

# Environmental Statement: Chapter 10 – Transport & Access

Development of National Significance  
Pre-Application Consultation

## Alaw Môn Solar Farm

Land west of the B5112, 415m south of Llyn Alaw, 500m east of Llantrisant and 1.5km west of Llannerch-y-Medd, Anglesey

October 2023



## 10.0 Transport & Access

### Introduction

- 10.1 This chapter of the ES assesses the likely significant effects of the Development on the environment with respect to transport and access.
- 10.2 The chapter has been prepared by Transport Planning Associates ('TPA'). TPA is a corporate partner of the Chartered Institution of Highways and Transportation ('CIHT').
- 10.3 This chapter is not intended to be read as a standalone assessment and reference should be made to the other chapters within the ES. In addition, a Transport Statement ('TS') (Appendix 10.1) and Construction Traffic Management Plan ('CTMP') (Appendix 10.2) have been prepared. These documents include further assessment of the effect of the Development on the surrounding transport network, and more details on the mitigation proposed.

### Planning Policy Context

- 10.4 The Development has been considered in the context of the following documents:
- Planning Policy Wales ('PPW') (2021)<sup>i</sup>;
  - Welsh Government Planning for Renewable and Low Carbon Energy – A Toolkit for Planners (2015)<sup>ii</sup>;
  - Future Wales: The National Plan 2040 (2021)<sup>iii</sup>;
  - Technical Advice Note ('TAN') 18: Transport (2007)<sup>iv</sup>;
  - Anglesey and Gwynedd Joint Local Development Plan 2011-2026 (2017)<sup>v</sup>; and
  - North Wales Joint Local Transport Plan (2015)<sup>vi</sup>.

#### National Planning Policy

##### *Planning Policy Wales (2021)*

- 10.5 PPW sets out the land use planning policies of the Welsh Government.
- 10.6 In relation to the assessment of transport effects, PPW states that *'The construction, operation, decommissioning, remediation and aftercare of proposals should take into account... the capacity of, and effects on the transportation network'*.

#### Local Planning Policy

##### *Anglesey and Gwynedd Joint Local Development Plan 2011-2026 (2017)*

- 10.7 The Anglesey and Gwynedd Joint Local Development Plan 2011-2026 ('LDP') is a land use development strategy for a period of 15 years which concentrates on sustainable development.
- 10.8 Policy ADN 2 of the LDP relates to 'PV Solar Energy'. This states that proposals for solar photovoltaic ('PV') farms of 5MW will be permitted provided that the proposal conforms to a number of criteria. In terms of Transport and Access, the criteria are that *'they will not result in significant harm to the safety or amenity of sensitive receptors including effect from glint and glare and will not have an unacceptable impact on roads, rail or aviation safety.'* The policy also requires that *'a Construction Environmental Management Plan (CEMP) is provided to demonstrate that any potential negative effects arising during the construction and decommissioning phases are avoided.'*

## Assessment Methodology

- 10.9 The assessment methodology is set out below. The assessment set out in this chapter has been carried out in accordance with Guidance on Transport Assessments, prepared by the Department for Transport ('DfT') in March 2007 (which is now archived but still considered relevant), IEMA Guidelines for the Environmental Assessment of Road Traffic and Movement, 2023 (the 'IEMA Guidelines')<sup>vii</sup> and the Design Manual for Roads and Bridges ('DMRB')<sup>viii</sup>, produced by National Highways in conjunction with the governments of Wales, Scotland and Northern Ireland.

## Consultation

- 10.10 A summary of consultation responses to date is provided in Table 10.1.

**Table 10.1: Summary of Consultation**

Consultee	Summary of Response	How Response has been Addressed
Planning Inspectorate Wales (now Planning and Environment Decisions Wales ('PEDW') (June 2021))	<i>'The SR states that vehicular access will involve the creation of a new access or the improvement of an existing access. The ES should include a clear description of the chosen solution and appropriately assess the potential effects associated with its construction / improvement'</i>	The access arrangements are set out within this chapter and in the TS (Appendix 10.1) and CTMP (Appendix 10.2)
	<i>'As noted above, the SR does not include details of the likely vehicular access to the site. Although site traffic is likely to be limited during the operational phase, paragraph 2.6 of the SR acknowledges that there would be temporary effects during the construction phase (over a period of some 12 months) that would require mitigation via a Construction Environmental Management Plan and Construction Traffic Management Plan'</i>	Details of the vehicular accesses to the Site and mitigation is set out within this chapter and in the TS (Appendix 10.1) and CTMP (Appendix 10.2)
	<i>'The Applicant is reminded that where mitigation is required to ensure that residual effects are not significant, the detail of measures and how they will be implemented should be clearly set out in the ES. The information presented in the SR does not clarify this point, and there is limited information in terms of the proposed access improvement or construction works and construction traffic. Therefore, the Inspectorate does not agree that Transport and Access can be scoped out of the ES at this time'</i>	The detail of measures and how they will be implemented is set out within this chapter and in the TS (Appendix 10.1) and CTMP (Appendix 10.2)
Isle of Anglesey County Council ('IACC') (June 2021)	<i>'The Scoping Report confirms that Transport and Access is scoped out of the ES as potential effects during both construction and operations phase are not considered likely to be significant. Having reviewed the Scoping Report and due to the limited information available, the Council cannot currently agree that the project does not have the potential to have a significant impact on Transport and Access and can be scoped out of the ES'</i>	Noted. This chapter assesses the likely significant Transport and Access effects of the Development.
	<i>'Whilst the Council agrees that the Development will generate very little traffic once operational, consisting of limited maintenance and occasional checks, the Council notes the confirmation in paragraph 2.6 that it is anticipated that there will be some temporary effects on transport and access, particularly given the rural nature of the site and surrounding during the construction phase'</i>	This chapter assesses the likely significant Transport and Access effects of the Development during the construction phase.

