TAIYO
POWER AND STORAGE

PEGASUS GROUP

Parc Solar Caenewydd, Swansea

Design and Access Statement

Development of National Significance in the Renewable Energy Sector
Full Re-Consultation before Applying for Planning Permission

On behalf of **Taiyo Power & Storage Limited**

October 2023 | P21-2998

Document Management

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1. INTRODUCTION

1.1. Pegasus Group has been appointed by Taiyo Power & Storage Limited (herein referred to as “the applicant”) to prepare a Design and Access Statement for a proposed Non-EIA utility-scale solar and battery storage facility with associated development including cable trench and connection infrastructure (herein referred to as "the proposed development") on land fronting the A484 and Swansea Road (B4560) at Gowerton, Swansea (herein referred to as "the application site").

1.2. The proposed development will deliver a host of landscape, biodiversity, soil and hydrological enhancements. These include measures to strengthen habitat connectivity through this part of the valley, the creation of green buffer zones and public right of ways improvements.

1.3. This draft Design and Access Statement is being published to accompany a second phase of statutory pre-application consultation carried out under Articles 8 and 9 of the Development of National Significance (Procedure) Order 2016. The first phase of statutory consultation was carried out between June and August 2023. The applicant is now undertaking a full re-consultation in light of the changes introduced to the planning application boundary and development description.

1.4. The statutory requirement for a Design and Access Statement to accompany an application for a DNS is set out in article 14 of the Developments of National Significance (Procedure) (Wales) Order 2016. This document has been prepared in line with the Planning (Wales) Act 2015 and The Design and Access Statements in Wales: Why, What and How (Welsh Government 2017). These documents set out the requirements regarding the contents of a Design and Access Statement and reflect the objectives of good design as championed by Future Wales, Planning Policy Wales (PPW), and Technical Advice Note 12: Design (TAN 12).

1.5. This draft Design and Access Statement should be read in conjunction with the other draft documents that support the statutory pre-application consultation. Notwithstanding the above, this Design and Access Statement is designed to be read as a standalone document if required.

2. REGULATORY BACKGROUND

2.1. By virtue of its potential generating capacity, which stands at 44.45MWp [Megawatts peak], the proposed development constitutes a Development of National Significance ("DNS"). Therefore, instead of applying to the Local Planning Authority for Planning Permission, the application will be made to the Planning and Environment Decision Wales (PEDW). The application process is managed by PEDW on behalf of the Welsh Minister.

2.2. Part 5 of the Planning (Wales) Act 2015 ("Act") established a new category of development named DNS. Provision in the Act came into force in March 2016 which requires the Welsh Ministers to determine DNS projects, with applications being made directly to them (through the Planning Inspectorate Wales). The process for applying for a Development of National Significance is set out by the Development of National Significance (Procedure) (Wales) Order 2016 and subsequent Regulations.

2.3. The DNS application process is managed by Planning Environment Decision Wales (PEDW) on behalf of the Welsh Government. Decisions are made in the context of the Welsh Government's national planning policy, for renewable energy development this specifically includes Policies 17 and 18 of Future Wales: The National Plan 2040 and Planning Policy Wales (Edition 11) (February 2021). In the context of the proposed development and given its location the Swansea Local Development Plan 2010-2025 will also be a material consideration. These policies are described in detail in the Planning Statement, which accompanies the application.

2.4. The purpose of the DNS process is to ensure timely decisions are made on development proposals that are of the greatest significance to Wales because of their potential benefits and impacts. Prior to submitting the application to PEDW, the applicant must publicise and consult on the proposed application for a period of at least six weeks.

2.5. Following the statutory pre-application consultation, the application will be finalised and then submitted to PEDW for consideration by an appointed Planning Inspector. The appointed Inspector will then consider evidence from the applicant, local communities, the local planning authority and other statutory consultees and interested parties, submitted both in writing and at targeted hearing or inquiry sessions, which are held in public. Following their consideration of the evidence, the Inspector will write a report to the Welsh Ministers, setting out their conclusions and making a recommendation as to whether or not the application should be granted planning permission. The Welsh Minister will then decide the application.

