveries in Wales. Loads will depart Swansea Docks and will proceed to site on the proposed route. Table 3 indicates the proposed timings with an initial start time of 10:00.

The timings reflect the differences in speed between the blade lifting trailer (average of 10mph) and the non-blade loads carried in more conventional trailers.

**Table 4 Indicative Convoy Timing**

| Location                             | Indicative Blade Delivery Time | Indicative Non-Blade Delivery Time |
|--------------------------------------|--------------------------------|------------------------------------|
| Depart Swansea Docks                 | 10:00                          | 10:00                              |
| Arrive at Junction 42 of the M4      | 10:27                          | 10:12                              |
| Depart the M4 and join the A465      | 10:41                          | 10:18                              |
| Depart the A465 and join the A474    | 10:58                          | 10:29                              |
| Arrive at the B4434 / B4287 Junction | 11:12                          | 10:36                              |
| Arrive Efail-fach                    | 11:42                          | 10:47                              |
| Arrive at Mynydd Blaenafon Access    | 11:57                          | 10:52                              |
| Arrive at Mynydd Fforch-dwm Access   | 12:14                          | 10:58                              |

The timings would be controlled by the Police and the details provided are an estimate. They do however demonstrate that loads can be transported outside peak hours and would not interfere with school pick up / drop off times).

Should convoys of three components per day be permitted, deliveries could be complete within twenty days (thirty days if convoy lengths are restricted to two components).

A review of civilian daylight hours will be undertaken once delivery dates have been established to ensure that the proposed journey times will be conducted in daylight hours and will have a sufficient safety margin.

A review of sensitive locations and journey times will be agreed with the haulier in the finalised TMP. Convoys will avoid peak hour times on the road network and will avoid passing schools at sensitive times.

### 5.3 Queue Delays

Delays created by wind farm deliveries on routes such as that proposed are generally not unreasonable and no worse than those incurred by the movement of agricultural vehicles or static caravans, both of which regularly use sections of the proposed route, and neither of which are subject to the restrictions that wind turbine loads are placed under.

The temporary inconvenience that could be caused by delivery vehicles must be viewed in the context that the delivery period is restricted to no greater than 8 weeks and is a 1 in 35 year event.

During actual deliveries, a careful monitoring of trailing traffic will be made by the Police escort who will judge when the convoy is to pull over to allow following traffic to pass. The police will also review the likely conflicts between the convoy and oncoming traffic where constraints exist. It is suggested that the convoys operate outwith the peak times, preferably in the morning to reduce potential conflicts with other road users. Given that the police will have the final say on convoy movements, it is difficult to further estimate with any degree of certainty the level of delay to other road users at this stage, save to say that any such delay will clearly be limited and well within guidance.

### 5.4 Advance Warning Signs

Advance warning signs would be installed on the approaches to the affected roads network. Temporary signage advising drivers that abnormal loads will be operating could be erected on the non-dual carriageway sections of the route and the roads leading from the harbour. Signs such as the examples shown in Figure 5 could be installed to help assist drivers and pedestrians.

Figure 5 Indicative Information Signs (Left Vehicular / Right Pedestrian)



The purpose of this type of vehicular signage is to help improve driver information and allow drivers of oncoming traffic to consider proceeding to the nearest convenient passing bay (when directed to by the Police or escorts), or breaking their journey until the convoy has moved on.

The temporary pedestrian warning signs would be erected within urban areas near Nelson and on the Common to alert pedestrians of the proposed loads. The time and date section of the sign could be written in marker pen so to allow re-use of the sign during the life of the project. The signs would be fixed by means of cable ties (or similar) to existing street furniture or fence posts.

## 5.5 Public Information

Information on the movement of abnormal load convoys should be provided to local media outlets to help assist the public. Information could be provided to local newspapers and radio stations, which may include:

- BBC Radio Wales;
- BBC Radio Cymru;
- Heart South Wales; and
- South Wales Guardian.

Information would also be supplied to local social media channels. It is hoped that this level of information will make residents aware of convoy movements and help reduce any potential conflicts.

Pell Frischmann also suggest that the developer may wish to consider producing a local newsletter for distribution to properties along the most affected sections of the proposed access routes, advising of convoy movements and the measures put in place to ensure the safe and efficient operation of the road network.

It may be possible, Police permitting, to provide convoy movement updates on the Police Twitter feed. Consultation with the Police will be held on other forms of communication that could also be utilised.