Consultee	Summary of Response	How Response has been Addressed
	<i>'The Council requires further details in relation to matters concerning transport and access in order to determine what the potential significance of the impacts are. This includes, but not limited to, the anticipated number of movements to and from the site (both construction vehicles, delivery vehicles and staff movement), details of the construction haulage routes that will be used to deliver equipment to site and construction traffic management proposals before it can come to an informed view with regards to the significance of the potential impact on transport and access'</i>	Information on trip generation, haulage routes and mitigation measures are included within this chapter and in the TS (Appendix 10.1) and CTMP (Appendix 10.2)
	<i>'The Council notes the confirmation that the application will be accompanied by a standalone Transport Statement and Outline Construction Traffic Management Plan. At this stage the Council cannot confirm that a Transport Statement will be sufficient and that there is no need for a Transport Assessment to fully assess the potential impacts of the proposed development on Transport and Access'</i>	The DNS application will be supported by a TS and CTMP
	<i>'The Council expects the ES to be based on a sound understanding of the existing baseline conditions in order to ensure that potential impacts of the project on transport and access are appropriately identified and subsequently appropriate mitigation identified and secured in the form of management proposals'</i>	The baseline conditions are set out within this chapter
	<i>'The Council will also be seeking for the Transport Assessment/Transport Statement/ (to be determined following further engagement by the developer with the Council) to include the following detail and considerations'</i>	A TS is provided in Appendix 10.1
	<i>'Personal Injury Collision Analysis should be undertaken once the preferred construction haulage route has been agreed'</i>	Personal Injury Collision analysis is included in this ES and the TS (Appendix 10.1).
	<i>'Assessments should include analysis of the existing highway network (once the preferred construction haulage route has been agreed), particularly the existing constrained carriageway widths (detailed swept path analysis to be undertaken) and potential highway improvements required to facilitate two-way traffic movements'</i>	Swept path analysis has been completed on the existing highway network and is set out in the CTMP (Appendix 10.2)
	<i>'Paragraph 1.17 refers to Temporary Construction Compounds. Early engagement with the highway authority should take place with regard to location and access arrangements'</i>	Temporary construction compounds will be discussed with the local highway authority.
	<i>'Paragraph 2.4 of the Scoping Report notes that the main route to the site is via the B5112 from J5 of the A55 and that the B5112 is "generally wide enough for two vehicles to pass". The Council confirms that there are sections of the B5112 that are narrow and not wide enough for two large vehicles to pass unhindered'</i>	Further discussions on traffic management will be held with the local highway authority.
	<i>'The proposed access route via the B5112 as well as being narrow in places, is of relatively poor construction standards and could be liable to damage from large construction vehicles. The highway authority considers that the Transport Statement/Transport Assessment/CTMP as appropriate should address this aspect together with agreed mitigation/improvement/remedial measures'</i>	Mitigation measures are set out within the CTMP (Appendix 10.2). The Applicant has committed to undertake a pre and post construction condition survey. Any identified highways defects resulting from construction activities associated with the Site will be corrected to the satisfaction of IACC.

Consultee	Summary of Response	How Response has been Addressed
	<i>'The Council will be seeking agreement that the developer will undertake pre, during and post joint highway condition surveys and undertake remedial works as necessary'</i>	This is agreed. Details are set out within the CTMP (Appendix 10.2)
	<i>'Paragraph 2.6 refers to construction phase traffic and refers to "some temporary effects" on transport and access. The highway authority requests that further discussion on construction traffic and access is undertaken, in order that agreed routes and mitigation measures can inform the Transport &amp; Access Statement at the earliest opportunity. This early discussion is also relevant to the CEMP and CTMP referred to at paragraph 2.7'</i>	Further discussions have taken place, and mitigation measures are set out in this chapter and in the TS (Appendix 10.1) and CTMP (Appendix 10.2)
	<i>'Paragraph 9.11 refers to the Construction Methodology and Phasing chapter, which will form the basis of the construction phase assumptions in each of the technical chapters of the ES. The highway authority considers that this will also inform the Transport and Access and CTMP aspects of the scheme'</i>	Details of the construction methodology are set out in the TS (Appendix 10.1) and CTMP (Appendix 10.2)
	<i>'The confirmation that an Outline Construction Traffic Management Plan (CTMP) is to be prepared to support the planning application is welcomed and the Authority would also welcome the opportunity to scope the detail of the CTMP with the applicant'</i>	A CTMP (Appendix 10.2) has been prepared. This has been discussed with IACC.
	<i>'Some public rights of way are located within the development area as confirmed by the Scoping Report. The Council would expect the application to include confirmation of the proposed site boundaries and confirm that public rights of way will still be accessible at all stages of the development'</i>	Public Rights of Way will still be accessible at all stages of the Development. The management of the Public Rights of Way ('PROW') is set out in the CTMP (Appendix 10.2).
Isle of Anglesey County Council (October 2021)	<i>'Having reviewed the proposed access strategy to each individual plot, the IACC are concerned as to the unsuitability of the unclassified road to accommodate large vehicles, as well as the potential of damage to the highway surface. Has the developer considered a strategy whereby delivery vehicles would access each plot via road cross over points from the proposed construction compound, as opposed to using the county road to access each plot individually as per the current proposal?'</i>	The access strategy now includes a temporary construction vehicle track through the Site. The route utilises existing field connections where possible, to reduce the effect on hedgerows and other ecologically sensitive areas. It also takes into account the topography of the Site to ensure that gradients are acceptable for use by construction vehicles. Whilst construction vehicles will still need to cross and use sections of the local unclassified road that dissects the Site, the proposed strategy minimises this.
	<i>'The developer shall be required to demonstrate suitable parking provision to accommodate construction workers.'</i>	This is set out in the CTMP (Appendix 10.2). 50 spaces will be provided. This is based on the requirements at other solar farm construction sites across England and Wales
	<i>'Swept Path Analysis (based on topographical surveys) should be undertaken to assess the potential for HGVs associated with the project crossing over to the opposite side of the carriageway, consequently facing oncoming traffic. The developer must risk assess and identify additional safety measures that will be required to mitigate this hazard to safeguard the public and road users.'</i>	Swept Path Analysis has been undertaken and is discussed further in the CTMP (Appendix 10.2).



Consultee	Summary of Response	How Response has been Addressed
	<i>'The CTMP should confirm that the developer and the Council as Highway Authority will be required to undertake...a road condition survey'</i>	This is set out in the CTMP (Appendix 10.2).
	<i>'The detailed CTMP must identify and provide full details of the Haulage Contractor appointed to execute the Haulage works'</i>	This information is not currently known, but will be provided to IACC as part of the final CTMP (Appendix 10.2), submitted and agreed prior to construction.
	<i>'The CTMP should confirm the need to agree and implement a full signage schedule prepared by a competent and professional Traffic Management Company'</i>	This is confirmed in the CTMP (Appendix 10.2)
	<i>'The CTMP should confirm the need to agree a communication plan detailing how the applicant intends to consult, liaise and take on board the views and concerns of the affected Communities, Community Councils and Local Members'</i>	This is confirmed in the CTMP (Appendix 10.2)
	<i>'The Highway Authority will need to enter into a discussion with the developer in relation to considering agreeing to granting a Section 50 license for the developer to place a private apparatus in the highway'</i>	The Applicant and highway authority are progressing these discussions and it is agreed that a Section 50 licence will be required where apparatus is places in the highway.
Isle of Anglesey County Council (October 2023)	<i>'The Council will expect that a DNS application will be supported by a comprehensive assessment of the potential effects of the proposal on the local road network. The Council will be seeking confirmation that potential impacts have been identified and either removed or that suitable mitigation can be secured to reduce effects to an acceptable level'</i>	Along with this Chapter, the Application is supported by a Transport Statement (Appendix 10.1) and Construction Traffic Management Plan (Appendix 10.2) setting out the effects of the proposal on the local road network, and the mitigation/management to reduce these effects.
	<i>'The proposed Alaw Mon project and the proposed Solar Farm Mon project (a project currently in pre-application stage by Lightsource BP) are to take place in close proximity to each other. Whilst acknowledging that both projects are in the pre-application stage with no clear confirmation as to when the construction phase of each project (including the cable route) will take place and whether the construction phases' of the projects' will take place at the same time, the expanse of land proposed by the two schemes is extensive and will affect several roads in a very rural area. The potential cumulative impacts of the construction phase of both projects on the local highway network will need to be considered and appropriate mitigation identified and secured to minimise impact. The Council would be very concerned if both projects would be in construction stage at the same period as it would increase and exacerbate the impact on the local highway network'</i>	A cumulative assessment is included as part of this Chapter. 'Mon Solar Farm' is located near Almwch, off the A5025 and B5111. Whilst HGVs are likely to use the A55, they are not likely to use the other routes that make up the construction vehicle route to the Proposed Development.
	<i>'The Council questions whether a ATC survey can be undertaken on the B5112 between the A5 and B5109 to confirm traffic volumes and composition on this section of the proposed construction haulage route'</i>	An ATC survey has been undertaken on the B5112 near Carmel
	<i>'With reference to paragraph 1.31, the parking of Heavy Goods Vehicles in a layby along the A55 prior to junction 5 needs to be reviewed. If such a layby was full, what options are there for alternative parking to allow for advance notification to traffic management personnel? It may be advisable to include all three laybys between junctions 6 and 5 Eastbound as possible sites'</i>	Alternative laybys are identified within the CTMP at Appendix 10.2.