3. SITE ASSESSMENT

3.1. The application site is located off the A484 and B4620 (Swansea Road) and in-between the settlements Gowerton, Gorseinon Garden Village and Fforest-Fach. The National Grid Reference (NGR) for the centre of the application site is 260432, 196889, the closest postcode to the application site is SA4 4LE. The surrounding land use consists of a mix of residential, agricultural and industrial areas. The planning application boundary for the application proposal, which includes the cable route, extends to 83.2 hectares.

3.2. The height of the land across the undulating application site ranges from c.55-9.5m Above Ordnance Datum (AOD) and is considered typical of the landscape of the surrounding valley landscape. The application site falls around the Afon Llan which runs east to west through the southerly fields; these fields being liable to occasional seasonal flooding. To the south of the application site the land continues to rise, reaching c.170m AOD around West Cefncoed. The land gradually falls to the west to the Afon Llwchwr (River Loughor).

3.3. The application site sits at the southeast residential edge of Gorseinon, within the designated the green wedge and within a Special Landscape Area. The south of the residential site is offset from the edge of Gowerton and Waunarlwydd by woodland and vegetation along the railway line, Afon Llan and Westfield Industrial Park. The edge of Swansea is to the east, beyond intervening fields, woodland blocks, and vegetation along the Afon Llan. Substantial mitigation proposals would aim to retain and enhance the existing landscape elements which presently prevent coalescence.

3.4. The main development currently consists of a number of individual, agricultural fields. The site is bordered by Gors-Fawr Brook to the south, Gowerton Sewage Treatment Works to the west, agricultural land to the east, a business park, the B4560 and A484 roads to the north.

3.5. The roads also separate the main development site area, with a smaller area of undeveloped land located to the north and just south of residential dwellings along the B4620.

3.6. The Swansea Local Development Plan 2010-2025 has allocated various land parcels adjacent to the application site for a variety of uses including residential; a primary school; sports pitches; green infrastructure; and, industrial uses.

Landscape

3.7. With regards to the National Landscape Character Areas (NLCA), the application site is covered by NLCA 38: Swansea Bay and key characteristics that are relevant to the application and its setting include:

- "Narrow Coastal Plain - a long lowland area, of limited width in its middle section, between uplands and the sea, and opening out into wider lowland areas at either end.

- "Character is urban and suburban with large housing and industrial estates. Heavy industries and settlement have made use of these strategically important locations, between coalfield and sea, and major ports around Swansea and the Steel Works at Port Talbot are landmark features."

- "Tightly fitted between the steeply rising uplands to the north and the sweeping bay to the south, this often busy, noisy, at times messy, urban, transport artery also extends over the broad neck of Gower to include the neighbouring, estuary-set town of Llanelli."

3.8. At a more detailed level, LANDMAP divides Wales into discrete geographical areas known as aspect areas. The 5 LANDMAP datasets are called the Geological Landscape, Landscape Habitats, Visual and Sensory, Historic Landscape and Cultural Landscape. The Visual and Sensory dataset locates the application site within Aspect Area, Afon Llan and surrounds. The area is described as:

- "Valley floor with Afon Llan flowing through it, urban areas surround it some being immediately adjacent. Pylons cross the area as do a number of roads with the A484 forming part of the northern boundary. Visual detractors within include a sewage works, roads and pylons. Factories and urban areas border it in places. Some hedgerow field boundaries but has a distinct urban edge character. Change detection 2014: expansion of Swansea edge into this area."

3.9. The Landscape Habitats Aspect Area is "Between Gorseinon and Gowerton", described as:

- "Semi-improved Neutral Grassland. Improved Grassland. Marshy Grassland. Arable. Buildings… An area of grassland between two urban areas."

3.10. The quality of the area is described as generally low, with the aim to improve ecological value of farmland.

3.11. The Gower Area of Outstanding Natural Beauty (AONB) is approx. 3.5km to the southwest of the application site at its closest point. There are no Registered Parks and Garden's, Registered Historic Landscapes, located within or immediately surrounding the application site.

