Brymbo Community Solar Array

Landscape and Visual Appraisal

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Landscape and Visual Appraisal

INTRODUCTION

1. The site is located within an open field to the south of Brymbo and east of Brymbo Road. The proposed development comprises a solar array and associated ancillary infrastructure.
2. This report presents the findings of a landscape and visual appraisal (LVA) that has been undertaken to identify the likely effects of the proposed development on the landscape character and visual amenity of the locality.
3. The assessment has been undertaken by Francesca Iribar, TMLI with over 25 years' experience in the landscape and visual assessment of various development types including residential, commercial, agricultural and renewable energy developments.
4. The appraisal has concentrated on a 2.5km radius study area (from the site centre) which is considered sufficient to identify all likely impacts on landscape and visual amenity (see **Figures LV1 – LV3**).
5. The appraisal is illustrated by **Figures LV1 – LV3 and by Viewpoints A - E** and supporting information is provided in **Appendices LV1 – LV2**. All references are listed at the end of this report.

METHOD OF ASSESSMENT

Assessment Approach

6. The appraisal is a study identifying the key views towards the proposed development and describing how these views could change as a result of the proposal. In addition, the study identifies the landscape character of the site and surroundings and sets out the potential changes to landscape character that could occur as a result of the proposed development.
7. The appraisal has examined the effects of the proposed development in the context of the existing landscape and visual baseline which currently contains no existing solar developments within the 2.5km radius. At the time of this appraisal (3rd October 2024) the study area contains no known solar applications in the planning system. The Plas Power Estate Solar Farm Proposal is due to be submitted as a Development of National Significance to the Welsh Assembly in the coming months. However, it is understood that the application is yet to be submitted. From the information available, it is understood that the proposal would be located just beyond the Brymbo Solar Array study area. As the Plas Power scheme is currently not a formal application and is located beyond the study area of this proposal, it has not been considered further.
8. The methodology used in this study conforms to the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3). GLVIA3 recommends that for non-EIA development, an assessment of significance is not required and that the assessment should also be proportionate to the scale of the project and the nature of its likely effects.

Good Practice Guidance and Data

9. The appraisal has drawn on information provided within the local development plans that cover the study area (see list of references), and landscape character assessments which cover the study area (see list of references).
10. As mentioned above, the appraisal has utilised guidance set out within the GLVIA3. In line with Landscape Institute Technical Guidance Note 06/19: Visual Representation of Development Proposals, photographs illustrating views from each viewpoint have been taken using a Canon EOS 6D digital camera using a fixed lens with a 50mm focal length and are provided as Type 3 photomontages. The photomontages are provided for information purposes and should not be considered as a substitute to visiting a viewpoint in the field.

Appraisal Process

11. The appraisal has involved information review, fieldwork observations and photography, and computer-based data processing and analysis, and has been undertaken in several stages, as presented in the following sections of this report:

    - Predicted effects and mitigation – a review of the visual characteristics of the proposed development to identify the aspects with the potential to give rise to landscape and visual effects and a description of the measures that have been incorporated into the design to mitigate these effects.
    - Landscape and visual context – a review of the landscape and visual baseline of the study area, to identify landscape character, landscape designations and visual receptors in the study area.
    - Visual analysis – visibility analysis using computer-generated zones of theoretical visibility (ZTVs) to identify the locations in the study area from where the proposed development could in theory be visible (based on topography only), and a viewpoint analysis to predict the changes to views as a result of the proposed development from a selection of viewpoints that represent some of the main visual receptors in the study area.
    - Landscape appraisal – an appraisal of the potential effects of the proposed development on landscape fabric, landscape character and landscape designations in the landscape study area.
    - Visual appraisal – an appraisal of the potential effects of the proposed development on the visual amenity of receptors in the visual study area.
    - Conclusions – a summary of the findings of the landscape and visual appraisals.

Prediction Methodologies

12. The prediction methodologies for the viewpoint analysis, landscape appraisal and visual appraisal are provided at the beginning of these sections, with a more detailed methodology provided in **Appendix LV2**.

PREDICTED EFFECTS AND MITIGATION

13. A detailed description of the proposed development and information on the installation of the various components of this proposed development are provided within **the accompanying Planning Statement.**

14. It is the visual appearance of the proposed development and associated activities and any proposed changes to landscape fabric that are the main aspects of the development with the potential to affect landscape and visual amenity and these are summarised below for each of the three distinct phases of the development – the construction, operational and decommissioning phases.

Construction Phase

15. The construction phase would be up to 3 months, and the activities and temporary features which would be visible on the site would include:

    - Installation of the solar arrays and inverter units to the rear of the frames.
    - Installation of a small grid unit.
    - One temporary compound area.
    - One battery storage container.
    - Repair of existing fencing and gates around the development, and introduction of CCTV at strategic points.
    - The presence of the HGV deliveries to site and movement of vehicles on-site.
    - Reinstatement works around areas disturbed by the works.

16. The visual effects of the various aspects of the construction phase would be temporary, intermittent and short-term with each aspect lasting only part of the 3 month construction programme.

17. As the field is currently open land, there would be extremely minimal loss of ground vegetation as a result of the temporary site compound and cable trenching. Ground disturbance would be minimised by good site management with full reinstatement over all temporarily disturbed and excavated areas.

18. The likely effects of the construction phase on the landscape fabric of the site are considered in the Landscape Appraisal below.

Operational Phase

19. The main elements that would be visible over the 35-year operational life of the proposed solar array would be:

    - Solar arrays – comprising approximately 15 rows of panels; the face of each panel would be approximately 2.87m deep and mounted at an angle of 25^0. These would sit on top of the ground on ballast supports so that the total height above ground of the highest part of the panels would be approximately 2.38m. The panels would be positioned in regular rows facing south with a spacing of approximately 4.5m between rows. Inverters would be located on the back of solar panels so as to be largely hidden from view.
    - Grid cubicle – as per the submitted specification drawings. Approximately 2m tall. Full dimensions in accompanying plans.
    - Battery store - as per the submitted specification drawings. Approximately 3m tall. Full dimensions in accompanying plans.
    - Existing fencing and gates – around the perimeter of the solar array. To be repaired.
    - Security cameras – CCTV system comprising approximately four cameras mounted on poles approximately 3m high at intervals around the site perimeter and located within the fencing at strategic points.
    - Periodical visits to the site for operational and grounds maintenance purposes (management of grassed areas), involving a commercial van type vehicle.

20. From a landscape and visual perspective, the number of additional visual elements present over the anticipated 35 year operational phase has been minimised by siting the solar array within an area surrounded by several areas of mature tree and shrub planting.

Decommissioning Phase

21. The decommissioning phase would be undertaken over a period of approximately 8 weeks, and the activities and temporary features which would be visible on the site would include:

    - The presence of HGV deliveries collecting materials and components from the site and the movement of vehicles on-site.
    - Dismantling and removal of the solar panels, grid unit, battery store and CCTV. Excavation and removal of associated hardstanding areas/plinths (where applicable).
    - Reinstatement works over the other areas disturbed by the works.