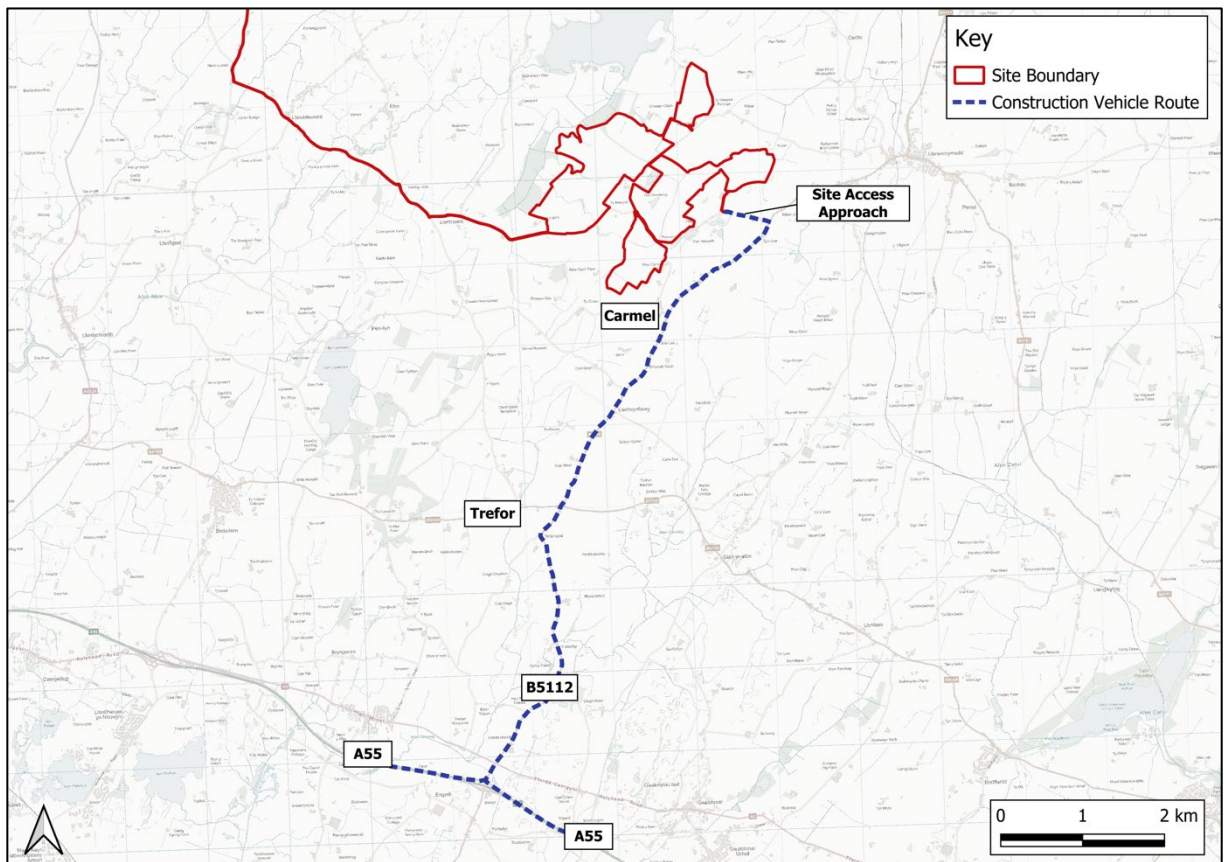
Consultee	Summary of Response	How Response has been Addressed
	<i>'The Council have concerns as to the proposal that HGVs will be coordinated to arrive and depart in conveyed groups, as per para 1.31. This may lead to a convoy of HGVs travelling on local county roads, causing a potential risk to other road users.'</i>	The traffic management methodology within the CTMP at Appendix 10.2 suggests that, where possible, HGVs can be coordinated to arrive and depart in groups of two or three vehicles. This way, they can travel through the traffic management area in small convoys and limit the number of times traffic marshals are required to hold traffic throughout the day. This is intended to reduce the risks to other road users.
	<i>'With reference to paragraph 1.36 the confirmation that a haul route is to be formed through the site, thus enabling connectivity without using the rather narrow rural roads in the area, is welcomed. Though vehicular movements are not significant in terms of volume, it must be noted that agricultural vehicles do use these roads, some of which are rather large in size. It should also be noted that a civil engineering company operates from Nantanog Farm which is within the site of these proposed works and may lead to conflict'</i>	This is noted.
	<i>'Further detail is requested to the proposed access points at B,C,D and E.'</i>	Additional details on all accesses are set out within the Transport Statement (Appendix 10.1) and Construction Traffic Management Plan (Appendix 10.2)
	<i>'The proposed passing places as noted in Appendix D is welcomed, however the Council seeks a further passing bay between access points D and E as a minimum'</i>	This is provided and set out in the CTMP (Appendix 10.2)
	<i>'The proposed Stop/Go set-up to manage traffic at two narrow sections of the B5112 is noted. However, the Council seeks a commitment that these Stop/Go sites can be flexible and additional sites can be included should the need arise in order to manage any further impacts'</i>	This is confirmed within the CTMP (Appendix 10.2).
	<i>'It shall be noted that the maximum length of a Stop/Go site is 300m, with careful management of any side roads and private means of access'</i>	As set out in the CTMP (Appendix 10.2) the final traffic management scheme will be set out by an approved traffic management company within the Final CTMP.
	<i>'The Council requests confirmation that the proposals contained in this scoping note will be independently reviewed as part of a Road Safety Audit?'</i>	At this time, it will be subject to a road safety audit and risk assessment.
	<i>'The Highways Authority would note that all mitigation measures should be underpinned by a Risk Assessment to demonstrate all risks have been reduced as far as reasonably practicable, as per the requirements of CDM2015'</i>	

### Study Area

- 10.11 The Study Area has been identified to cover the local roads which make up the construction vehicle routes to the Site from the A55.
- 10.12 The study area is shown in Figure 10.1, and comprises the following links:
- A55;
  - B5112; and

- Site Access Approach – unnamed road between B5112 and Site compound access.