3.12. There are two small remnant areas of Ancient Woodland, one within the main part of the application site and a smaller area to the north between the A484 and Swansea Road.

3.13. Stafford Common, an area of Statutory Access Land (SAL), is adjacent to the northern parcel of the site. To the north of Swansea Road there is a large area of SAL Penllergaer Common, which expands up to the industrial area. Within this area there is also a Scheduled Monument.

3.14. A number of Public Rights of Way (PRoW) cross the application site and link to the wider area, namely; LC101, LC26, LC71, LC72 and CO60. Buffer zones from the PRoWs, lower array heights and breaks in the mass of arrays are all included in the layout design.

Vegetation and Land Use

3.15. The application site is crossed by several hedgerows, creating a medium sized field pattern of mixed grazing pasture and arable land. Some of the varying field sizes of the application site appear larger than the fields of the surrounding agricultural landscape. Hedgerows are generally managed at a relatively low height (typical of the area) in the northern part of the application site with some exceptions. The condition of the hedgerows across the western fields appear gappy and would be bolstered in places. A small block of woodland (Ancient Woodland) is present within the eastern part of the application site, where the fields also have dense mature lines of trees around some of their boundaries, notably bordering the Swansea Road.

Settlements

3.16. The application site is located at the southeast residential edge of Kingsbridge and Gorseinon which extends west to the estuary. Gowerton and Waunarlwydd are to the south of the application site, contained in the main by the railway line, with a small residential area of Gowerton and Westfield Industrial Park encroaching north.

3.17. Near to the application site there are isolated properties along the B4560 (Swansea Road) which abut the application site, with Fforest Fach further east. Penyfodau Fawr Farm is located within the redline boundary.

Biodiversity

3.18. Part of the application site lies within Penyfodau Fawr To Llewitha, a Site of Importance for Nature Conservation (SINC), designated for a number of habitats including native woodland, scrub, lowland meadow, neutral grassland, lowland fen, purple moor grass and rush pasture, and watercourse with exposure/erosion features. The western extent of the application site lies within Alcoa Wet Meadows SINC, designated for wet woodland, scrub, neutral grassland, purple moor grass and rush pasture, linear vegetation and watercourse. Table below lists all the designations within 2km of the application site, with an extended search for international designations within 10km of the application site. It is important that no physical development is proposed within the SINC areas located within the planning application boundary.

Site Name	Designation	Category	Distance from Site Boundary
Burry Inlet	Ramsar	International	1700m
Burry Inlet	SPA	International	1700m
Gower Commons	SAC	International	3300m
Gower Ash Woods	SAC	International	7400m
Camarthen Bay and Estuaries	SPA	International	1700m
Crymlyn Bog	SAC	International	7800m
Crymlyn Bog	Ramsar	International	7800m
Limestone Coast of South West Wales	SAC	International	9800m
Burry Inlet and Loughor Estuary	SSSI	National	1700m
Penplas Grasslands	SSSI	National	1700m
Penllergear Railway Cutting	SSSI	National	3200m
Barland Common Stream Section	SSSI	National	3300m
Nant-Y-Crimp	SSSI	National	3700m

Cadel Heath	Local Nature Reserve	Local	1297m
Cwmllwyd	Local Nature Reserve	Local	1757m
Stafford Common	SINC	Local – Non statutory	On Site
Alcoa Wet Meadows	SINC	Local – Non statutory	On Site
Penyfodau Fawr To Llewitha	SINC	Local – Non statutory	On Site
Mynydd Garn goch Common	SINC	Local – Non statutory	9m
Waungron to Gowerton Railway line	SINC	Local – Non statutory	142m
Main Swansea - Fishguard Railway Line	SINC	Local – Non statutory	238m
Gowerton Mart Woods	SINC	Local – Non statutory	278m
Lower Lliw Corridor & Llan Confluence	SINC	Local – Non statutory	462 m