22. The effects on landscape and visual amenity during the decommissioning phase would be minimised by the limited duration of the works, by removing all above ground structures and materials, by leaving all below-ground structures in place (transmission cables which would be disconnected) and by restoring the ground disturbed by the works.

23. The likely effects of the decommissioning phase on the landscape fabric of the site are considered in the Landscape Appraisal below.

LANDSCAPE AND VISUAL CONTEXT

24. The proposed development would be located in a single open field south of Brymbo and east of Brymbo Road. The field is open ground over the top of a clay capped landfill and so will remain unvegetated by

significant vegetation for the lifetime of the proposal. A wire mesh fence with entry gate forms the boundary of the site field.

25. The site is located within a largely rural area with mature tree cover surrounding the site is all directions and pasture fields located to the west and east. An electricity substation is located approx. 170m to the south of the site with an electricity pylon from the nearby 132kV line located approx. 60m west of the site. The centre of Brymbo is located approx. 380m to the north of the site. Brymbo Road is situated approx. 160m west of the site, with Brake Road located approx. 75m to the north of the site and Blast Road approx. 130m to the northeast of the site. Main roads within the study area include the A525, B5101 and B5102. Beyond this, the study area is accessed by a network of minor local roads.

26. There are a number of woodlands within the study area including the mature vegetation surrounding the site as well as Pen-y-Coed, Coed y Felin, FFrwd Wood, Sydallt Wood, Nant Wood, Black Wood, Darnau Wood and Coed Mawr.

27. The nearest public right of way (PRoW) to the site is Footpath BRY/0 which travels from Brake Road to Brymbo Road past the electricity substation, running approx. 50m east of the proposed site at its closest point. Beyond this, Footpaths BRY/29, BRY/30 and BRY/31 all follow routes to the west of Brymbo Road and east of Minera Road at distances of over 260m west and northwest of the site. Bridleway BRY/25 follows a route immediately east of Brymbo Pool at a distance of approx. 260m from the proposal. Footpath BRY/59 runs from Brymbo Road to Pentre Fron Road at a distance of over 350m from the proposal. Beyond these closest footpaths and bridleways to the site, the remaining PRoWs are located at distances of over 750m from the proposal. There are no long distance rights of way located within the study area.

28. The nearest individual residential properties to the application boundary of the proposed development are Mount Pleasant Farm, Mount Pleasant Cottage and one unnamed nearby property (approx. 180m to the west), an unnamed property at the Brymbo Road junction (approx. 350m to the southwest), Pen-Rhos Farm (approx. 400m to the southwest), Rhos-y-coed Farm (415m to the southwest) and an unnamed property on Brymbo Road near Pen-rhos Substation (approx. 310m to the south). Other residential properties are located within settlements such as Brymbo or scattered throughout the landscape at distances of over 0.5km from the proposal.

29. The landform of the site is broadly flat, at approx. 250m AOD. The landform across the study area as a whole varies greatly as an undulating landform with several valleys.

30. At the time of the appraisal we are unaware of any other solar developments currently proposed within the study area. However, it is worthwhile noting that a large scale housing development, Brymbo Park, has planning permission to build 300 homes approx. 500m east of the proposed site. This large scale development would form part of the baseline in the future and has been considered as such within this appraisal.

Landscape Fabric

31. The proposed solar development would be located across an open field. Currently the field is open soil, but at the time of construction the field would be grassland, where the only landscape element would be the grassland itself as the boundary to the field is formed by the existing site fencing.

Landscape Character

32. At a national level, Natural Resources Wales (NRW) has divided Wales into 48 National Landscape Character Areas (NLCAs). The proposed site and large parts of the study area are located within the Clwydian Range National Landscape Character Area 12. Much of the eastern section of the study area is covered by the Deeside and Wrexham NLCA13. The full NLCA descriptions for these two areas are included within **Appendix LV1**, with the key characteristics set out below.

NLCA12 – Clwydian Range

- **Rounded, heather clad open hills in two main groups**, a northern chain rising to Model Famau (554m), a southern chain rising to Moel y Gamelin (577m). Formed by sandstones and argillaceous rocks and shales.
- **Narrow, minor river valleys dissect the hills -** draining into the Vales of Clwyd or Llangollen.
- **A gentle intervening vale** - the River Alyn flows north, at times incised, then east.
- **Well defined western and southern edges** – with adjacent deep valleys.
- **Carboniferous Limestone to the east** - with classic scenery of clints, grykes, crags and scarp slopes, use of stone in field boundaries and buildings, large quarries, and in places an exposed appearance. Gentler slopes towards Deeside.
- **A series of minor rivers** - have their sources in the hills, draining west into the Clwyd in the Vale of Clwyd.
- **Heaths** - in the Halkyn Mountain area.
- **Hedgerows and numerous hedgerow trees** - improved hill sheep grazing and lowland pasture.
- **Quarries and mining heritage** – a number of large limestone quarries in the east and slate quarries in the south near Horseshoe Pass. Extensive evidence of old mineral workings on Halkyn Mountain.
- **Archaeology** - a relatively high density of prehistoric ritual and funerary monuments, including round barrows, and later, Iron Age hill forts indicate the area's past strategic importance.
- **Historic parks** - A number of historic parks and gardens occur within the area, notably Bryngwyn and Penbedw.
- **Culturally a divide** - the area reflects the historical divide between English influences to the east and Welsh influences to the west. Parts of the area are designated as an AONB.
- **Sparse level of settlement** - confined to compact, nucleated hamlets and isolated farmsteads. Crossed by a number of arterial 'A' roads, the presence of the A55 Expressway across the northern part of the area is the most apparent.

NLCA13 – Deeside and Wrexham

- **Lowland, foothills and levels** - sloping down to the lower Dee and Dee Estuary. Carboniferous Coal Measures interspersed with outcrops of Millstone Grit, Holywell shales and Cefn-y-Fedw sandstones. Glacial till, fluvio-glacial and river terrace drift overlay in parts of the valley floor, giving rise to localised gentle land form variation.
- **A single large river, the Dee, traverses the area**. The Dee opens out into a broad estuary with tidal sand and mud flats. A number of minor rivers dissect the landscape, for example, the Alyn and Eitha, and associated streams.
- **A broad flat flood plain adjacent to the Dee Estuary** – with wide open views to Wirral.
- **Narrow, incised, wooded tributary valleys** – many running down from the west.
- **Mixed pasture and some arable** - and farm woodland cover.
- **Archaeology** - variety of historic sites indicate the former strategic importance of the coastal route and the turbulent history of the Marchlands, including Offa's Dyke and Wat's Dyke. Late Medieval parklands and ecclesiastical / funerary sites.