**Figure 10.1: Study Area (Construction Traffic Route)**



### Types of Effect

10.13 The transport and access likely significant effects assessed within this chapter are as follows:

- Severance of communities;
- Road vehicle driver and passenger delay;
- Pedestrian delay (incorporating delay to all non-motorised users);
- Non-motorised user amenity (including fear and intimidation);
- Road user and pedestrian safety; and
- Hazardous loads/ large loads.

10.14 A description of each effect is provided below.

#### *Severance of Communities*

10.15 The IEMA Guidelines define severance as *'the perceived division that can occur within a community when it becomes separated by major transport infrastructure'* (paragraph 3.13) that *'separate people from places and other people'*, for example, difficulties crossing existing roads, or the physical barrier created by the infrastructure itself.



- 10.16 There are no predictive formulae which give simple relationships between traffic factors and levels of significance. Nevertheless, there are a range of indicators for determining significance of the relief from severance. The IEMA Guidelines suggest that *'changes in traffic flow of 30%, 60% and 90% are regarded as producing slight, moderate and substantial changes in severance respectively'* (paragraph 3.16). The guidance also heeds that *'very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic'*. To counteract this, the guidance recommends a holistic approach to take into regard the local conditions around the site to determine the significance of severance.

#### *Road Vehicle Driver and Passenger Delay*

- 10.17 The IEMA Guidelines state that *'delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system'* (paragraph 3.20). As such, the impact of a proposed development on driver delay is typically considered in relation to background traffic. Junction assessment modelling can be used to estimate increased vehicle delays at junctions, if necessary.

#### *Non-Motorised User Delay*

- 10.18 The IEMA Guidelines state that *'changes in the volume, composition or speed of traffic may affect the ability of people to cross roads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development site'* (paragraph 3.24). There are a range of local factors that affect non-motorised user delay, including the level of pedestrian (and all non-motorised users) activity, visibility and general physical conditions of the site. However, the IEMA Guidelines do not set out definitive thresholds for judging the significance of changes in levels of delay, and suggest that the assessor uses their judgement to determine whether pedestrian (and all non-motorised user) delay is a significant effect.

#### *Non-Motorised User Amenity (Including Fear and Intimidation)*

- 10.19 Non-motorised user amenity is broadly described in the IEMA Guidelines as *'the relative pleasantness of a journey'* (paragraph 3.29) and can be affected by traffic flow, composition and pavement width/separation from traffic. This definition includes pedestrian (and non-motorised user) fear and intimidation and can be considered a much broader category when considering the overall relationship between pedestrians (and other non-motorised users) and traffic. The IEMA Guidelines suggest that a threshold for judging this would be *'where the traffic flows (or its lorry component) is halved or doubled'* (paragraph 3.30). However, the IEMA Guidelines encourages full regard to specific local conditions for a better assessment.

#### *Road User and Pedestrian Safety*

- 10.20 The IEMA Guidelines do not include any definition in relation to the assessment of effects on accidents and safety, advising that obtaining collision cluster data and using professional judgement should be used to assess the implications of local circumstance, or factors which may increase or decrease the risk of accidents.

#### *Hazardous Loads/ Large Loads*

- 10.21 The IEMA Guidelines state that *'some developments may involve the transportation of dangerous or hazardous loads by road and this should be recognised within any traffic and movement assessment'* (paragraph 3.49).
- 10.22 Some deliveries to the Site during the construction phase will be regarded as 'hazardous loads'. These include the deliveries of lithium-ion batteries, transformer oil and insulation gas. All applicable regulations for the movement of hazardous loads will be followed, and the appropriate documentation will be obtained.

- 10.23 Whilst not hazardous, there will be abnormal loads to transport the transformers for the substation. An abnormal load is one where the vehicle exceeds 44 tonnes, the width is over 2.9m or the length is more than 18.65m.

### Assessment of Significance

- 10.24 The assessment of the Development's potentially significant effects has taken into account the construction, operational and decommissioning phases. The effects for the decommissioning phase are likely to be equivalent to, and no worse than, the construction phase. The significance level attributed to each effect (set out above) has been assessed based on the sensitivity of the affected receptor to change, and the magnitude of change as a result of the Development.

### Sensitivity of Receptor and Magnitude of Change

- 10.25 Table 10.2 provides definitions to determine the sensitivity of a receptor.

**Table 10.2: Sensitivity/Importance of Identified Receptor**

Sensitivity/Importance	Definition
High	Receptors of greatest sensitivity to traffic flows, such as schools, playgrounds, accident blackspots, retirement homes, areas with no footways with high pedestrian footfall, congested areas
Medium	Receptors with some sensitivity to traffic flow, such as conservation areas, listed buildings, tourist attractions, and residential areas
Low	Receptors with low sensitivity to traffic flows, and those distant from affected roads
Negligible	Receptors with no material sensitivity to traffic flows

- 10.26 The Study Area, as shown in Figure 10.1 encompasses A-class roads (A55) and more rural B roads (e.g. B5112). There are few receptors on the A-class roads (such as schools, retirement homes, high pedestrian footfall), which are considered to have a high sensitivity to changes in traffic flows. With reference to the links and junctions identified in the study area (Figure 10.1), and criteria set out in the Sensitivity/Importance of Identified Receptor table (Table 10.2), it is considered that the entire network represents a low sensitivity receptor. This is due to the location of the roads, largely away from settlements, except those near Carmel. In addition, the level of pedestrian activity in the area is low, and not considered to be high enough to represent a medium or high sensitivity receptor.
- 10.27 The IEMA Guidelines set out two rules which have been used as threshold impacts to define the scale and extent of this assessment, as follows:
- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
  - Rule 2: Include highway links of high sensitivity areas where traffic flows have increased by 10% or more.
- 10.28 It is notable that, on roads where baseline traffic flows are low, any increase in traffic flow may result in a predicted increase that would be higher than the two rules set out in the IEMA Guidelines. However, it is important to consider any overall increase in road traffic in relation to the capacity of the road.
- 10.29 The IEMA Guidelines state that *'For many effects there are no simple rules or formulae which define the thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed up by data or quantified information wherever possible'*, and *'those preparing the Environmental Statement will need to make it clear how they have defined whether a change is considered significant or not'* (paragraph 4.5).
- 10.30 The IEMA Guidelines identify general thresholds for traffic flow increases of 10% and 30%. Where the predicted increase in traffic / HGV flow is lower than these thresholds, then the significance of the effects

should be considered to be low or not significant and further detailed assessment is not required. However, to ensure a robust assessment of the increase in traffic flows in environmental terms, Table 10.3 have been used to determine magnitude of change.

