

Richard Thomas and Co (Hydro) Ltd

Solar Farm Development:

Land and buildings at Morfa Pingett, Pembre, Caerfyrddin

Construction Traffic Management Plan

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1. Introduction

- 1.1. This Transport Management Plan has been prepared by Richard Thomas and Co (Hydro) Ltd and solar developer Ikaros Solar Belgium NV to accompany the submission of the planning application for the development of previously developed land as a solar photovoltaic (PV) farm to generate electricity, which will be fed into the national grid, at Morfa Pingett, Pembrey, Carmarthenshire. The development is proposed to produce 1.6 Mega Watt peak (MWp) of renewable electricity, plus restore and reconstruct buildings within the site for business use inclusive of subordinate accommodation within the main building.

2. Development Proposal and Planning Policy

- 2.1. The **Planning Policy Wales (PPW) Edition 10**, December 2018, Technical Advice Note 18: Transport (2007) and with further reading One Wales: Connecting the Nation the Wales Transport Strategy 2008 combined provide the guidance for preparing the transport statement. The documents outline the minimum information requirements for Transport Statements. The guidance was used in the preparation of this Transport Statement. The Statement covers relevant National Policy and sets out the vehicle ingress and egress movements at the proposed site. The assessment highlights possible impacts upon the local transport infrastructure.
- 2.2. Planning Policy Wales section 4.1 Moving within and between places, explains at para 4.1.1 The planning system should enable people to access jobs and services through shorter, more efficient and sustainable journeys, by walking, cycling and public transport.
- 2.3. PPW para 4.1.4 Land use and transport planning must be integrated. The planning system must ensure it enables integration:
 - within and between different types of transport;
 - between transport measures and land use planning;
 - between transport measures and policies to protect and improve the environment;and
 - between transport measures and policies for education, health, social inclusion and wealth creation.
- 2.4. PPW para 4.1.6 suggests planning authorities must set out in their development plan an integrated planning and transport strategy. The relevant points are:
 - integrate and co-ordinate sustainable transport and land use planning;
 - facilitate and promote accessibility for all;
 - reduce the need to travel;
 - reduce dependency on private vehicles;
 - prioritise and support walking, cycling and use of public transport;
 - support the uptake of Ultra Low Emission Vehicles;

- reduce transport related airborne pollution; and
- facilitate the provision of transport infrastructure and necessary sustainable transport improvements and development.

2.5. PPW para 4.1.9 provides “the planning system has a key role to play in reducing the need to travel and supporting sustainable transport, by facilitating developments which:

- are sited in the right locations, where they can be easily accessed by sustainable modes of travel and without the need for a car;
- are designed in a way which integrates them with existing land uses and neighbourhoods; and
- make it possible for all short journeys within and beyond the development to be easily made by walking and cycling.”

2.6. PPW para 4.1.11 exemplifies green transportation, “The transport hierarchy recognises that Ultra Low Emission Vehicles also have an important role to play in the decarbonisation of transport, particularly in rural areas with limited public transport services.”

2.7. PPW para 4.1.39 encourages the use of Ultra Low Emission Vehicles (ULEVs), the planning system should encourage and support the provision of ULEV charging points as part of new development.

2.8. PPW para 4.1.57 considers, “Planning applications for developments, including changes of use, falling into the categories identified in TAN 18: Transport must be accompanied by a Transport Assessment.” Also, “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.”

2.9. Finally, PPW para 4.1.39 iterates, “To encourage the use of Ultra Low Emission Vehicles (ULEVs), the planning system should encourage and support the provision of ULEV charging points as part of new development.

Where car parking is provided for new non-residential development, planning authorities should seek a minimum of 10% of car parking spaces to have ULEV charging points. Planning authorities should ensure the level, location and type of charging provision is appropriate to the scheme and local circumstances. Consideration should be given to:

- the time users are likely to be present at the site;
- the number of vehicles accessing the site;
- the number of existing charging points in the immediate and wider area; and
- other proposed emission mitigation measures.”