- **Urban settlements** - a strongly settled character is apparent in the central and southern parts of the area, with the relatively large, almost linked settlements of Holywell-Connah's Quay-Mold-Wrexham-Ruabon.
- **An industrial character** - evident in the line of coalesced settlements at Connah's Quay and Holywell, associated both with the Chester to Holyhead railway line, mining and large scale power generation and industrial plants. Include landmark scale structures such as Broughton aircraft factory, Shotton Steel works and Connah's Quay power station. Industry tends to dwarf historic settlement and features e.g. Flint and it's castle.
- **Small settlements** – outside urban areas, compact villages associated with landed estates and isolated farmsteads, or coalesced ribbon developments and encroachment upon commons, which are the legacy of the former coal and lead mining industries.
- **Culturally many connections to Chester and Merseyside.**

33. Wrexham County Borough is also divided into various LANDMAP Character Areas (LCAs). These are based on LANDMAP information and are shown on **Figure LV2.** This shows that the proposal would be located within LCA7D – West Wrexham Ridges and Valleys. A further 3 Wrexham LCAs cover much of the remainder of the study area. **Figure LV2** also shows the other LANDMAP Visual and Sensory Aspect Areas within the study area but outside of Wrexham County Borough, although it should be noted that all five Aspect Layers from LANDMAP were considered within the study area through the course of this appraisal. The key characteristics of LCA7D as well as the other three LCAs within Wrexham County Borough are outlined below and the full LCA descriptions for the LCAs are included within **Appendix LV1**:

LCA7D – West Wrexham Ridges and Valleys

LCA Summary:

- *Mixed rural and urban village character.*
- *Strong NW-SE orientation, with alternating ridges and valleys.*
- *Hilltop villages separated by woodland, former industrial land and farmland.*
- *Widespread use of local Cefn sandstone in older buildings, and distinctive stone walls.*
- *Changing landscape as post mining restoration and regeneration continue.*
- *Variety of wildlife habitats including small but important wetlands.*
- *Border area - Offa's Dyke and site of prehistoric hillfort.*

Key Characteristics:

Visual Character:

- Visually varied and complex, including lowland, valleys and hill and scarp areas.
- Characteristic undulating hill slopes with wooded valleys.
- Views towards Wrexham and the lowlands.
- Urban villages and Wrexham linked by roads crossing open lowland farmland area.
- Scattered groups of buildings in local Cefn sandstone and stone-built village cores, individuality in later additions but much standardised modern housing development.

Geological Character:

- The complex landform is related to geological faults, with alternating series of resistant sandstone ridges, and Coal Measure valleys of Carboniferous age.

- Villages are built on outcrops of Cefn Rock (sandstone) which has been quarried for local building stone.
- Glacial till covers much of the lower areas, with glacial sands and gravels towards Wrexham.
- Many artificial landforms including the former Brymbo steelworks site.

Ecological Character:

- Much of the non-built area is improved grassland or arable of relatively low value.
- Important wetlands include reed mace swamp at Gatewen Moss and rich swamp and marshy grassland at Higher Berse Marsh. Gwenfro valley has wet woodland and areas of valuable lowland pasture.
- Plas Power tip and the former Brymbo Steelworks site are being restored mainly to broadleaved woodland.

Historical Character:

- Countryside has remnants of ridge and furrow, regular and irregular fields, but much land has been disturbed.
- Most settlement is related to 19th and 20th century mining and industry.
- Remnants of Bryn y Gaer prehistoric military hillfort at Pentre Broughton and the route of Offa's dyke can be identified.
- Brymbo steelworks heritage area and Plas Power colliery buildings have been preserved.
- Network of disused industrial railway lines crosses area.

Cultural Character:

- Urban villages retain their own cultural identity, but this is becoming weakened.
- Area is affected by A483 corridor, which separates it from Wrexham, but increases accessibility to commuters.
- Agriculture is still of some importance but horsiculture is an increasing land use.

LCA6 – Minera – Gwynfryn – Bwlchgwyn

LCA Summary:

- *Landscape strongly influenced by geology.*
- *Legacy of lead mining and quarrying.*
- *Prominent north facing limestone scarp.*
- *Highest villages in Wrexham.*
- *Area of landscape contrasts.*
- *Archaeological and recreational potential.*
- *Outstanding wildlife value.*

Key Characteristics:

Visual Character:

- The limestone scarp, and the adjoining head of the Clywedog valley are of different character but visually linked.
- Open and exposed on higher ground with a lack of tree cover and sparse hedgerows.

- Villages with dispersed settlement pattern, stone buildings frequent, built of Cefn sandstone.
- Some old stone walls as field boundaries, generally in poor repair.
- Quarries provide strong contrasts in terrain and colour in the landscape.
- Pylons and overhead lines on poles often clutter skyline.

Geological Character:

- Varied topography, between 250 and 350 m above sea level, with stepped north-facing Carboniferous limestone scarp, a continuation of the Eglwyseg Crags in Denbighshire, separated by the Minera Fault from the Millstone Grit (Cefn-y-Fedw sandstone) landscape to the east.
- Much geological interest - mineralogy, mines, caves and limestone pavement.
- Extensive evidence of former lead mining, limestone and sandstone quarrying, particularly Minera and Bwlchgwyn quarries.

Ecological Character:

- Complex area with a variety of fragmented habitats, including heath, acid and calcareous grassland, caves, bracken, woodland, scrub woodland and bare rock.
- The only area in Wrexham County Borough with lowland calcareous grassland and areas of limestone pavement.
- Birch woodland of high value covers the slopes around the entrance to Minera quarry.

Historical Character:

- Villages have mainly 19th - 20th century origin, associated with lead mining and subsistence farming. Resulting in a settlement pattern of clustered small villages and scattered roadside properties.
- Many archaeological sites, including prehistoric caves at Minera the disused limestone quarry with its lime kilns Minera lead mine with Hoffman kilns, engine houses, disused railway and other industrial archaeology features.
- Military border area - outer banks and ditches of Fron Heulog Iron Age Hillfort (Bwlchgwyn quarry) can still be seen.

Cultural Character:

- Agriculture, mainly upland grazing, is the main land use.
- Minera lead mines country park includes preserved lead mining features.
- The area is linked to Wrexham by the Clywedog Trail.
- Area of rich historical and cultural heritage.

LCA9A – Clywedog Valley, Plas Power and Bersham

LCA Summary:

- *Cut-off areas of countryside, and wooded valley to the east of Wrexham town.*
- *Woodlands of high nature conservation value.*
- *Country parks at Nant Mill and Minera.*
- *High potential for recreation, linking town and country.*
- *Heritage centre and ironworks at Bersham.*

- *Plas Power estate adjoining Clywedog Valley, surrounded by a magnificent stone wall.*

Key Characteristics:

Visual Character:

- Varied visual character but area, though close to settlements, is separated from them by walls, roads or topography and has a more tranquil character.
- Upper Clywedog valley is overlooked by Coedpoeth and Minera, middle section is a wooded rocky gorge, and lower section is more shallow with a mosaic of lowland farmland and woodland.
- Substantial Cefn sandstone stone walls of the Plas Power estate surround approximately a square mile of parkland.