**Table 10.3: Magnitude of Change**

Magnitude of Change	Definition
High	Changes to peak or 24hr traffic within the Study Area by 30% or more
Medium	Changes to peak or 24hr traffic within the Study Area by between 10% and 30%
Low	Changes to peak or 24hr traffic within the Study Area up to 10%
Negligible	No Change (+/- daily Variation)

### Significance of Effect

10.31 The magnitude of change and receptor sensitivity have been compared to determine the overall significance of effects. This is shown in Table 10.4.

10.32 There are four categories demonstrating the significance of the effect. These can be adverse or beneficial:

- Negligible – Very little change from baseline conditions;
- Minor – A minor shift away from baseline conditions;
- Moderate – A material shift away from the baseline conditions; and
- Major – Substantial alteration to baseline conditions.

**Table 10.4: Significance of Potential Effects**

Magnitude of Change	Sensitivity of Receptor			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor/Moderate	Negligible
Low	Moderate	Minor/Moderate	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

10.33 It is considered that only moderate and major effects are considered to be 'significant' for the purposes of this assessment.

10.34 Whilst this is a useful guideline, the effects do need to be reviewed in the context of baseline traffic flows. Within the study area, many roads are rural in nature with low baseline traffic flows. In these locations, the addition of any traffic could result in high percentage changes (over 100% in places). However, as the baseline traffic flows are low, the effects could still be considered minor or negligible.

10.35 The effects can be temporary or permanent and short, medium or long term in duration. The definitions of these are as follows:

- A short term effect – an effect that will be experienced for 0-5 years;
- A medium term effect – an effect that will be experienced for 5-15 years; and
- A long term effect – an effect that will be experienced for 15 years or longer.

### Limitations and Assumptions

- 10.36 A number of assumptions are made when forecasting the traffic generation of the Development, both during construction and operation. However, these forecasts have been developed by the Applicant and their consultants based on professional judgement and derived from experience with other developments similar in scale and nature to the Development. Therefore, they are considered to represent a realistic estimation of traffic generation.

### Baseline Conditions

#### *Local Highway Network (Construction Traffic Route)*

- 10.37 The proposed construction traffic route to the Site comprises the following links:
- A55;
  - B5112; and
  - Site Access Approach – unnamed road between B5112 and Site compound access.
- 10.38 The A55, also known as the North Wales Expressway, is the main road in North Wales, connecting Chester to Holyhead. For most of its extent, it is a dual carriageway.
- 10.39 The B5112 connects the A55 to the Site. The B5112 is rural in nature, but for the majority of its length, it is wide enough for vehicles to pass. There are some areas of narrowing, particularly to the south of Trefor. The B5112 is regularly used by large agricultural vehicles.
- 10.40 The Site Access Approach is a narrow road which is rural in nature. The route has a low baseline traffic flow, which includes agricultural vehicles.

### Walking

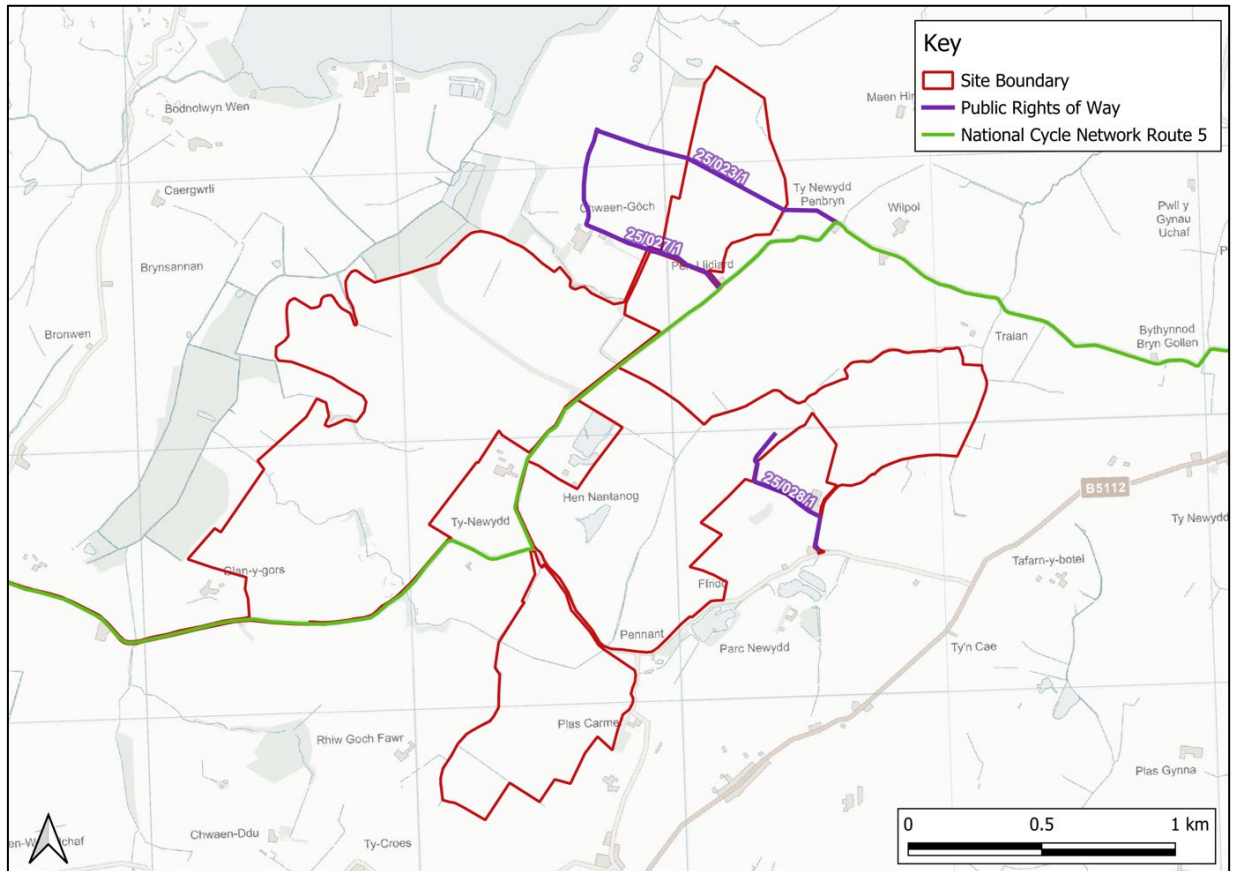
- 10.41 Due to the rural nature of the Site, there are no footways within the study area.

### Public Rights of Way

- 10.42 Despite no footways present within the study area, there are three PROWs that route through the Site. The routes are summarised in Table 10.5 below and shown visually in Figure 10.2.

**Table 10.5: Public Rights of Way**

PRoW	Route Summary
PROW 25/023/1	Routes in an east to west alignment between Ty Newydd Penbryn and an unnamed track north of Cwaen-Gôch
PROW 25/027/1	Connects from Pen-Llidiard (to the east) and routes west and north onto an unnamed track north of Cwaen-Gôch connecting onto PROW 25/023/1
PROW 25/028/1	Connects from Trem-y-Wylda and routes west ended within the middle of a field

**Figure 10.2: Public Rights of Way**

### Cycling

- 10.43 There are no formal cycleways within the study area, however, National Cycle Network ('NCN') Route 5 runs along part of one of the unclassified roads that route through the Site. NCN Route 5 operates through the Thames Valley, the Midlands and North Wales.