## 6 Traffic Management Plan

The Transport Management Plan by its definition is a live document and should be updated on a regular basis to reflect changes in road, load and operational conditions that may develop over the delivery period.

In addition to the finalised TMP, a condensed version known as a Driver Information Pack (DIP) will be provided to AIL drivers that sets out all the operational requirements such as:

- Welfare arrangements;
- Incident plans;
- Requirements for Tool Box Talks;
- Weather and road condition checks;
- Safety equipment requirements; and
- Other pertinent safety briefing material.

### 6.1 Daily Initial Checks

Before the convoys depart the POE, the lead convoy driver will check weather and traffic conditions and advise colleagues through a “Tool Box Talk”. The following websites provide relevant weather and traffic updates:

| Traffic updates                                                                        | Weather conditions                                                   |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <a href="http://www.traffic-wales.com">www.traffic-wales.com</a>                       | <a href="http://www.metoffice.gov.uk">www.metoffice.gov.uk</a>       |
| <a href="http://www.theaa.com/traffic-news/index">www.theaa.com/traffic-news/index</a> | <a href="http://www.bbc.co.uk/weather">www.bbc.co.uk/weather</a>     |
| <a href="http://www.bbc.co.uk/travelnews">www.bbc.co.uk/travelnews</a>                 | <a href="http://www.uk.weather.com">www.uk.weather.com</a>           |
| <a href="http://www.transportdirect.com">www.transportdirect.com</a>                   | <a href="http://www.weatheronline.co.uk">www.weatheronline.co.uk</a> |
| <a href="http://www.rac.co.uk">www.rac.co.uk</a>                                       |                                                                      |

### 6.2 Potential Urban / Built Up Area Conflict Points

The urban areas along the route pose different challenges for the abnormal loads. Whilst the vehicle speeds will be less than those in the rural or motorway sections of the route, there are more potential conflicts with other road users to be aware of. These include:

- Pedestrians and cyclists;
- Local vehicular traffic;
- Parked vehicles;
- Side junctions; and
- Street furniture.

Within the urban / built up areas, the convoy escorts and other loads will need to be aware of all road and footway users at turn sections within the route.

### 6.3 Daily Management Updates

Daily updates to the general convoy management will be provided at the daily Tool Box Talks, where drivers and escorts will be fully briefed on the specific requirements of the convoys on that day. During these sessions, the following checks will be made:

- That staff are aware of the TMP and have a copy of the latest version of the Driver Information Pack (DIP) in the cab;

- That all staff have the appropriate licences, safety equipment and clothing;
- That all radios and mobile telephones are fully charged and that the correct channels are known;
- That the convoy is aware of its legal responsibilities for the country of operation;
- That drivers are briefed on welfare issues, including provisions for sleep and rest during the day;
- That the convoy is aware of client, haulier and turbine supplier health and safety requirements and method statements; and
- That all staff have been inducted on site rules before entering the site boundary and that induction is undertaken immediately upon arrival. Details of induction process are to be provided by the main contractor to the haulier before loads commence.

## 6.4 Communications Strategy

In order to ensure effective communications during transit, all vehicles within the convoy will be fitted with Citizens Band (CB) radio equipment. The CB units on the transporters will be hard-wired to reduce the risk of power failure during transit. All escort vehicles will be fitted with hand held battery powered CB radio sets. Spare sets should be carried to allow communications with the Police during transit, if the Police request it only. In addition to the CB sets, all vehicles will be fitted with hands free mobile phones, to allow contact with third parties without CB devices and that would also act as an alternative form of communication in an emergency. Mobile phones will only be used when stationary.

A communication protocol, between the escorting Police officers and the emergency services so that in the case of a blue light emergency, the convoys would be diverted to the nearest lay-by / hold point area.

In the case of emergency vehicles that need to pass the convoy en-route to a third party emergency, the escorting police will be informed by radio of the incident and the requirement for vehicles to pass unhindered. At that time, a police escort vehicle, which is likely to comprise a motorbike, will travel ahead of the convoy to the next convenient holding point(s) at which the convoy could be manoeuvred such that clear passage can be afforded to the emergency vehicle (including placing the convoy on a footway or verge to allow emergency blue light access). In the unlikely event that such an area is a considerable distance away, the emergency services will be informed of this and a decision taken concerning the necessity to reroute the emergency vehicle(s). Alternatively, once the wide area has been reached, the police escort will marshal the AIL convoy such that safe and speedy passage is afforded to the emergency vehicle.