3. Technical Advice Note 18: Transport (2007)

Tan 18 provides base requirements updated by the Planning Policy Wales (PPW) Edition 10, December 2018, the following paragraphs are pertinent:

3.1. Para 2.3 Integration of land use planning and development of transport infrastructure has a key role to play in addressing the environmental aspects of sustainable development, in particular climate change and the outcomes identified in the Assembly Government's Environment Strategy. Integration can help the Assembly Government achieve these environmental outcomes, together with its wider sustainable development policy objectives by:

- promoting resource and travel efficient settlement patterns;
- ensuring new development is located where there is, or will be, good access by public transport, walking and cycling thereby minimising the need for travel and fostering social inclusion;
- managing parking provision;
- ensuring that new development and major alterations to existing developments include appropriate provision for pedestrians (including those with special access and mobility requirements), cycling, public transport, and traffic management and parking/servicing;
- encouraging the location of development near other related uses to encourage multi-purpose trips;
- promoting cycling and walking;
- supporting the provision of high quality, inclusive public transport;
- supporting provision of a reliable and efficient freight network;
- promoting the location of warehousing and manufacturing developments to facilitate the use of rail and sea transport for freight;
- encouraging good quality design of streets that provide a safe public realm and a distinct sense of place; and
- ensuring that transport infrastructure or service improvements necessary to serve new development allow existing transport networks to continue to perform their identified functions.

3.2. Para 3.14 Local authorities should adopt a positive approach to development associated with farm diversification in rural areas, irrespective of whether farms are served by public transport (PPW paragraph 7.3.3). This type of small-scale economic development is attached to existing farm businesses that are often situated in relative rural isolation. It is important that a realistic assessment of the transport impacts is made, with a view to reconciling traffic issues with the benefits of encouraging diversification. In the majority of cases, it is expected that any transport problems

should be capable of being resolved by appropriate minor junction or other highway modifications.

- 3.3. Para 5.15 Well designed and implemented traffic management measures can help to secure planning objectives in a number of ways, including:
- reducing community severance, noise, local air pollution and traffic accidents;
 - promoting safe walking, cycling and public transport;
 - improving the attractiveness of urban areas by helping to avoid or manage congestion;
 - controlling on street parking (including resident parking schemes) in areas of high parking demand;
 - promoting safer road conditions leading to improved opportunity for children's safety and play; and
 - promoting safer road conditions in rural areas and reducing the impact of roads on the environment whilst maintaining access for rural businesses.

4. Carmarthenshire Local Development Plan (LDP)

Relevant policies are provided below:

4.1. Policy GP1 Sustainability and High-Quality Design:

6.1.2 This policy provides the overarching framework for high design quality in development, conservation and enhancement proposals within the County.

6.1.3 The Plan aspires to design-led regeneration through high quality, sustainable construction which protects and modernises local distinctiveness, raises energy efficiency, minimises waste and protects the natural environment.

6.1.4 The planning system can play an important part in improving the sustainability of new developments whilst also tackling climate change. As set out in PPW the planning system must provide for new homes and buildings in a way which is consistent with sustainability principles.

4.2. Policy GP4 Infrastructure and New Development: Proposals for development will be permitted where the infrastructure is adequate to meet the needs of the development

4.3. Policy TR1 Primary and Core Road Networks: Proposals which do not restrict traffic movement and/or compromise the safety of the primary road network and core network will, where appropriate be supported. The A474 is an integral part of Carmarthenshire's primary road network. The C2223 providing access to the entrance is a metalled unclassified road.

4.4. Policy TR3 Highways in Developments - Design Considerations: Proposals which do not generate unacceptable levels of traffic on the surrounding road network and would not be detrimental to highway safety or cause significant harm to the amenity of residents will be permitted.

Proposals which will not result in offsite congestion in terms of parking or service provision or where the capacity of the network is sufficient to serve the development will be permitted. Developers may be required to facilitate appropriate works as part of the granting of any permission.