### Public Transport

- 10.44 There are limited public transport options due to the rurality of the Site and study area. Bus stops are located in Carmel to the east of the Site. These are served by bus route 52, which operates between Llanrhuuddlad and Llangefni on Thursdays only.
- 10.45 The nearest train station is in Valley, approximately 12.5km to the southwest of the Site from the southern edge of the Site boundary.

### Accident Analysis

- 10.46 A review of Personal Injury Accident ('PIA') data for the most recent five-year period has been undertaken.
- 10.47 The PIA data shows that there have been only two incidents on the B5112 and one on the A55 in the most recent five-year period. Two accidents resulted in slight injuries, with the other resulting in serious injuries. The incidents appear to have occurred as a result of driver error or misjudgement and not as a result of the layout or alignment of the local highway network. Therefore, it is concluded that there are no obvious safety patterns or problems along the construction traffic route.



*Vehicular Traffic Flows*

- 10.48 Traffic flows for the key links in the study area have been reviewed.
- 10.49 Traffic data for the local roads (B5112 and the unnamed road by the proposed access to the Site) was obtained through a number of Automatic Traffic Count ('ATC') surveys, conducted by an independent survey company in May 2023.
- 10.50 Traffic data on the A55 has been taken from the DfT manual count point (site: 77028) for 2021 and has been growthed up to 2023 using TEMPro growth factor of 1.0130 for the Isle of Anglesey region.
- 10.51 The DfT stated in their publication 'National Road Traffic Projections 2022', which documents traffic projections up to 2060 taking into account the Covid-19 pandemic and its effect on travel, that national traffic levels were 5% lower than predicted due to the effect of the pandemic. However, the A55 flows have not been updated in line with this to allow for robustness.
- 10.52 Table 10.6 sets out the baseline Average Annual Daily Traffic ('AADT') and the percentage of HGVs for each link.

**Table 10.6: 2023 Baseline Two-Way Traffic Flows (AADT)**

Link	AADT	HGVs*	HGV %
A55 (growthed from 2021)	14,465	932	6%
B5112	1,311	199	15%
Site Access Approach	225	72	32%

\*Includes OGV1, OGV2 and PSVs.

**Future Baseline**

- 10.53 There are no planned highway works within the study area.
- 10.54 Traffic flows may change slightly as a result of cumulative developments in the area. This is discussed further in the 'Cumulative Effects' section of this chapter.
- 10.55 To pick up background traffic growth, industry standard TEMPro growth factors, which have been adjusted in line with the National Traffic Model ('NTM'), have been applied to the observed traffic flows. A baseline year of 2025 has been assumed, as the start date for construction of the Proposed Development.
- 10.56 The TEMPro growth factor for the Isle of Anglesey is shown in Table 10.7.

**Table 10.7: TEMPro Growth Factor (2023-2025) – Average Day**

Link	AADT
2023-2025	1.0128

- 10.1 The 2025 future baseline traffic flows are shown in Table 10.8.

**Table 10.8: 2025 Baseline Two-Way Traffic Flows (AADT)**

Link	AADT	HGVs*	HGV %
A55 (growthed from 2021)	14,650	944	6%
B5112	1,328	201	15%
Site Access Approach	228	73	32%

\*Includes OGV1, OGV2 and PSVs

## Likely Significant Effects

### Construction Phase

- 10.57 This section summarises the likely significant effects associated with the movement of construction traffic during the construction phase of the Development.

#### Traffic Flows

- 10.58 The construction period will take approximately 12 months (52 weeks). Construction activities will be carried out Monday to Friday 08:00-18:00 and between 08:00 and 13:30 on Saturdays. Further information is set out in Chapter 5 Construction Methodology and Phasing of the ES.
- 10.59 The construction phase for the solar farm element of the Development includes the preparation of the Site, installing the access tracks, erection of security fencing, assembly and erection of the solar PV arrays, installation of the inverters/transformers and grid connection.
- 10.60 The construction of the battery energy storage system ('BESS') element of the Development will include the preparation of the Site, installation of the access roads, erection of security fencing, assembly of the battery system, and installation of the switch-room and grid connection.
- 10.61 The components which are required to construct the solar farm and BESS element of the Development will arrive by 16.5m long articulated and 10m rigid vehicles. The Applicant has confirmed that a total of approximately 2,972 deliveries are expected. Assuming all deliveries arrive within a 52-week period, this equates to, on average, around 10 deliveries (20 two-way movements) per day. The anticipated number of deliveries for each activity is set out in Table 10.9. A 10% 'buffer' has been added to the total number of deliveries to represent a 'worst case scenario', for robustness.

**Table 10.9: Heavy Goods Vehicle Movements (Construction Phase)**

Activity	Type of Vehicle	Total Number of Deliveries
<i>Solar Farm</i>		
Solar Modules & Mounting Structures	Max 16.5 Articulated	1,350 (2,700 two-way movements)
Inverters/Transformers	Max. 16.5 Articulated	30 (100 two-way movements)
Substation	Max. 10m Rigid and Max. 16.5m Articulated	50 (100 two-way movements)
	Abnormal Load	1 (2 two-way movements)
Internal Access Tracks	Max. 10m Rigid	500 (1,000 two-way movements)
General	Front End JCB by low loader	20 (40 two-way movements if driven to the Site)
Other (sand, gravel, waste etc.)	Max 16.5 Articulated	900 (1,800 two-way movements)
<i>Battery Storage</i>		
Battery Modules	Max 16.5m Articulated	40 (48 two-way movements)
General Deliveries (cables, fencing etc.)	Max. 16.5m Articulated or 10m Rigid	75 (150 two-way movements)
Contractor's Compound	Max. 16.5m Articulated	6 (12 two-way movements)
Total (Average)		2,972 deliveries (average of 10 deliveries per day or 20 two way movements per day)*
Total (Worst Case Scenario)		3,269 deliveries (average of 11 deliveries per day or 22 two way movements per day)*

\*Deliveries take place over a 52-week period (304 working days, excluding Sundays and Bank Holidays)

- 10.62 Based on the information provided in Table 10.9, it is expected that there will be approximately 10 HGVs accessing the Site per day on average over the construction period. With the addition of a 10% 'buffer' to account for a worst-case scenario, there would be approximately 11 HGVs accessing the Site per day on average over the construction period.
- 10.63 Up to 100 construction workers are anticipated to be on-Site during an average day throughout the construction period. A temporary construction compound will be provided and will provide storage,

parking for contractors and turning for HGVs. The location of where staff will travel from is unknown at this stage, as this will depend on the appointed contractor. However, it is envisaged that a number of the non-local workforce will stay at local accommodation and be transported to the Site by minibuses to minimise the impact on the strategic and local highway network. In addition, a Construction Worker Travel Plan will form part of the CTMP (Appendix 10.2). This will aim to encourage workers to travel to the Site as sustainably as possible (e.g. minibus, car share etc). As a robust judgement, it is assumed that there could be 50 vehicle arrivals and 50 vehicle departures associated with construction workers per day by car/LGV (100 two-way trips).