Dunvant Brickworks	SINC	Local – Non statutory	679 m
Mynydd Bach-Y-Glo	SINC	Local – Non statutory	730 m
Valley Wood	SINC	Local – Non statutory	972 m
Portmead Common	SINC	Local – Non statutory	1009m
West Gowerton Woods	SINC	Local – Non statutory	1041m
Bishwell Common	SINC	Local – Non statutory	1094m
Upper Mynydd Garn goch Common	SINC	Local – Non statutory	1096m
Gowerton saltmarsh	SINC	Local – Non statutory	1379m
Marbled White Butterfly Meadow	SINC	Local – Non statutory	1527m
Cwmmawr Woods	SINC	Local – Non statutory	1916m

Nant Llwyd Valley	SINC	Local – Non statutory	1984m
B-Line	B-Line	Local – Non statutory	1700m

3.19. Within 2km of the application site boundary there are a further 65 Ancient Semi Natural Woodland Sites, Restored Ancient Woodland Sites, Plantation on Ancient Woodland site, and Ancient Woodland Sites of Unknown Category. These are all unnamed.

3.20. When considering the Zone of Influence for designated sites within a 10km radius, it should be noted that the application site lies within 2.1km of Penplas Grasslands Site of Special Scientific Interest (SSSI), Burry Inlet Ramsar Site and SSSI and Camarthen Bay and Estuaries Special Areas of Conservation (SAC). The Afon Llan is connected to the SAC, creating a potential pollution pathway connecting to the proposed development.

Hydrology

3.21. There is a main watercourse running along the southern part of the application site (Afon Llan). The Gors Fawr Brook also runs adjacent to the far southwest of the application site and is a tributary of the Afon Llan.

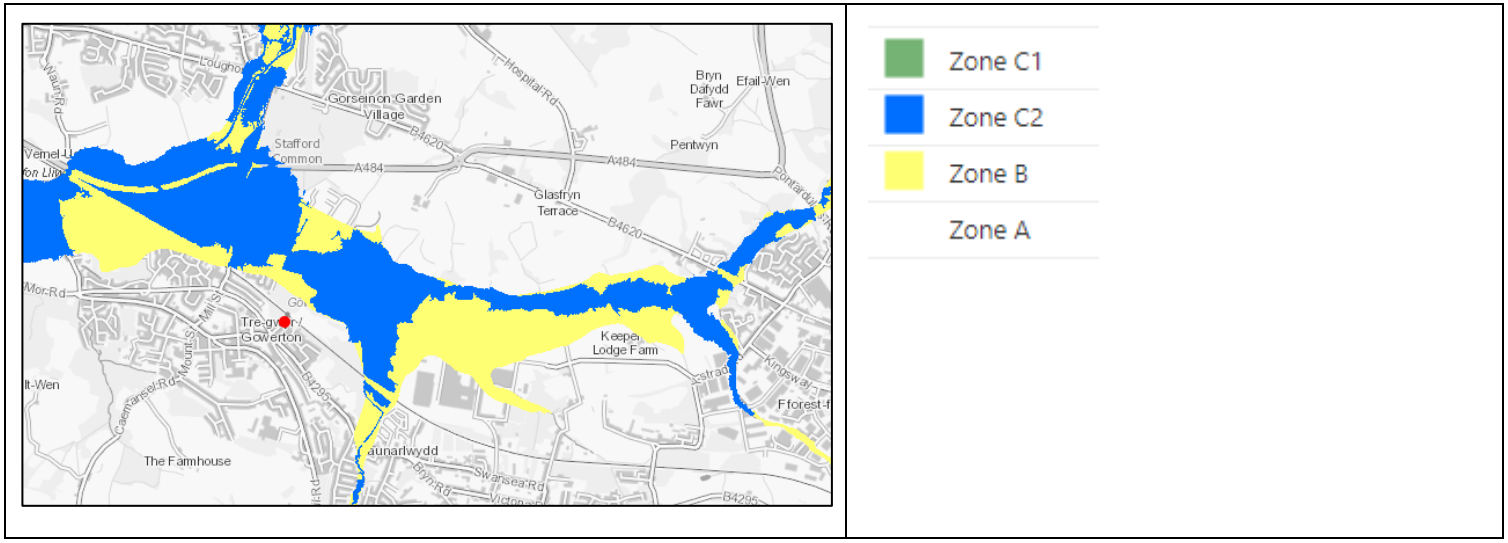
3.22. Geological data held by the British Geological Survey (BGS) indicates that the bedrock geology underlying the application site is "Grovesend Formation" – which is shown to be a mix of Mudstone, Siltstone and Sandstone. The application site is currently a permeable greenfield site that allows surface water run-off to drain naturally to ground and toward the existing watercourses. However, the Soilscape soils data shows the application site as "Lime-rich loamy and clayey soils with impeded drainage". There are several other small watercourses/ditches located across the application site which will be used to convey flows. The use of "leaky dams" is proposed in the form of obstacles within field ditches such as earth mounds or reducing the width of the ditch. The underlying ground conditions are shown as Mudstone, Siltstone and Sandstone formation with Sand and Gravel deposits. The topography of the application site falls north to south toward the Afon Llan.