Geological Character:

- In this area the upper Clywedog Valley follows a course between Esclusham Mountain to the south and Coal Measure areas to the north, separated by fault lines. The lower valley cuts through part of the terrace of sands and gravels known as the Wrexham delta terrace, on which Wrexham sits.
- The river is incised into the landform, and where it cuts through resistant Cefn sandstone in the area of Nant Mill Country Park there are steep slopes and rock exposures.
- There is much disturbed land or woodland, but soils are generally derived from alluvium or glacial drift.

Ecological Character:

- Several valuable habitats associated with the river, valley bottom and floodplain.
- River Clywedog is an aquatic habitat of high value.
- Upland mixed ash woodland of high value and oak/ash/sycamore woodland are found in the valley and Plas Power estate.

Historical Character:

- The area is crossed by Offa's Dyke, a prehistoric military feature of outstanding archaeological value.
- The eastern half of the Plas Power estate is restored land, following post war opencast coal mining, and the remaining designed landscape is in poor condition.
- North of Bersham, the farmland retains a pattern of small fields.

Cultural Character:

- Recreational and educational area with Clywedog Trail from Wrexham to Minera, Bersham Heritage Centre and Minera lead mining centre, and the Nant Mill Country Park.
- Bersham, now a Conservation Area, was a centre for iron working, and originally the trees from the valley provided charcoal for smelting. John Wilkinson (1728-1808) known as 'the father of the iron trade' is of international renown - the ironworks supplied clients throughout Europe.
- The valley is linked to the Plas Power estate, of which the central core (the Hall has been lost) and the higher parts survive.

LCA9C – Ffrith Valley

LCA Summary:

- *Deep wooded valley running west to east from Llandegla Moors to Cefn-y-bedd.*
- *Transition from upland to lowland.*

- *Industrial archaeology – old quarries, disused railways, mines, iron working.*
- *Tributary valleys with farmland and woodland.*
- *Potential for informal recreation.*

Key Characteristics:

Visual Character:

- Relatively high quality landscape -scenic and rural in appearance, with backdrop of hills.
- Good views northwards from Bwlchgwyn and Windy Hill.
- The Ffrith rises on the edge of the Llandegla Moors, where the valley has an open, grazed upland character.
- From the Nant y Ffrith reservoir in Denbighshire to the River Alyn at Cefn y Bedd, the valley becomes steep sided and more wooded, with minor tributaries joining.
- The lower part of the valley includes more settlement, farmland and disturbed land while retaining an overall wooded character.

Geological Character:

- The Ffrith valley follows fault lines, cutting into rocks of Carboniferous age, including an outcrop of Minera limestone near Bwlchgwyn, and Cefn y Fedw sandstone (millstone grit). There are disused quarries.
- Mixed sedimentary rocks (Coal Measures), often overlain by glacial till, are also found in the character area.
- Artificial restored landforms at Glascoed following mineral extraction.

Ecological Character:

- Woodlands of value include beech, wet woodland, oak/ash/sycamore and upland mixed ash woodland types. There are also conifer plantations.
- Other habitats include lowland pasture, dry lowland heath and lowland acid grassland and rush.
- Remaining areas are mostly improved grassland and farmland of low biodiversity value.

Historical Character:

- Remnants of former railway lines and industrial uses including stone quarrying, coal mining and metal processing (Ffrwd iron working).
- Industrial archaeology includes former water mills.
- Part of Wrexham borderlands fieldscape.

Cultural Character:

- Agricultural land uses, mainly pasture on less steeply sloping ground.
- Informal recreation.

Landscape Designations

34. There are no national or local landscape designations in the study area. The nearest landscape designation to the site is the Clwydian Range and Dee Valley National Landscape (formerly Area of Outstanding Natural Beauty) and its boundary is shown on **Figure LV3**.

Visual Receptors

35. The visual receptor locations within the study area are illustrated on **Figure LV3** and include:

    - Settlements – the villages and hamlets of Brymbo, Tanyfron, Coedpoeth, Brynteg, Moss, Gwersyllt, Summerhill, Ffrith, Mount Zion, Bwlchgwyn, Minera and Cymau.
    - Individual residential properties – scattered houses, cottages and farmsteads.
    - Local public rights of way – footpaths, bridleways and byways open to all traffic (BOATs).
    - Visitor attractions – Brymbo Heritage Centre.
    - Public highways – including the A525, B5102, B5101, B5433, B5426, B5430 and a network of minor local roads.

36. The Countryside and Rights of Way (CRoW) Access Land Maps on the Wales Environmental Information Portal website [1] have been checked and there are no areas of access land within 2.5km of the site.

VISUAL ANALYSIS

Theoretical Visibility Analysis

37. The Brymbo Zone of Theoretical Visibility (ZTV) has been generated using a computer-based intervisibility package, the Ordnance Survey Digital Terrain Model (DTM) with height data at 5m intervals and a model of the proposed Brymbo development. **Figure LV1** illustrates the potential visibility of the proposed solar array, using a point within the centre of the proposal as the target positioned at the height of the highest parts of the solar panels above ground level. Indicative solar panel heights for the site suggest a 2.4m highest point for the panels although a precautionary 2.5m maximum height has been used within the ZTV to allow some flexibility and illustrate a worst case scenario.

38. The ZTV in **Figure LV1** suggests the proposed development would potentially be visible across only very limited parts of the study area; these being mainly central and some eastern areas as well as the northern and southern fringes of the study area. The ZTV indicates that across large parts of the study area the proposal would be entirely screened from view by topography.

39. However, the ZTV is based on bare terrain topographical data only. It does not take into account the screening effects of any minor topographic features, vegetation such as woodland, tree belts and hedgerows or other built structures and therefore tends to over-emphasise the extent of visibility in this type of well vegetated landscape, providing a worst case scenario. In reality, these surface features would fragment and reduce the extent of most of these zones of theoretical visibility, and, in a well vegetated landscape such as this, would also reduce the amount/proportion of the proposed development visible from any given location.

40. The ZTV does not illustrate the decrease in the scale of the proposed development with increased distance from the site which is better illustrated by viewpoints. As a result, fieldwork and the viewpoint analysis are essential as a way of verifying the ZTV and undertaking a thorough appraisal.

Viewpoint Analysis

Viewpoint Locations

41. The viewpoints were selected to represent the most open views of the proposed solar array from a range of distances, directions and viewpoint receptor locations. The viewpoints are listed in **Table LV1** below and the locations of these viewpoints are shown on the figures (**Figures LV1 – LV3**). A detailed description of the viewpoints and the potential changes that would occur to each through the introduction of the proposed development are contained in **Appendix LV2**.

[1] https://smnr-nrw.hub.arcgis.com/

42. These findings are summarised below in **Table LV2**. The findings in **Table LV2** take into account the screening effects of intervening topography, existing vegetation and built form and assume excellent visibility conditions.