- 10.64 Where possible, construction deliveries will be coordinated to avoid HGV movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00). Due to the construction hours (07:00-18:00) at the Site, construction worker travel will occur outside of the peak hours. As such, there is unlikely to be many, if any, peak hour trips associated with the Site.
- 10.65 The grid connection element of the construction phase will involve the installation of a cable into a trench in the highway. This element will not generate significant traffic flows.
- 10.66 The daily construction traffic flows on the links within the study area are shown in Table 10.10.

**Table 10.10: Construction Traffic**

<i>Link</i>	<b>Construction Traffic</b>	
	<i>AADT</i>	<i>HGVs</i>
A55	120	20
B5112	120	20
Site Access Approach	120	20

- 10.67 The construction traffic generation set out in Table 10.10 has been applied to the future baseline traffic flows set out in Table 10.8 to determine the effect of construction traffic on the links within the study area.
- 10.68 The 2025 baseline and 2025 baseline plus construction traffic flows are shown in Table 10.11.

**Table 10.11: 2025 Baseline Two-Way Traffic Flows (AADT) plus Construction Traffic**

<i>Link</i>	<b>Baseline</b>			<b>Baseline plus Construction</b>			<b>% Change from Baseline</b>	
	<i>AADT</i>	<i>HGVs</i>	<i>HGV %</i>	<i>AADT</i>	<i>HGVs</i>	<i>HGV %</i>	<i>AADT</i>	<i>HGVs</i>
A55	14,650	944	6%	14,770	964	7%	1%	2%
B5112	1,328	201	15%	1,448	221	15%	9%	10%
Site Access Approach	228	73	32%	348	93	27%	53%	27%

- 10.69 As stated in the 'Assessment Methodology' section, the two rules set out in the IEMA Guidelines require further assessment where traffic flows/ HGVs increase by more than 30% (or 10% for a sensitive area).
- 10.70 As shown in Table 10.11, the addition of 100 car/LGV movements plus 20 HGV movements to the highway network over a daily period will not exceed this threshold on the A55. Therefore, there will not be a significant environmental effect as a result of construction vehicle traffic on this road and therefore, no further assessment is required.
- 10.71 On the B5112, HGV movements could increase by 10%. Whilst the B5112 is a low sensitivity receptor, it has been assessed in order to be robust. In line with Table 10.3 and Table 10.4, a moderate change in HGV numbers could have a temporary minor/moderate adverse effect, prior to the implementation of mitigation measures.
- 10.72 On the Site Access Approach Road, baseline traffic flows are low, reflecting the rural nature of the area. Therefore, the addition of construction traffic results is a high percentage increase compared to the baseline. Given the low sensitivity of the receptor, but high percentage change in flows, the construction

phase could have a temporary moderate adverse effect on this link, prior to the implementation of mitigation measures.

- 10.73 A review of the likely significant environmental effects in relation to transport and access during the Development's construction phase on the B5112 and Site Access Approach Road are set out below.

*Road User and Pedestrian Safety*

- 10.74 During the most recent five year period, there have been only two PICs recorded on the B5112. The addition of construction traffic is unlikely to have a material effect on accidents and safety.
- 10.75 On the Site Access Approach Road, no recorded accidents have been recorded in the most recent five year period. Given the low number of baseline vehicle trips, and low number of pedestrian movements, the addition of construction traffic is unlikely to have a material effect on accidents and safety.
- 10.76 In light of this, the likely significant effect of the construction traffic on accidents and safety on the B5112 and Access Approach Road is considered to be negligible and temporary.

*Severance of Communities*

- 10.77 The B5112 and the Site Access Approach Road are not considered to act as a barriers that separate communities. The addition of construction traffic will not change this.
- 10.78 Therefore, the likely significant effect of the Development's construction traffic on severance on the B5112 and Access Approach Road is considered to be negligible and temporary.

*Road Vehicle Driver and Passenger Delay*

- 10.79 The IEMA Guidelines state that '*delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system*' (paragraph 3.20). Baseline traffic flows on the B5112 and Site Access Approach Road are low, and the network is not near capacity. The addition of construction traffic will not change this. However, it is acknowledged that there are some narrow points on the network where drivers may have to wait for a short period to allow vehicles to pass.
- 10.80 The grid connection element of the construction phase will involve the installation of a cable into a trench in the highway. There may be some localised delay to drivers whilst this occurs.
- 10.81 Overall, the likely significant effect of the construction traffic on driver delay on the B5112 and Access Approach Road is considered to be negligible and temporary.

*Non-Motorised User Delay*

- 10.82 The level of pedestrian (and other non-motorised user) activity on the B5112 and Site Access Approach Road is very low, although it is acknowledged that there are three PROWs within proximity of the Site. Notwithstanding this, receptor sensitivity is low. The likely significant effect of construction traffic will not result pedestrian (and all non-motorised user) activity being significantly delayed.
- 10.83 Therefore, the likely significant effect of the construction traffic on non-motorised user delay on the B5112 and Access Approach Road is considered to be negligible and temporary.

*Non-motorised User Amenity (including Fear and Intimidation)*

- 10.84 As set out above, the level of pedestrian (and other non-motorised user) activity on the B5112 and Site Access Approach Road is very low meaning that the sensitivity receptor is low. However, it is acknowledged that the addition of HGVs to the network will affect the relative pleasantness of pedestrian (and other non-motorised user) journeys in the area, especially near a PROW.

- 10.85 On the B5112, where HGV movements are forecast to increase by approximately 10% during the construction phase, it is considered that the likely significant effect of the construction traffic on the B5112 in relation to non-motorised user amenity will be minor adverse and temporary.
- 10.86 On the Site Access Approach Road, where total movements are forecast to increase by over 30% during the construction phase albeit from a low baseline, it is considered that the likely significant effect of the construction traffic on the Site Access Approach Road in relation to non-motorised user amenity will be moderate adverse and temporary.

#### *Hazardous Loads*

- 10.87 Some deliveries to the Site during the construction phase will be regarded as 'hazardous loads'. These include the deliveries of lithium-ion batteries, transformer oil and insulation gas. All applicable regulations for the movement of hazardous loads will be followed, and the appropriate documentation will be obtained.
- 10.88 Whilst not hazardous, there will be abnormal loads to transport the transformers for the substation. An abnormal load is one where the vehicle exceeds 44 tonnes, the width is over 2.9m or the length is more than 18.65m.
- 10.89 Overall, it is considered that the likely significant effect of the construction traffic on hazardous loads will be negligible and temporary.

#### *Summary of Effects during Construction*

- 10.90 The likely significant effects of the Development during the construction phase, prior to the implementation of mitigation measures, are summarised in Table 10.12.