5. Planning Policy Wales (PPW) Edition 10, Previously Developed Land

5.1. 3.51 Previously developed (also referred to as brownfield) land (see definition overleaf) should, wherever possible, be used in preference to greenfield sites where it is suitable for development. In settlements, such land should generally be considered suitable for appropriate development where its re-use will promote sustainability principles and any constraints can be overcome.

5.2. Previously developed (also known as brownfield) land is that which is or was occupied by a permanent structure (excluding agricultural or forestry buildings) and associated fixed surface infrastructure. The curtilage (see note 1 below) of the development is included, as are defence buildings and land used for mineral extraction and waste disposal (see note 2 below) where provision for restoration has not been made through development management procedures.

5.3. 3.52 Planning authorities should work with landowners to ensure that suitably located previously developed sites are brought forward for development and to secure a coherent approach to their development.

6. Planning Policy Wales (PPW) Edition 10, Overriding Renewable Energy Policy

6.1. The following paragraphs of PPW emphasise the paramount importance for renewable energy.

6.2. 5.7.8 The benefits of renewable and low carbon energy, as part of the overall commitment to tackle climate change and increase energy security, is of paramount importance. The continued extraction of fossil fuels will hinder progress towards achieving overall commitments to tackling climate change. The planning system should:

- integrate development with the provision of additional electricity grid network infrastructure;
- optimise energy storage;

- facilitate the integration of sustainable building design principles in new development;
- optimise the location of new developments to allow for efficient use of resources;
- maximise renewable and low carbon energy generation;
- maximise the use of local energy sources, such as district heating networks;
- minimise the carbon impact of other energy generation; and
- move away from the extraction of energy minerals, the burning of which is carbon intensive.

6.3. 5.7.14 Welsh Government planning policy recognises an energy hierarchy. The Welsh Government expects all new development to mitigate the causes of climate change in accordance with the energy hierarchy for planning, as set out in the following energy policies. Reducing energy demand and increasing energy efficiency, through the location and design of new development, will assist in meeting energy demand with renewable and low carbon sources. This is particularly important in supporting the electrification of energy use, such as the growing use of electric vehicles. All aspects of the energy hierarchy have their part to play, simultaneously, in helping meet decarbonisation and renewable energy targets.

6.4. 5.7.16 The Welsh Government has set targets for the generation of renewable energy:

- for Wales to generate 70% of its electricity consumption from renewable energy by 2030;
- for one Gigawatt of renewable electricity capacity in Wales to be locally owned by 2030; and
- for new renewable energy projects to have at least an element of local ownership by 2020.

6.5. 5.9.5 The Welsh Government encourages the use of local renewable and low carbon energy as part of the imperative to reduce carbon emissions. Renewable and low carbon energy developments offer significant potential for communities and small businesses to develop their own projects for local benefit.

6.6. 5.9.17 Planning authorities should give significant weight to the Welsh Government's targets to increase renewable and low carbon energy generation, as part of our overall approach to tackling climate change and increasing energy security. In circumstances where protected landscape, biodiversity and historical designations and buildings are considered in the decision-making process, only the direct irreversible impacts on statutorily protected sites and buildings and their settings (where appropriate) should be considered. In all cases, considerable weight should be attached to the need to produce more energy from renewable and low carbon sources, in order for Wales to meet its carbon and renewable targets.

6.7. 5.9.18 Planning authorities should also identify and require suitable ways to avoid, mitigate or compensate adverse impacts of renewable and low carbon energy development. The construction, operation, decommissioning, remediation and aftercare of proposals should take into account:

- the need to minimise impacts on local communities, such as from noise and air pollution, to safeguard quality of life for existing and future generations;
- the impact on the natural and historic environment;
- cumulative impact;
- the capacity of, and effects on the transportation network;
- grid connection issues where renewable (electricity) energy developments are proposed; and
- the impacts of climate change on the location, design, build and operation of renewable and low carbon energy development. In doing so, consider whether measures to adapt to climate change impacts give rise to additional impacts.