Table LV1: Viewpoint Locations

Vp No	Location	Easting	Northing	Elevation (approx)	Distance to turbine (km)	Bearing (approx) to site	Landmap Character Area	Landscape Designations	Recreational and Transport Routes	Visual receptors
A	Footpath south of site near Pen Rhos substation	329115	353250	246m AOD	0.2	S	LCA7D – West Wrexham Ridges and Valleys	None	Public Right of Way	Walkers
B	Brymbo Road	328805	353150	259m AOD	0.4	SW	LCA7D – West Wrexham Ridges and Valleys	None	Local road	Motorists, A few residents
C	Near junction of Ffordd Owain and Argoed, Brymbo	329240	353725	241m AOD	0.3	NE	LCA7D – West Wrexham Ridges and Valleys	None	Local road	Nearby residents, Motorists
D	Long Lane near local footpath	330330	352955	190m AOD	1.3	SE	LCA7D – West Wrexham Ridges and Valleys	None	Local road	Nearby residents, Motorists, Walkers
E	Plas Pentwyn, Coedpoeth	328570	351250	227m AOD	2.2	S	LCA7D – West Wrexham Ridges and Valleys	None	Local road	Nearby residents, Motorists

Table LV2: Summary of Viewpoint Analysis – Effects on Landscape Character and Visual Amenity

Viewpoint Information				**Landscape Appraisal**			**Visual Appraisal**		
No	**Location**	**NGR**	**Distance/ direction to site**	**LCA (sensitivity)**	**Magnitude of change**	**Effects on Landscape Character**	**Receptors (sensitivity)**	**Magnitude of change**	**Effects on Visual Amenity**
A	Footpath south of site near Pen Rhos substation	329115 353250	0.2km/ S	LCA7D – West Wrexham Ridges and Valleys (Medium/ low)	None	No effect	Walkers (High/ medium)	None	No effect

B	Brymbo Road	328805 353150	0.4km/ SW	LCA7D – West Wrexham Ridges and Valleys (Medium/ low)	None	No effect	Motorists (Medium)	None	No effect
							A few residents (High)		No effect
C	Near junction of Ffordd Owain and Argoed, Brymbo	329240 353725	0.3km/ NE	LCA7D – West Wrexham Ridges and Valleys (Medium/ low)	None	No effect	Motorists (Medium)	None	No effect
							A few residents (High)		No effect
D	Long Lane near local footpath	330330 352955	1.3km/ SE	LCA7D – West Wrexham Ridges and Valleys (Medium/ low)	None	No effect	Nearby residents (High)	None	No effect
							Motorists (Medium)		No effect
							Walkers (High/ medium		No effect
E	Plas Pentwyn, Coedpoeth	328570 351250	2.2km/ S	LCA7D – West Wrexham Ridges and Valleys (Medium/ low)	None	No effect	Nearby residents (High)	None	No effect
							Motorists (Medium)		No effect

Findings of Visual Analysis

43. The well vegetated nature of the landscape immediately surrounding the site as well as the low elevation of the solar panels within the array would limit the potential visibility of the proposal greatly. The visual analysis also indicates that fieldwork was unable to find any locations where the proposed solar array would be visible from publicly accessible points. Given the maturity and depth of tree cover surrounding the site, it is considered that this would also be the case in winter months.

44. A more detailed discussion of the likely effects on the visual amenity of receptors in settlements and residential properties, on recreational routes and on public highways is provided in the Visual Appraisal below.

LANDSCAPE APPRAISAL

45. This appraisal draws on the review of the predicted effects of the development, the landscape fabric of the site, the key characteristics of the LCAs, the purposes/objectives of the landscape designations, the visibility analysis, the viewpoint analysis and fieldwork observations, and discusses the predicted effects on:

- Landscape fabric of the site.
- Landscape character.
- Purposes of the landscape designations.

Effects on Landscape Fabric

Prediction Methodology

46. Landscape fabric is composed of the physical components of the landscape (eg landform, land cover and landscape elements and features). Developments can bring about both direct and indirect effects on landscape fabric. Direct effects occur where changes to the fabric of the landscape arise as the result of physical disturbance, for example, the loss of landscape elements such as hedgerows, walls and trees. Indirect effects are consequential changes that are separated from the source of the change in a temporal or spatial manner, for example changes in vegetation downstream as the result of modifications to surface water patterns upstream in a catchment area.

47. This appraisal of effects on landscape fabric considers the existing landscape fabric of the site and the predicted effects of the development, and makes a judgement as to whether there are likely to be any beneficial or adverse changes to landscape fabric based on the following two definitions:

- Beneficial effects on landscape fabric - could occur where important/mature/diverse/distinctive components, which had previously been lost or degraded as the result of agricultural operations or other development, would be added, reinstated or improved.
- Adverse effects on landscape fabric - could occur where existing important/ mature/ diverse/ distinctive components would be permanently lost (or long term temporarily lost) and the effects cannot be adequately mitigated.

Construction Phase

48. There would be no adverse effects on landscape fabric during the construction phase as there would be no loss of important, mature, diverse or distinctive landscape components. The temporary construction site entrance from Brymbo Road to the west would utilise an existing access point, farm track and field access, thus accommodating access to the proposal without any loss of existing vegetation.

49. As the site field is currently open ground, there would be no loss of ground vegetation as a result of the temporary site compound, solar panels (on ballasts), grid cabinet, battery store and cable trenches. The Existing fencing around the site would be used and fixed where necessary and CCTV would be integrated into the fencing so that no vegetation loss would occur in respect of these aspects. Beneath the solar array

the field would be turned into pasture. Therefore, there would not be any adverse or beneficial effects on landscape fabric as a result of the construction phase.

Operational Phase

50. Once the construction phase has been completed, the site would be maintained as grassland under the solar panels throughout the operational phase of the proposed development. Therefore, there would be no effect on landscape fabric during the operational phase.

Decommissioning Phase

51. There would be minimal disturbance of landscape features during this phase as below ground structures (eg cables) would be left *in situ* and there would be reinstatement of the ground over all ground disturbed by the works. Therefore, there would be no effect on landscape fabric during the decommissioning phase.

Effects on Landscape Character

Prediction Methodology

52. Landscape character is composed of physical, biological and social components, combined with aesthetic and perceptual factors. This assessment of effects on landscape character considers the existing landscape character of the site and study area by using the information collected during fieldwork and within the local landscape character assessments for the area. It considers the predicted effects of the development, and assesses the area within which there is likely to be a change to landscape character.

53. Changes to landscape character depend on the sensitivity (susceptibility and value) of the landscape resource and the scale or magnitude of landscape effects, as indicated by fieldwork and the viewpoint analysis. Therefore, fieldwork observations are examined together with the findings of the viewpoint analysis so as to determine the degree and extent of likely effects of the proposed development on landscape character within the various landscape character units in the study area.

54. Landscape units are often relatively large geographical areas and the screening effects of topography and vegetation will vary across each unit, so that the predicted extent of effects on landscape character will almost always be intermittent. However, with increasing distance from the proposed site, the proposed development will generally have a decreasing effect on landscape character.

Effects on Character of the Site Landscape

55. There would be some short-term effects on the character of the site as a result of the construction phase. Overall, the construction phase would be short-term, with the various activities lasting for only small parts of the overall timescale. The presence of construction machinery and activities would be transient (temporary, short-term and reversible) and ground and vegetation disturbance would be extremely limited.