This entire process will be controlled by the escorting police officers, in contact with the emergency services control centre.

## 6.5 Contingency and Incident Plans

Contingency details for incidents such as tyre punctures, breakdowns and accidents are described below and should be observed. In all situations the safety of personnel and the public is paramount and reasonable steps to ensure safety at a site should be undertaken. In the event of an incident, it should be reported to the appropriate person immediately.

These items are relevant for both abnormal and non-abnormal loads. Where the police are escorting, their instructions will take precedence and the lead Police officer must be informed should an issue on transit occur.

In the event of vehicle breakdown or incident the following details from The Highway Code must be observed:

- Try to remove the vehicles off the road if possible. On the motorway / dual carriageway, if possible, depart at the nearest exit or service area. If it is not possible to depart the motorway, pull onto the hard shoulder as far left as possible;
- If on a dual carriageway, try to stop near to an emergency telephone;
- When stopped, close the convoy up to reduce the length where possible;
- Warn other traffic by using hazard warning lights if the vehicles are causing an obstruction;

- Drivers should depart using the left-hand side door. Unless staff are threatened by their situation, all staff should depart the vehicles;
- Use PPE at all times when outside the vehicle;
- Place a warning triangle on the road at least 100 metres behind the last convoy vehicle on the same side of the road. Use the warning cones and flares carried in the escorts to protect the end of the convoy by creating a diagonal around the back of the last vehicle. Always take great care when placing or retrieving them. The Highway Code indicates that warning triangle should not be used on motorways;
- Consult with the Police escorts to identify what additional warning devices should be deployed;
- Keep sidelights and beacons on;
- No staff should stand between the convoy vehicles and oncoming traffic. Staff should not stand between vehicles in the convoy. Staff should be located at locations where all road users can see them;
- Staff should wait on the verge and where barriers are provided, stay behind them;
- In the event of injuries, do not move injured people unless they are in immediate danger from fire or explosion. Staff must not remove a motorcyclist's helmet unless it is essential to do so and should be prepared to give first aid if appropriately trained;
- In the case of injuries, all staff must stay at the scene until the emergency services arrive;
- In the event if a collision which causes damage or injury to any other person, vehicle, animal or property, the convoy must stop, provide contact details and addresses, provide vehicle registration details to third parties. The police escort should be informed and the incident reported within 24 hours to the local police station;
- In the event of a collision, all staff should obey directions from the escort Police Officers or attending officers;
- In the event of a breakdown, the nature of the breakdown should be reported to the indicated assistance provider. Obtain advice from the haulier Project Manager; and
- In the event of a burst tyre the appropriate repair provider should be contacted to come and replace the damaged item. Staff should not attempt to replace any HGV tyres themselves although if possible, the HGV should continue to the next lay-by if safe to do so in order to reduce delays. A spare wheel can be carried in the escort vehicles to be fitted by a specialist technician to help speed up the process.

These items are relevant for both abnormal and non-abnormal loads. Where the police are escorting, their instructions will take precedence and the lead Police officer must be informed should an issue on transit occur. To ensure the minimum delay and inconvenience, the turbine supplier has recovery agreements set up with suitable contractors along the route.

For minor vehicle faults, repairs could be made at the roadside or existing laybys as per any other road user, with the police escort helping divert traffic around the temporary restriction. The traffic management team supporting the convoy This provision is far in excess of what other road users would be able to deploy in an emergency.

In the event of the police being required for an emergency, the convoy would be stopped at the nearest safe location and the civilian and traffic management contractor deployed to allow traffic to pass in safety using stop / go boards until the Police returned. Such occurrences where all Police officers depart a convoy are exceptionally rare, if not unheard of. It is more likely that the Police escort numbers would reduce and the convoy continue with a smaller escort.

## 6.6 Third Party Accident/Breakdown on the Route

In the eventuality of a third-party accident or breakdown on the delivery route, ahead of the AIL convoy, it may be necessary for the convoy to be slowed or temporarily halted until safe passage can be assured. The police escort would take control of the convoy and monitor manoeuvring of the convoy into a safe location, which would generally comprise the nearest suitable emergency layby or hard shoulder. The convoy would be held at this location until the highway ahead was judged by the police to be sufficiently clear to enable safe passage of the convoy.

Should it be required for Loads to be temporarily halted, traffic in the vicinity of the convoy will be marshalled by a combination of the Police and civilian escorts.