7. Site Appraisal

Site Location and Surrounding Area

- 7.1. The proposed project site is located 900m. south of Cydweli town, 1.41km. west of the village of Pinged and 1.14 km. north east of Pembre Airport control tower. The grid reference is SN 41311 05013.
- 7.2. The overall proprietorship consists of two parcels of land measuring 20.9 acres. The development site is approximately 6 acres. The remaining 14.9 acres is designated environmental wildlife habitat land, refer to a Habitat Management Plan is filed with this application.
- 7.3. The locality has a rural aspect which minimises proximity to sensitive receptors. The location provides sufficient land to accommodate the overall project, which would otherwise present extreme difficulty with search and procurement of an alternative suitable location.
- 7.4. The site entrance is gated with a concrete road and is served by an unclassified road being the C2223 on the southern boundary and the main arterial route the A484 on the western boundary. The entrance will require the construction of a larger splay for site traffic use, which post construction may be reduced to existing size.
- 7.5. The entrance possesses a western visibility of 147m. and an eastern visibility of 594m.
- 7.6. The nearest residential property is 315 m. from the site boundary.

8. Existing site information

- 8.1. The existing buildings and structures were constructed in 1940 by the Ministry of Air during the Second World War, these consist of barracks, Stanton shelter and radio communication installations. Barracks are class C2A secure residential use.
- 8.2. The timber and asbestos roofed barracks were demolished and recycled in October 2016 after consultation with Carmarthenshire County Council, RSPB, RSPCA, due to injurious substances present, the other buildings remain in situ with daily use occurring.
- 8.3. Present vehicle movements to and from the site include maintenance machinery, landowners' vehicles and deliveries from large commercial freight vehicles. It is not anticipated post construction that the development will increase traffic loads exponentially or create activities that the existing road infrastructure is not currently designed to deal with.
- 8.4. The site is not located within a designated Air Quality Management Area.
- 8.5. There are no abnormal load uses associated with the current site or expected with the development of the site.
- 8.6. Some typical views of the site entrance and transport route can be seen in the following Plates 1 to 4.
- 8.7. Plate 3 provides a view of National Cycle Route 4 crossing the A484. National Cycle Route 4 will not be affected by this development.
- 8.8. Plate 1 Entrance off C2223 Southern boundary