56. The main effects on the landscape character of the site would occur during the operational phase as a result of the presence of the solar panels and associated infrastructure. All these parts of the proposed development would be located within LCA7D – West Wrexham Ridges and Valleys, composed of Former Brymbo Steelworks AA (Visual & Sensory and Cultural Heritage Aspect Layers), Brymbo AA (Geological and Historic Landscape Aspect Layers) and Talwrn Grassland (Landscape Habitats Aspect Layer).

57. The elements of the proposal most likely to be visible across the site during the operational phase would be the solar panels forming the solar array, grid cabinet, battery storage unit and CCTV, all of which would become key characteristics of the site landscape and, although no existing key characteristics would be lost or changed, they would contrast with the existing character such that these elements of the proposal would result in an adverse effect on the character of the site landscape.

58. The existing mature woodland planting surrounding the site would limit the influence of the proposed development during the operational phase within the surrounding area to such a degree that adverse effects on landscape character would be extremely limited, even in winter months.

59. The decommissioning phase would be very short-term, ground disturbance would be very limited in extent and there would be the removal of the built form and the reinstatement of the ground on completion of the works, which should return the site to its current character. Therefore, the decommissioning phase would result in a beneficial effect on the landscape character of the site relative to the operational phase. Nevertheless, the change in character upon decommissioning relative to the current landscape character of the site would be neutral.

60. The aspects of the development that are likely to give rise to effects on landscape character (and visual amenity) during the operational phase are the solar panels, grid cabinet, battery storage unit and CCTV, and the effects of the presence of these features on the character of the wider landscape are considered below.

Effects on Character of Wider Landscape

61. There are two main LCAs located within the 2.5km radius study area, along with a few smaller LCAs on the periphery of the study area (located outside of the ZTV for the proposal) and a few Aspect Areas (Visual and Sensory) located on the northern periphery of the study area beyond the Wrexham County Borough boundary and largely surrounded by coniferous woodland.

62. The focus of this appraisal has been on the two main LCAs within the study area given the well screened nature of the site and immediate surroundings. Nevertheless, it is worth noting that all five of the Aspect Layers from LANDMAP have been considered within this appraisal in relation to potential effects on landscape character.

LCA7D – West Wrexham Ridges and Valleys

63. The key characteristics of this LCA include mixed rural and urban village character, strong NW-SE orientation, with alternating ridges and valleys, hilltop villages separated by woodland, former industrial land and farmland, changing landscape as post mining restoration and regeneration continue, characteristic undulating hill slopes with wooded valleys, urban villages and Wrexham linked by roads crossing open lowland farmland area, scattered groups of buildings in local Cefn sandstone and stone-built village cores, individuality in later additions but much standardised modern housing development, villages are built on outcrops of Cefn Rock (sandstone) which has been quarried for local building stone, many artificial landforms including the former Brymbo steelworks site, much of the non-built area is improved grassland or arable of relatively low value, Brymbo steelworks heritage area and Plas Power colliery buildings have been preserved, most settlement is related to 19th and 20th century mining and industry, urban villages retain their own cultural identity, but this is becoming weakened, agriculture is still of some importance but horsiculture is an increasing land use.

64. A more detailed description of this AA is provided in the extract in **Appendix LV1**. The area is described within the LCA description (extract) '*a complex area of former mining villages, industry, farmland and woodland in a landscape of distinct ridges and valleys which are aligned towards Wrexham town*'.

65. This is a landscape that derives its character mainly from its key characteristics. It is also characterised to a limited degree by the occasional views out of the landscape to the urban area of Wrexham to the east. The overall evaluation of the sensitivity of this LCA to the proposed development has been identified as **medium/ low**. The LCA within the study area is considered to be of local value and to have a slight susceptibility to the location and type of development proposed. The description of the sensitivity of the LCA within the published character assessment states '*this area continues to accommodate profound changes, but is vulnerable to further loss of local distinctiveness, and coalescence of villages because of continuing development pressure. The small scale of the ridges and valleys means they are sensitive to large scale development, masts and power lines, and inappropriate engineered landforms'.* It is considered that the careful siting of this small scale development (and low elevation development) on an existing engineered landform (clay capped landfill) surrounded by mature woodland but within the broader context of the LCA which continues to undergo largescale change including large scale housing development nearby, would result in a slight susceptibility to the location, scale and type of development proposed.

66. Within the Viewpoint Analysis Viewpoints A – E are all located within this LCA at distances ranging between 0.2km and 2.2km from the proposal. The ZTV in **Figure LV2** indicates that this LCA covers central, southern and parts of the northern sectors of the study area as the largest LCA within the study area and suggests some potential visibility of the proposed solar array mainly from central parts of this LCA surrounding the site as well as a few more distant sections of the LCA. However, in reality fieldwork has indicated that the wealth of mature woodland surrounding the site would entirely screen the proposal from view, even in winter months. This is reiterated by the viewpoints which all illustrate no visibility of the proposal, even from 200m from the site. Undoubtedly there may be a few parts of the LCA immediately adjacent to the site (perhaps within 100m of the site) where the proposal could be discernible, mainly in winter months, but the influence of the proposal on landscape character would be largely contained by this mature woodland surrounding the site and would not extend beyond the immediate vicinity of the site where, at worst, a minor adverse effect on landscape character would be expected (adverse, long term but reversible).

67. The ZTV suggests very limited potential visibility of the proposal based on bare earth topographical data only and does not include vegetation such as the woodland around the site or built form such as the numerous settlements within the LCA which will add further screening of the proposal than indicated on the ZTV. Fieldwork was unable to find any clear and open views of the proposal from this LCA. Each of the viewpoints within this appraisal has illustrated how the proposal would sit well below and behind the treeline within views and so would not have an influence landscape character. As a result, the key characteristics of the LCA set out above would remain unaffected by the proposal and no effects on the landscape character of the LCA would be expected beyond the immediate surroundings of the site.

LCA 9C – Ffrith Valley

68. The key characteristics of this LCA include deep wooded valley running west to east, industrial archaeology – old quarries, disused railways, mines, iron working, tributary valleys with farmland and woodland, relatively high quality landscape -scenic and rural in appearance, with backdrop of hills, the lower part of the valley includes more settlement, farmland and disturbed land while retaining an overall wooded character, artificial restored landforms at Glascoed following mineral extraction, woodlands of value include beech, wet woodland, oak/ash/sycamore and upland mixed ash woodland types, there are also conifer plantations, other habitats include lowland pasture, dry lowland heath and lowland acid grassland and rush, remaining areas are mostly improved grassland and farmland of low biodiversity value, remnants of former railway lines and industrial uses including stone quarrying, coal mining and metal processing (Ffrwd iron working), industrial archaeology includes former water mills, part of Wrexham borderlands fieldscape, agricultural land uses, mainly pasture on less steeply sloping ground.

69. A more detailed description of this AA is provided in the extract in **Appendix LV1**. The area is described within the LCA description (extract) '*the Ffrith Valley is one of several wooded river valleys which have been affected by industrial uses, past or present*'.