3.23. The National Resource Wales website provides basic flood mapping data as a general guide to whether the application site is at risk of flooding from various sources including rivers and seas for Flood Zoning classification. This mapping indicates that the application site is predominantly located within Flood Zone A, an area with a low probability of flooding occurring.

3.24. Given the above the risk to the application site from this source of flooding is considered to be Very Low for the majority of the application site.

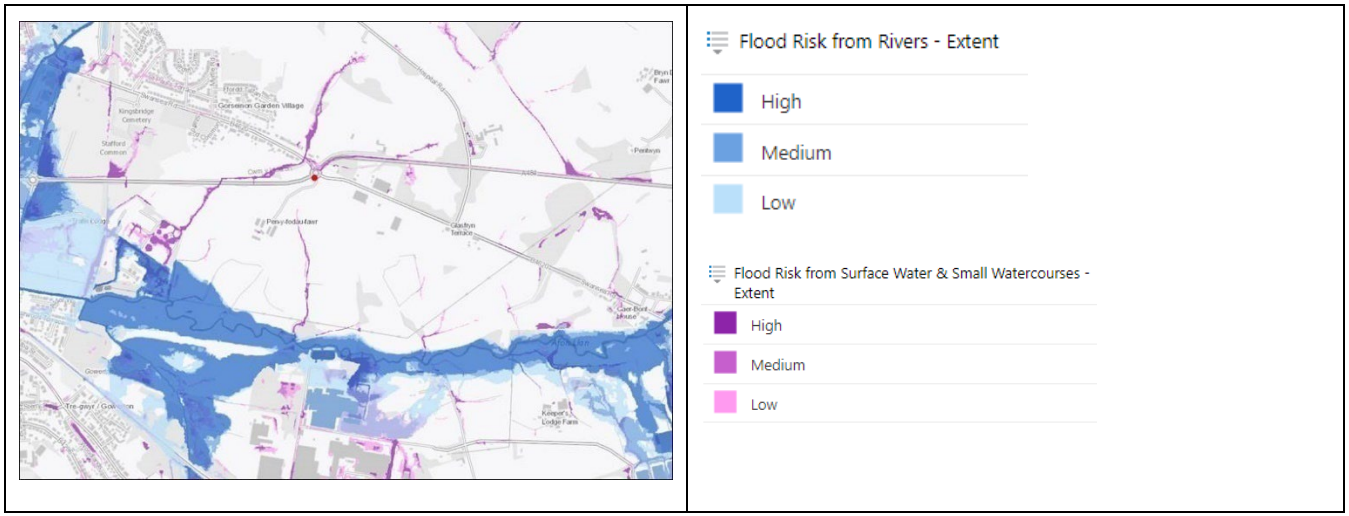
3.25. There are areas to the south at risk from flooding occurring from this source. Given the above Fluvial Flood risk to the southern part of the application site is High.

Figure: NRW Flooding Map



3.26. The Surface Water (Pluvial) Flood Map indicates that the application site is at a very low risk from surface water flooding for the majority of the application site with some small pockets of land shown to be at high risk.