8.9. Plate 2 C2223 Southern boundary



8.10. Plate 3 C2223 junction with A474



8.11. Plate 4 A474 Western boundary



Baseline transport data

9. Construction

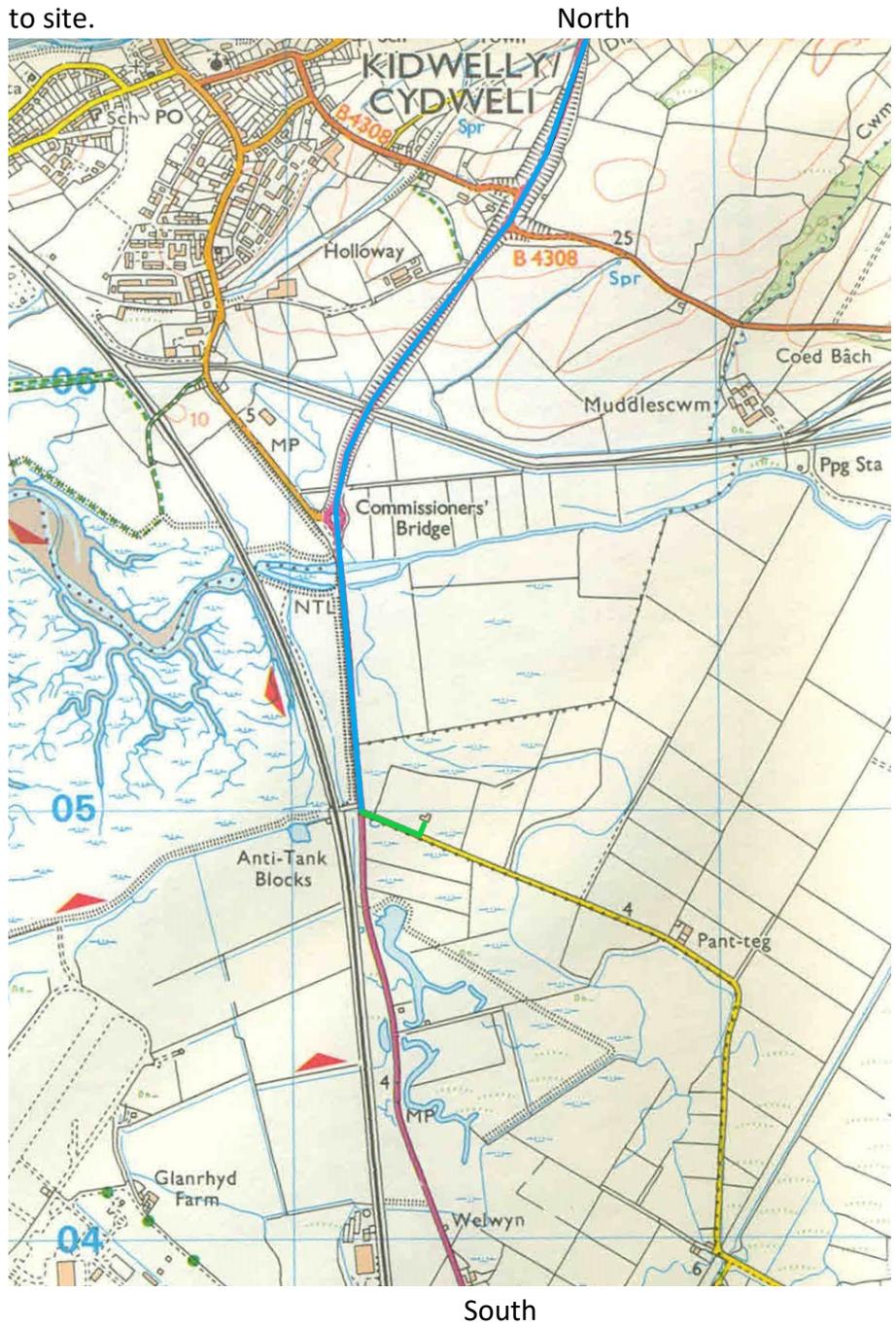
9.1. Prior to commencement of construction a program of vegetation management controlling hazardous, overgrown vegetation and grass verge encroachment onto the edge of carriageway along the key construction traffic route shall be managed during construction traffic route use. This would benefit all road users.

- 9.2. Delivery of the P.V. components within the construction phase of the Solar Farm development shall be made to a designated construction compound at the south of the site.
- 9.3. Suitably sized delivery vehicles will utilise the existing entrance and park on the concrete entrance road to be off loaded within the site boundary.
- 9.4. All necessary precautions will be taken by drivers when entering and exiting the site and where necessary a traffic marshal will be deployed where reversing is required.
- 9.5. This access will be utilised for construction, maintenance and decommissioning of the solar farm. The entrance also forms dual access to the buildings.
- 9.6. All vehicles shall be standard road vehicles able to navigate the local highway network. A list of vehicle types and movements required during the construction, operation and commissioning phases of the construction period is provided below:
- Approximately 30-35 separate HGV movements;
 - Possible curtain sided 7.5-ton vehicles for transportation of modules;
 - One HGV vehicle for delivery of timber frame
 - Forklift for unloading;
 - Flatbed vehicles – for transportation of plant;
 - Contractors works vehicles;
 - Tracked piling machine;
 - Excavator - for cable laying;
 - Road crane or hiab - for installation of the sub-station and inverter housing;
 - Road Crane - for construction of the building timber frame.
 - Concrete mixer
 - Building material deliveries
 - Waste removal
- 9.7. Upon delivery to site, all construction machinery will remain on-site until completion of required works, except for contractors' personal vehicles that may commute daily.
- 9.8. The delivery of materials and components during the construction of the development shall be made with standard road going vehicles.
- 9.9. The construction of the PV farm will comprise the following phases:
Site set up
Solar Park Construction
Commissioning