70. This is a landscape that derives its character partly from its key characteristics. It is also characterised by the views out of the landscape to surrounding hills and neighbouring areas. The overall evaluation of the sensitivity of this LCA to the proposed development has been identified as **medium**. The LCA within the study area is considered to be of local value and to be moderately susceptible to the location and type of development proposed due to views including those into neighbouring landscape character units.

71. At its closest point this LCA is located approx. 0.7km west of the proposal site, although Figure LV2 indicates that the proposal would be entirely screened from the majority of the LCA, except for a small area on the northeast boundary of the study area near Sydallt and a further area near Darnau Wood, approx. 1.7km west of the proposal. However, fieldwork has indicated that in reality the wealth of mature vegetation within this LCA including along roadsides, woodland blocks and on field boundaries would entirely screen the proposal from view, even in winter months. This vegetation combined with the mature woodland surrounding the site would act as year round screening of the proposal. This would also be the case from the small part of the LCA near Sydallt on the edge of the study area.

72. Whilst the ZTV suggests very limited potential visibility of the proposal from this LCA, this is based on bare earth topography and in reality the very well vegetated nature of the LCA means that the influence of the proposal on the landscape character of parts of the LCA at distances of over 1.7km away would not occur and none of the key characteristics of the LCA would be affected by the proposal.

LCA6 – Minera – Gwynfryn – Bwlchgwyn and LCA9A – Clyweddog Valley, Plas Power and Bersham

73. The ZTV indicates that these two LCAs are located within the southwestern edges of the study area and that no potential visibility of the proposal would occur from within either of these LCAs due to the screening effects of intervening topography. Fieldwork found that intervening topography combined with built form and mature vegetation would entirely screen the proposal from these LCAs within the study area. Therefore, no effects on the character of these LCAs would occur as a result of the proposed development.

Other Landscape Character Units within the study area

74. Various other Aspect Areas (AAs) are located on the northern fringes of the study area beyond the Wrexham County Borough boundary. However, the ZTV suggests extremely limited potential visibility of the proposal from these AAs and fieldwork found that intervening topography combined with built form and mature vegetation would entirely screen the proposal from these AAs within the study area. Therefore, no effects on the character of these AAs would occur as a result of the proposed development.

Effects on Landscape Designations

75. There are no national or local landscape designations in the study area. The nearest landscape designation to the site is the Clwydian Range and Dee Valley National Landscape (formerly Area of Outstanding Natural Beauty) and its boundary is shown on **Figure LV3**.

76. Therefore, there would be no effects on landscape designations within the study area as a result of the proposal.

VISUAL APPRAISAL

Prediction Methodology

77. Visual amenity arises from a visual receptor's experience of the visual world around them and the value they place on a particular view or views. This appraisal draws on the predicted effects of the development, the viewpoint analysis and fieldwork observations, and discusses the predicted effects on the visual amenity of receptors at a range of visual receptor locations within the study area. Within this study area these include settlements, individual residential properties, the local public rights of way network, visitor attractions and public highways.

78. Effects on visual amenity as a result of a proposed development can be perceived as beneficial, adverse or neutral and this depends largely on the perceptions and opinions of the individual receptors and, to a certain extent, on the type of development proposed. The polarisation of public opinion on renewable energy is such that it is difficult to define changes in a view as having a definitely beneficial or definitely adverse effect on visual amenity for all members of the public who may experience that view.

Settlements

79. The ZTV in **Figure LV1** suggests that the proposed development would potentially be visible from parts of Brymbo, Fron, Coedpoeth, Brynteg, Mount Zion and Cymau within the study area. The ZTV indicates that the proposal would be entirely screened by intervening topography from the settlements of Tanyfron, Moss, Summerhill, Gwersyllt, Ffrith, Bwlchgwyn and Minera.

80. Brymbo is located approx. 100m north of the proposed site at its closest point, with the ZTV suggesting that the proposal could potentially be visible from some southern and central parts of the settlement. Fieldwork has indicated that the southern parts of the settlement do gain some views out to the south where the pylon line and mature woodland around the site are visible above housing within the settlement. However,

these views are similar to those illustrated by Viewpoint C, also located within Brymbo, where the viewpoint illustrates that the proposal would be entirely screened from view. This is also expected to be the case over winter months from Viewpoint C as well as other views towards the site from within Brymbo. As a result, no effects on the visual amenity of residents within Brymbo is expected.

81. Fron is a small cluster of properties to the west of Tanyfron, with the ZTV indicating no potential visibility of the proposal from Tanyfron, although the ZTV suggests some potential visibility may be possible from Fron at a distance of approx. 1.1km away. Fieldwork has indicated that looking up the valley towards the site Pen-rhos substation would be located directly in front of the proposal but that intervening vegetation within the local landscape would entirely screen the proposal from view, with no effects on the visual amenity of residents within Fron.

82. Coedpoeth is one of the larger settlements within the study area, located on the southern fringes at a distance of approx. 1.8km from the proposal at its closest point. The ZTV suggests some potential visibility of the proposal may be possible from eastern parts of the settlement. Viewpoint E is located within Coedpoeth at one of the most open parts of the settlement and at an elevated location, where at 2.2km from the site, the proposal would be entirely screened from view by intervening mature vegetation, even in winter months. Fieldwork has indicated that VPE is broadly characteristic of the types of views towards the site that are available from Coedpoeth and so no effects on the visual amenity of residents of the settlement are expected as a result of the proposal.

83. Brynteg is located within the east of the study area at a distance of approx. 1.4km from the proposal where the ZTV suggests some limited potential visibility of the proposal may be possible, particularly in the vicinity of Long Lane. Viewpoint D is located on Long Lane at a distance of 1.3km from the proposal and illustrates that intervening mature vegetation would entirely screen the proposal from view. This is an open location offering worst case open views towards the site and indicating that visibility of the proposal is unlikely from the rest of the settlement, with no effects on residents expected.

84. Mount Zion is a small cluster of properties located approx. 500m northwest of the site, where the ZTV suggests some potential visibility of the proposal may be possible. However, two areas of woodland are located south and southeast of the settlement, associated with Brymbo Pool. These areas of mature vegetation along with further vegetation in the intervening landscape would entirely screen the proposal from view, with no effects on the visual amenity of the residents of Mount Zion.

85. Cymau is located on the northeast fringes of the study area at a distance of approx. 2.1km from the proposed site. The ZTV suggests some potential visibility of the proposal may be possible from central parts of the settlement at distances of over 2.2km from the site. However fieldwork has indicated that whilst some open views to the surrounding landscape may be possible, the wealth of mature vegetation surrounding the site would screen any potential visibility of the proposal and no effects on the visual amenity of these residents would occur.