NRW River & Surface Flooding Map



Cultural Heritage

3.27. The application site comprised common land and/or farmland during the early medieval, medieval and earlier post-medieval periods. Evidence of such land use is likely to comprise buried ditches of former field boundaries and buried plough furrows.

3.28. Penyfodau Fawr farmhouse, its attached barn, and the range to its south-east were in existence by 1830 while the range to its south was in existence by 1878. These buildings represent non-designated historic assets of local significance.

3.29. There is evidence of localised industrial activity within the application site from the later post-medieval period onwards. The infilled cut of the Penclawwd Canal and the leat from Afon Llan are likely to survive in the southern parcel of the application site; and there is potential for buried remains of the track bed and associated structures (e.g. weighing machines) of the tramway and mineral railway in the south-western, eastern-central and central parts of the application site.

3.30. Such infrastructure would be considered non-designated historic assets, their heritage significance derived from their evidential and historic value.

3.31. Coal pits, mine shafts and pile/drift recorded on historic mapping and by The Coal Authority would not usually be considered as historic assets.

3.32. There are no designated historic assets are located within the application site. Four Scheduled Monuments are located within 2km of the application site, these are:-

- Mynydd Carn-Goch Roman Earthworks;
- Roman Practice Camp on Stafford Common;
- Garn Goch Round Barrow; and
- Melin Mynach Watermill, Gorseinon.

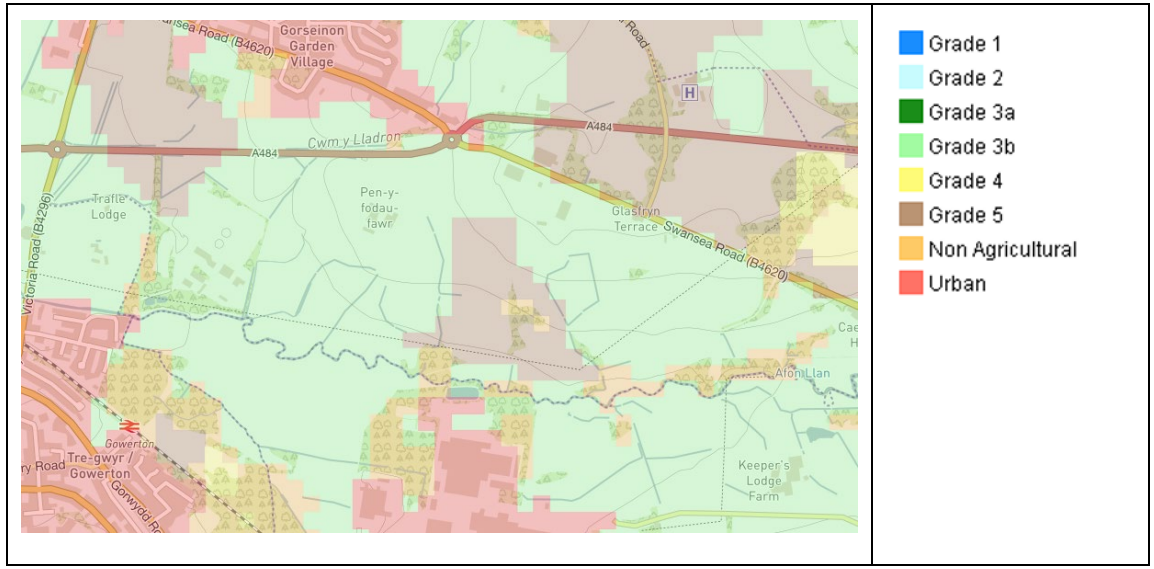
3.33. Twelve Listed Buildings are located within 2km of the application site, these are

- Church of St John;
- Temple United Reformed Church;
- Boundary Stone at Kingsbridge;
- Capel Bethlehem including attached vestry block;
- Walkers Snack Foods Factory;
- Bryn-rhos;
- North farmyard range at Bryn-rhos;
- West farmyard range at Bryn-rhos;
- East farmyard range at Bryn-rhos;
- Church of Saint Catherine;
- War Memorial in grounds of Church of Saint Catherine; and
- Church of the Blessed Sacrament.