10. Proposed Access Arrangements

- 10.1. The proposed route for delivery to the site is designated as M4, A48, travel south along the A484, left at the C2223 into the site entrance and is shown in fig 1 below:
Any vehicles travelling from Llanelli continue in a northerly direction along the A484 to Commissioners Bridge roundabout and join the south blue and east green route.
- 10.2. Direction signage may be erected adjacent the A484 verge before the C2223 junction.
- 10.3. No vehicles will be parked or stored on public roads impeding access.
- 10.4. Access arrangements will not impede hard surface drainage
- 10.5. Articulated vehicles may not be eligible for delivery use to site on this project, unless a site delivery and vehicle turning area is constructed.
- 10.6. The C2223 has restricted access at the old canal road crossing near Pinged village, articulated vehicles may hit raised ground. A restrictive T-Junction combined with a stone bridge at Pinged village obstructs vehicle movements. Therefore, the C2223 beyond the site entrance is out of bounds to contractors' heavy vehicles.
- 10.7. If site access difficulties arise during consultation, dependant on permission granted from Carmarthenshire County Council, a solution for articulated container loads may be dropping the load at Pem-bre Airport and switching the load via forklift to 7.5-ton 2 axle vehicle to ease site access. A suitable drop off point is available 2.1km from the site.

Fig 1. Blue represents the A484 route from Cydweli by-pass and green the C2223 route to site.



Assessment of Potential Effects

11. Construction schedule

- 11.1. The solar farm construction period is anticipated to last approximately 6-12 weeks. Within this period delivery vehicle movements will occur to deliver materials and equipment to the site.
- 11.2. We require delivery of 4,256 PV panels, 1 HGV will transport 600 modules;
- 7 HGV deliveries will be necessary. If we must transload to a 7.5 tonne vehicle that will increase the number of deliveries to approximately 18 - 7.5 tonne vehicle loads;
 - steel mounting structure will require 6 HGV's
 - The transformer 1 HGV delivery with crane;
 - The inverters 1 or 2 HGV's;
 - Electrical cables 2 or 3 HGV's;
 - Switchgear 1 HGV;
 - Solar Cabinets 1 HGV;
 - Equipment housing GRP 1 HGV
 - Sand, gravel and concrete as required.
 - Delivery of stone for site set-up, temporary building and toilets for site compound and temporary heras fence.
 - Delivery of permanent security fence and installation of CCTV.
 - Reduction of impact upon the local road network may be achieved by a staggered delivery schedule during the construction period.
- 11.3. The construction of the timber frame for the building will take 2-4 weeks to complete, further material deliveries will be made after this time with 3 – 7.5-ton vehicles which will not create any transportation issues.
- 11.4. Approximately 1 HGV with trailer movement will be required for delivery of timber frame building materials.
- 11.5. There will be numerous deliveries of infrastructure components within the first 4 weeks reducing as the construction nears completion. Site construction machinery movements assisting loading and unloading of the delivery vehicles will mirror delivery vehicles arriving on site but are unlikely to exit site during operation.
- 11.6. An estimated 9 personnel vehicles inclusive of contractors, installation engineers and site staff may utilise the transport network daily.

- 11.7. Once delivered it is not foreseen that the plant machinery would exit the site until the development or relevant operation is complete.
- 11.8. When vehicles leave the site, appropriate facilities would be installed at a temporary location to allow removal of debris from construction vehicles prior to vehicles re-entering the transport network.
- 11.9. Upon completion of construction works temporary site offices, compound, etc will be removed in reverse order of installation.

12. Road closures

- 12.1. Two road closures are envisaged, the first is required to construct a passing point upon the C2223 between the A484 and the site entrance, may cause disturbance to cycle route 4. The same closure will enable installation of the electricity grid connection cable underneath the C2223 verge.
- 12.2. The C2223 is an unclassified road with an average maximum of 20 vehicle movements per day nonetheless, prior notice must be given to residents who may be disrupted.
- 12.3. The second road closure shall enable electricity grid connection cable installation under and across the A484 to connect to an existing supply.
- 12.4. Further renewal of the electricity grid connection cable adjacent the A484 beneath the roadside verge and footpath, concluding at Cydweli may also cause disturbance to National Cycle Route 4.
- 12.5. All electricity cables are subterranean and non-visual.