Individual Residential Properties

86. There are a limited number of residents within farmsteads and individual properties local to the proposed development. The nearest individual residential properties to the application boundary of the proposed development are Mount Pleasant Farm, Mount Pleasant Cottage and two unnamed nearby properties (approx. 180m to the west). These are all two storey properties although Mount Pleasant Cottage is orientated north to south with no windows on the eastern end of the property facing towards the site and so views towards the proposal would be extremely limited. The other three properties face the east from their front façades and so would potentially gain more open views of the proposal. Nevertheless, mature woodland is located to the immediate east of Brymbo Road, occupying the foreground of views east from these properties. Fieldwork has indicated that even in winter months the approx. 85m depth of woodland would continue to screen the proposal from view, with no effects on the visual amenity of these residents expected.

87. An unnamed property is located at the Brymbo Road junction (approx. 350m to the southwest) opposite the location of Viewpoint B. The viewpoint illustrates that the woodland surrounding the site would entirely screen the proposal from view and this is also expected to be the case in winter months, with no effects to the visual amenity of these residents.

88. Pen-Rhos Farm (approx. 400m to the southwest of the site) is a two storey property with similar views out to the northeast as are illustrated by Viewpoint B. At a slightly greater distance from the proposal the woodland surrounding the site is expected to screen the proposal from this property in a similar way to the screening illustrated by Viewpoint B, with no effects on the visual amenity of these residents.

89. Rhos-y-coed Farm (approx. 415m to the southwest of the site) is set back from Brymbo Road behind an area of tree planting and is not visible from the road. It is located close to Viewpoint B and so, given the wealth of mature vegetation adjacent to the farm as well as adjacent to the site, it is expected that no effects on the visual amenity of these residents would occur.

90. An unnamed property is located on Brymbo Road near Pen-rhos Substation (approx. 310m to the south of the site). The wealth of mature vegetation around the substation would entirely screen any potential views of the proposal from this property.

91. Fieldwork has indicated that most individual properties in the study area are expected to have no view of the proposal at all due to the screening effects of topography combined with mature vegetation, mentioned above. In most cases, residential properties will be surrounded or located in close proximity to other associated buildings such as farm buildings, barns, garages and outbuildings which add further screening elements to views.

Local Public Rights of Way (PRoWs)

92. There is a network of public byways, footpaths and bridleways in the study area, the closest of which is Footpath BRY/0 which travels from Brake Road and Brymbo Road to the east of the site and east of Pen-rhos substation. Whilst the ZTV suggests some potential visibility of the proposal from two main sections of this footpath (east of the substation and then on part of the loop further to the east) fieldwork has found that the proposal would consistently be screened by the woodland surrounding the site, even in winter months. Viewpoint A is located on the section of this footpath to the east of Pen-rhos substation at a distance of 0.2km from the proposal and illustrates that the intervening mature vegetation would entirely screen the proposal, even in winter months.

93. Footpath BRY/38 forks off from BRY/0 and heads to the Heritage Centre to the northeast, but follows a route through woodland where the proposal would be entirely screened from view.

94. Footpaths BRY/24, BRY/29, BRY/30 and BRY/31 and Bridleway BRY/25 are all located to the west and northwest of the site near Brymbo Pool and the ZTV shows only very limited potential visibility of the proposal from Footpaths BRY/24 and 29 and Bridleway BRY/25 at distances of over 250m away. In reality fieldwork has indicated that the high levels of mature vegetation in the foreground around Brymbo Pool coupled with the intervening vegetation and mature woodland surrounding the site would entirely screen the proposal from view, even in winter months so that no visibility of the proposal is expected from these footpaths and bridleway.

95. Beyond these nearest PRoWs, other footpaths and bridleways are generally located at greater distances from the site of over 500m and fieldwork has indicated that local vegetation, built form near to the PRoW and mature woodland around the site would regularly screen the proposal from these routes. Viewpoints B and D are both located near to local footpaths and both viewpoints illustrate that the proposal would be entirely screened from view, even in winter months. Fieldwork around other PRoWs in the study area has indicated similar levels of screening due to the mature woodland surrounding the site, with no routes found where any open and clear views of the proposal would be possible. Therefore, it is expected that no effect on the visual amenity of PRoW users would occur as a result of the proposal.

Visitor Attractions

96. Brymbo Visitor Attraction is the main attraction within the study area, located approx. 300m northeast of the site at its closest point. However, the ZTV in **Figure LV1** indicates that intervening topography would entirely screen the proposal from this location so that no effect on the visual amenity of visitors here would occur.

Public Highways

97. The A525, B5102, B5101, B5433, B5426, B5430 and a number of minor local roads service the study area and the ZTV indicates that the proposed development would be entirely screened from many of these routes. However, the ZTV does not take into account the screening effects of vegetation, including roadside hedgerows, which often occur in this area and so would potentially reduce any visibility of the proposal even further for motorists.

98. The ZTV illustrates that topography would entirely screen the proposal from the B5102, B5426, and B5430. It also shows one very small section of potential visibility of the proposal from the junction of the B5101 and B5433 near New Road and Station Road. However, there are significant swathes of mature vegetation in these areas which would screen any clear views out towards the proposal from these sections of road.

99. The A525 is located on the southern and southwestern fringes of the study area at a distance of 1.7km from the proposal at its closest point. The ZTV suggests very limited potential visibility of the proposal from this route, limited to areas within the settlement of Coedpoeth on the boundary of the study area. In reality the foreground built form would screen the proposal entirely from view, in combination with intervening vegetation so that no effect on the visual amenity of motorists and their passengers would occur on this route.

100. A number of local minor roads can be found within the landscape local to the site, and these are typically bordered by mature hedgerows and tree belts. However, the ZTV suggests that potential visibility of the proposal from these routes would generally be limited to Brymbo Road, waterside Way and Pool Road/ Mount Zion, all of which are characteristically surrounded by tree groupings and/or mature hedgerows. Viewpoint B is an example from Brymbo Road which was taken from a field gate entrance as the only opening along the section of this local road closest to the site. The viewpoint indicates that no visibility of the proposal would be possible due to the screening of intervening vegetation. This is typical of the local roads local to the site where fieldwork was unable to find any clear or open views towards the proposed site. Further afield, Viewpoints C, D and E are all located on local roads at distances of between 0.3km and 2.2km from the proposal and all illustrate that the proposal would be entirely screened from view, even in winter months. As such, no effects on the visual amenity of motorists or their passengers within the study area are expected.

CONCLUSIONS

101. This appraisal has examined the likely effects of the proposed solar array on the landscape and visual amenity of the site and surrounding area.

102. The effects of this proposed development would be limited to:

- The character of the landscape of the site and immediately surrounding area up to approximately 0.1km from the site. This includes only limited parts of LCA7D West Wrexham Ridges and Valleys. This limited visibility would not alter any of the key characteristics of this LCA and would result in very limited adverse changes to landscape character (long term and reversible).

103. There would not be any effects on landscape fabric, landscape designations, or the visual amenity of any residents, walkers, equestrians and cyclists on local routes, on visitors to tourist attractions or motorists on any roads within the study area.

104. The proposed development would be entirely screened from the vast majority of the 2.5km radius study area. Visibility of the proposal would be contained to a very confined area by the mature vegetation surrounding the site. As a result, any landscape and visual effects would be extremely limited.

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