3.34. No World Heritage Sites, Registered Historic Landscapes, Registered Historic Parks and Gardens, or Conservation Areas are located within 2km of the application site.

Agricultural Land

3.35. The Welsh Government has developed a web-based Predictive Agricultural Land Classification (ALC) map for Wales. The predictive ALC map shows that the quality of agricultural land within the application site mostly comprises land of Subgrade 3b and Grade 5, with small areas of non-agricultural land. The Welsh Government Soil Advisor has confirmed that a detailed ALC survey is not required and the application site does not contain any best or most versatile agricultural land.



Ground conditions

3.36. Historic OS maps indicate the presence of a canal transport route. The canal is mapped alongside the mineral tramway on the application site, and trends east – west, to join the Afon Llan to the west of field 23. By mapping from 1948, the area of canal is marked as marshy grounds, indicating the backfilling of the canal route. The canal is likely to have been backfilled with unknown material to an unknown specification and therefore presents a risk to the identified sensitive receptors.

3.37. The application site is located within the South Wales Coalfield. There are a high density of historic collieries and other mining related features on the application site and the surrounding area. Preliminary assessment has indicated a total of 41no. coal mine entries

located within or within 20m the application site boundary (28 shafts & 13 Adits). Of these entries, The Coal Authority indicates that 3no. shafts have been treated.

3.38. A review of historical and current Ordnance Survey mapping and environmental registers has indicated that potential contaminative current and historic land uses are present at the application site. These land uses include the historic coal mining legacy of the application site, historic backfilling of on-site canal, as well as the agricultural and farming land uses.

4. DESIGN PARAMETERS AND DESIGN SOLUTION

The Proposed Development and Design Principles

4.1. The applicant's design brief for the project was to design a cohesive scheme which maximises the potential energy yield available to the applicant; whilst achieving a layout which relates and takes into account the surrounding landscapes designations and delivers on green infrastructure requirements.

4.2. The design of the development has developed thorough a multidisciplinary design process guided from the following five sources:-

- the physical opportunities and constraints the application site provides;
- the physical needs (and land take requirements) of the proposed development;
- the policy context which surrounds the proposed development;
- consultative process - technical and design comments provided by statutory and specialist consultees as part of the various informal consultation undertaken by the applicant; and
- advice put forward by the applicant and their multidisciplinary design team.

Design Solution

4.3. The application proposal relates to the construction, operation, maintenance and decommissioning of a ground mounted solar power and battery storage facility is proposed to occupy 2/5th of the site area. An operational lifespan of 40 years is sought after which the proposed development will be decommissioned, and the application site returned to full agricultural use. The ground mounted solar and battery storage facility would occupy 2/5th of the application site. The remaining 3/5th of the development site constitutes the Green Infrastructure enhancements across the valley

4.4. The development proposal can be split into the following key components:-

- Ground Mounted Solar PV Arrays;
- Battery Energy Storage System & Substation Compound;
- Ecological Enhancement and Biodiverse (SiNC) Habitat Management Areas; and

- Cable Route and Point of Connection to the National Grid.

Development Constraints

4.5. Appropriate design and siting required to take account of:

- Established built form and other physical constraints within the farmstead (including overhead electricity cables, underground utilities pipes and the Public Right of Way's 'definitive' and 'used' lines)
- Established field boundaries, river, ditches and site specific ecological sensitivities
- Proximity to nearby residential receptors
- Setting of Gower's Area of Outstanding Natural Beauty
- Fields south of Afon Llan land locked in terms of vehicular access
- Part of the application site is located within a flood risk area
- Need to maintain the openness of the Green Wedge and designated Special Landscape Area
- Historical coal mining works recorded and identified within the application site
- Scheduled Monuments of Roman practice camps located near the application site
- 'Monuments' recorded within the application site include post-medieval leat from Afon Llan, the post-medieval farmstead of Penyfodau Fawr, a post-medieval coal pit, and a modern coal pile or drift. Infrastructure recorded within the site on 19th- and 20th-century maps include the Penclawwd Canal and tramway, two other sections of tramway, and a mineral railway. Any buried remains of the leat, canal, tramways, and mineral railway would be considered non-designated historic assets.