If it becomes necessary to halt an AIL convoy overnight, the convoy will be moved to occupy a nearby lay-by, or number of lay-bys. Security staff will be present to ensure security of Loads overnight and temporary signage will be erected, where necessary, to warn advancing motorists of the presence of the AIL or convoy. Where necessary on safety grounds, traffic will be controlled by means of police escort staff.

## 6.7 Equipment Requirements

Each of the convoy vehicles must be suitably equipped with hazard warning devices to warn all other road users. All the tractor, trailer and escort vehicles operating on the project must have the following:

- Tractor units to have beacon bars on the roof and 3M reflective markings on both sides;
- Trailer units to have amber beacons on the rear with 3M reflective markings on both sides;
- All escort vehicles will have beacon bars on the roof, with 360 degree motion for all round visibility, and 3M reflective markings; and
- Certified cargo lashing straps are to be used at all times. Certification must be carried and made available for inspection, kept within the cab.

All hazard warning equipment must be checked and cleaned at the start of each day. Additional cleaning of the warning equipment may be required throughout the day and must be undertaken when required.

All escort vehicles will carry the following equipment:

- 8 x Reflective Road Cones;
- 1 x Flash Light;
- 1 x Spare High-Vis Waistcoat;
- 8 x Flare Alert Beacons;
- 1 x Auxiliary Rechargeable CB Radio;
- 1 x Spare Hard Hat;
- 2 x Warning Triangles;
- 1 x Fire Extinguisher (dry powder);
- 1 x pack of disposable dust masks;
- 1 x Spill Kit;
- 1 x Van/Truck First Aid Kit;
- 1 x safety spectacles;
- 1 x Emergency Hammer ; and
- 1 x Roll of Barrier Tape.

All relevant personnel must have the appropriate Personal Protective Equipment (PPE). All PPE clothing must be 'CE' marked to show it meets the European standards and should be appropriate for use in Motorway situations (i.e. must be full coats with reflective bands on the arms). Drivers must be issued with:

- Hard hat (within certification date);
- High-Vis (jacket / coat and trousers);
- Lace up steel toe capped safety boots; and
- Gloves.

## 6.8 Co-ordinator Role

To provide a contact between the haulier, developer and stakeholders, a Travel Co-ordinator will be appointed by the turbine supplier firm to act as a conduit for information between all interested parties and to make the lines of communication clear and efficient.

The Co-ordinator would liaise with the local authorities to ensure wherever possible, that AIL traffic did not coincide with special events where traffic flows may be sensitive along the route.

## 6.9 Dates of Movement

The dates for actual movements cannot be practically included in the TMP prior to planning consent being made. In addition there are many other variables that are associated with AIL movements, including, but not limited to:

- Availability of the Police (not generally known until at least three weeks to loads moving));
- Availability of the site to accept loads (weather and progress dependent);
- Availability of the haulier and their resourcing plan (generally set in discussion with the Police circa 3 week to the start of movements); and
- Weather conditions on the day (loads would not be moving in adverse conditions).

For these reasons, it is not possible to provide a definitive list of dates when loads will be operating at present or a schedule of load movements.

Deliveries are expected to operate on the network Monday – Saturday, with no movements occurring on Sundays during the delivery period as per previous discussions with the Police on other projects.

When date details are more confirmed, the developer will provide a schedule to all relevant stakeholders detailing the movements. Similar details will be provided by the haulier via the BE16 and Movement Order process.

## 7 Summary

Pell Frischmann were commissioned by Naturalis to produce a Transport Management Plan for the delivery of abnormal loads associated with the proposed Mynydd Fforch Dwm Wind Farm.

This report identifies the key points and issues associated with the route. It is the responsibility of the wind farm turbine supplier to ensure that the access route from the port of entry to the sites are fit for purpose and that appropriate consideration for all road users has been made in accordance with the relevant health and safety legislation and ruling transport requirements.

The access review has been undertaken from Swansea through to the site access junction. The route is suitable for the movement of the anticipated loads, although careful manoeuvring will be required through a small number of sections along the route and into the site access.

A series of operational measures have also been detailed to further aid the delivery of equipment and to minimise the impact of convoys on the network. These include the provision of warning signs and incident contingency plans.

The temporary inconvenience that could be caused by delivery vehicles must be viewed in the context that the delivery period is restricted to 1 in 35 year event. Police escorts, assisted by civilian escorts will also ensure road user safety.

Annex A Route Survey Report