13. Operation

- 13.1. The solar farm shall have an operational lifespan of 35 years.
- 13.2. Maintenance of the installed components is expected to be minimal in the initial 7 years, failure and replacement of inverters is likely to occur possibly before but probably after this timeframe.
- 13.3. Although PV panels are guaranteed from failure for 12 years and output guaranteed at 80% for 25 years, replacement of the PV panels would occur after 17

years (half the lifespan of the project) enabling upgrading to more efficient components.

13.4. A designated maintenance contractor shall be procured to clean the PV panels on an annual basis to ensure optimum performance.

13.5. The solar project proprietors Richard Thomas and Co (Hydro) Ltd will actively encourage the use of livestock to maintain the grass levels of the site in coordination with the habitat management plan schedule. It is unlikely local traffic levels will be impacted by either operation.

13.6. Sufficient parking shall be provided for contractors, which upon completion of construction may be utilised for building use parking.

14. Decommissioning

14.1. The decommissioning of the solar farm and buildings at the end of the project's lifespan would involve virtually identical vehicle movements to and from the site as described in section 8, but in reverse order.

14.2. It is considered the amount of vehicle movements during decommissioning would have a minor impact on local and regional transport infrastructure.

15. Mitigation

15.1. Only designated construction traffic routes as detailed at section 9.1 are to be used for construction traffic. Appropriate self-enforcement measures shall be included within the conditions of contracts, penalties may apply for non-compliance.

15.2. Information regarding construction traffic movements will be provided to the local community to reduce the likelihood of potential conflicts. Methods of communication could include online updates, letter drops.

15.3. Contact details of key project contacts would be supplied to the local community.

15.4. Traffic Marshalls or suitably qualified personnel would be present as and when required to guide traffic and to ensure safe passage of public and construction vehicles.

- 15.5. The project manager shall monitor traffic management to enable effectiveness and ensure safety to workers and members of the public.
- 15.6. In the event of a traffic incident on the designated construction traffic route, all construction traffic shall be held at the site until the incident is cleared.
- 15.7. A construction traffic route monitoring process shall be in place, a record of any near misses or incidents shall be maintained to react with and control incidents or potential hazards.
- 15.8. Delivery of materials and components will take place from Monday to Saturday between a strict 07:00hrs and 19:00hrs, unless emergency works are deemed mandatory, or ordered by Carmarthenshire County Council.
- 15.9. The construction of a passing point as mentioned at point 11.1 could be a solution to off-road parking on the C2223 in the future.

16. Summary and Conclusions

- 16.1. This report has investigated the potential implications of the increased traffic flows of the proposed development.
- 16.2. This report demonstrates that the proposed development will have a minor impact on the C2223, A484 and the surrounding road network during construction.
- 16.3. Excepting the road closures mentioned in section 11, the two exceptions being the required traffic management measures necessary to complete the grid connection and passing point adjacent the C2223. The impact of road closures during construction will be relatively modest.
- 16.4. Upon completion of the project it is anticipated maintenance personnel will visit the solar farm twice a month. Occupants of the building shall not exceed proposed vehicle parking facilities. The minor increase in traffic will not prove excessive to local traffic flows or impact on the capacity of the A484. The impact is therefore assessed as negligible.
- 16.5. The report concludes that the development proposals will give rise to a sustainable renewable energy project effective in assisting climate change targets, enhance environmental habitat land, provide a rural enterprise and assist rural

employment opportunities. This development is appropriate and acceptable in traffic and transport terms.

16.6. The report concludes that the development proposals will give rise to a sustainable renewable energy project effective in assisting climate change targets, enhance environmental habitat land, provide a rural enterprise and assist rural employment opportunities. This development is appropriate and acceptable to present Wales and UK legislation.

16.7. It is considered that there are no reasons, concerning traffic operations, why planning permission should not be granted for the proposed development.