**Table 10.12: Summary of Effects during the Construction Phase**

Criteria	Significant of Effect		Duration
	B5112	Site Access Approach Road	
Road User Safety	Negligible	Negligible	Short Term/Temporary
Severance of Communities	Negligible	Negligible	Short Term/Temporary
Driver and Passenger Delay	Negligible	Negligible	Short Term/Temporary
Non-Motorised User Delay	Negligible	Negligible	Short Term/Temporary
Non-motorised User Amenity	Minor Adverse	Moderate Adverse	Short Term/Temporary
Hazardous Loads	Negligible	Negligible	Short Term/Temporary

#### **Operational Phase**

- 10.91 During the Development's operational phase, there are anticipated to be approximately two visits to the site per month for maintenance. These would typically be made by light van or 4x4 type vehicles. Whilst the Site compound will have been removed during the construction phase, space will remain within the Site on the access tracks for such a vehicle to turn around to ensure that reversing will not occur onto the highway.
- 10.92 In light of this, effects on road user and pedestrian safety, severance, driver delay, non-motorised user delay and amenity and hazardous loads during the operational phase of the Development are considered to be negligible or no significant effect. The effects will be long-term, as the modelled operational lifespan of the Development is 40 years.

### **Mitigation Measures**

#### **Construction Phase**

- 10.93 An Outline CTMP (Appendix 10.2) and Construction Environmental Management Plan ('CEMP') will be implemented during the construction phase of the Development. The aim of the CTMP is to minimise



the effect of the construction phase on the highway network. It contains a package of mitigation measures which will include the following:

- Signs to direct construction vehicles associated with the development will be installed along the agreed construction traffic route. Delivery drivers, contractors and visitors will be provided with a route plan in advance of delivering to the Site to ensure that vehicles follow the identified route;
- Advisory signs informing contractors and visitors that parking is not permitted on-street in the vicinity of the Site or on the Site access road;
- All signage on the designated route will be inspected daily by the Site Manager, to ensure they are kept in a well-maintained condition and located in safe and appropriate locations;
- Traffic management will be in place along the B5112 to support HGVs through narrower sections of the network where the provision of passing areas is not possible;
- A compound area for contractors will be set up on-Site including appropriate parking spaces. Contractors and visitors will be advised that parking facilities will be provided on-Site in advance of visiting the Site and that they should not park on-street;
- A wheel wash facility will be provided ahead of exiting the Site allowing vehicles to be hosed down so that no construction vehicles will take mud or debris onto the local highway network;
- A road sweeper will be provided for surrounding local roads along the designated route to alleviate any residual debris generated during the construction phase, as required;
- The Site will be secured at all times with Heras fencing;
- A requirement for engines to be switched off on-Site when not in use;
- spraying of areas with water supplied as and when conditions dictate to prevent the spread of dust;
- Vehicles carrying waste material off-Site to be sheeted;
- Banksmen will be provided at the Site access to indicate to construction traffic when it is safe for them to enter and exit the Site;
- All residents in the vicinity of the Site along the designated route will be provided with contact details of the Site Manager, which will also be provided on a Site-board at the Site access and egress junctions; and
- Agreement to a Road Condition Survey.

### **Operational Phase**

- 10.94 No additional mitigation is required during the operational phase of the Development due to the negligible transport effect of site maintenance.

## **Residual Effects**

### **Construction Phase**

- 10.95 For the construction phase of the Development temporary negligible residual effects are anticipated on accidents and safety, severance, pedestrian and driver delay and hazardous loads. Temporary minor/moderate adverse residual effects on non-motorised user amenity are also anticipated.

### **Operational Phase**

- 10.96 For the operational phase of the Development, residual negligible effects are anticipated on road user and pedestrian safety, severance, driver delay, non-motorised user delay and amenity and hazardous loads.

### **Cumulative Effects**

- 10.97 Cumulative schemes in the local area have been reviewed as part of this chapter.
- 10.98 As stated in Chapter 2 EIA Methodology of the ES, no likely significant cumulative environmental effects from the Development with other schemes are anticipated. However, although significant cumulative effects on transport and access are not anticipated, a number of the reviewed schemes will result in additional traffic on the A55 (further details are provided in Chapter 2 EIA Methodology). The A55, as part of the strategic road network, is of low sensitivity, and designed to carry high volumes of traffic. Additional traffic flows on the A55 as a result of the cumulative schemes will result in negligible effects only, which are not significant.
- 10.99 No cumulative schemes have been identified as having an impact on the B5112 nor on the Site Access Approach Road.

### **Summary**

- 10.100 Table 10.15 contains a summary of the likely significant effects of the Development on transport and access.

**Table 10.15: Table of Significance – Transport & Access**

Potential Effect	Nature of Effect (Permanent/Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)	Mitigation / Enhancement Measures	Geographical Importance*							Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)
				I	UK	W	R	C	B	L	
<b>Construction Phase</b>											
Effects on Road User Safety	Temporary	Negligible	Implementation of CTMP							X	Minor Adverse
Effects on Severance of Communities	Temporary	Negligible	Implementation of CTMP							X	Negligible
Effects on Driver and Passenger Delay	Temporary	Negligible	Implementation of CTMP							X	Negligible
Effects on Non-Motorised User Delay	Temporary	Negligible	Implementation of CTMP							X	Negligible
Effects on Non-Motorised User Amenity	Temporary	Minor/Moderate Adverse	Implementation of CTMP							X	Minor/Moderate Adverse
Effects on Hazardous Loads	Temporary	Negligible	Implementation of CTMP							X	Negligible
<b>Operational Phase</b>											
Effects on Road User Safety	Permanent	Negligible	None required							X	Negligible
Effects on Severance of Communities	Permanent	Negligible	None required							X	Negligible
Effects on Driver and Passenger Delay	Permanent	Negligible	None required							X	Negligible
Effects on Non-Motorised User Delay	Permanent	Negligible	None required							X	Negligible
Effects on Non-Motorised User Amenity	Permanent	Negligible	None required							X	Negligible

Effects on Hazardous Loads	Permanent	Negligible	None required							X	Negligible
<b>Cumulative Effects</b>											
<i>None identified</i>											

**\* Geographical Level of Importance**

I = International; UK = United Kingdom; W = Wales; R = Regional; C = County; B = Borough; L = Local

## REFERENCES

- 
- <sup>i</sup> Welsh Government (February 2021): Planning Policy Wales Edition 11
  - <sup>ii</sup> Welsh Government (September 2015): Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners
  - <sup>iii</sup> Welsh Government (April 2021): The National Plan 2040
  - <sup>iv</sup> Welsh Government (March 2007): Technical Advice Note 18: Transport
  - <sup>v</sup> The Isle of Anglesey County Council and Gwynedd Council (July 2017): Anglesey and Gwynedd Joint Local Development Plan 2011 - 2026
  - <sup>vi</sup> Conwy County Borough Council, Denbighshire County Council, Flintshire County Council, Gwynedd Council, Isle of Anglesey County Council and Wrexham County Borough Council (2015): North Wales Joint Local Transport Plan
  - <sup>vii</sup> Institute of Environmental Management & Assessment (IEMA) Guidelines (2023): Environmental Assessment of Road Traffic and Movement
  - <sup>viii</sup> Highways England, Transport Scotland, Welsh Government and Department for Infrastructure: Design Manual for Roads and Bridges (DMRB)