Development Opportunities

- Proximity to point of grid connection
- Application site does not comprise best and most versatile agricultural land
- Continued agricultural use of the application by sheep grazing

- Land take requirement – the application site is an appropriate size for the development proposal
- Wirth regards to maintaining the openness of the Green wedge and designated Special Landscape Area, it is noted that photovoltaics arrays have a lower ground profile in comparison to other renewable energy developments, such as wind
- Photovoltaic solar panels are water compatible development
- Primary point of access to the application site is served by appropriate agricultural vehicular access.
- Biodiversity gains – The proposed development would introduce biodiversity enhancement measures which will provide significant benefits for a diverse array of native wildlife for a 40 years period such as invertebrates; small mammals; larger mammals; and birds
- Sunlight intensity levels – the site is well located geographically for solar gain and is free of any buildings or landscape features that could cause overshadowing
- Contribute to the provision of renewables and low carbon energy
- Surface water betterment during lifetime of development
- Contribute towards regional energy strategy which seeks to speed up the move from using fossil fuels to renewable energy.

Design Flexibility

4.6. The proposed development has employed a 'maximum design scenario' approach which reflects the Rochdale Envelope approach.

4.7. The Rochdale Envelope is employed where the nature of the proposed development means that some details of the whole project have not been confirmed and flexibility is sought to address uncertainty. It provides a 'maximum design' scenario approach to the impact of a project and allows for a broad definition of the project to be framed within a number of set parameters. This approach allows for a project to be assessed on the basis of maximum project design parameters in order to provide flexibility, while ensuring all potentially significant effects (positive or adverse) are assessed within the planning application. The need for flexibility in design, layout and technology is required to address uncertainties inherent to the development. This is very pertinent to solar development due to the rapid pace of change in module technology and commercial availability. As technology advances, it is possible that modules could become more efficient which would result in a potential reduction in total module area required to deliver the same amount of generation. This in turn could require the micro-siting of ancillary equipment to reflect such changes, i.e., the final locations of cabling and inverters. Accordingly, a final build plan would be submitted to the Local Planning Authority as part of a pre-commencement

condition. The final build plan would demonstrate how the final 'as-built' design remains within the parameters of the forthcoming DNS application submission. This approach is consistence with good practice applied at other recently permitted DNS schemes.

4.8. Flexibility is also required for the cable route, the previous design layout shows three options for the cable route. This has however been amended, with a proposed reroute along the existing local highway (namely Swansea Road, Carmarthen Road, Ystrad Road and Denver Road). The need for flexibility is required also to address potential opportunities to deliver a power facility integrated with neighbouring developments as well as exporting through the grid infrastructure.

Ground Mounted Solar PV Arrays

4.9. The design principles of the solar modules are:

- Arrays will be comprised of a galvanised steel and anodised aluminium mounting structure with the solar panels attached to it
- Arrays will have a maximum top height of 3m and the lowest part of the arrays will be 0.8m above ground level and this will vary across the development site
- All solar panels will be south facing
- Solar panels will be dark blue, grey or black in colour
- Indicative slope of the solar panels from horizontal would be 15 degrees
- Internal access track will be of permeable construction
- Typical minimum distance between edge of the arrays to the 2m high perimeter fencing would be 5m
- Biodiversity will be enhanced within and around the arrays
- Appropriate offset will be provided between the development and the Public Rights of way running through the site
- CCTV will be positioned along the perimeter fencing of the arrays, on 2.7m high poles.

4.10. The solar PV modules would convert solar irradiance into Direct Current (DC) electricity. The proposed PV panels may also be bifacial (such that they will collect light both on the front and the rear sides of the panel as it captures sunlight reflected from the grass surface under the solar framework).

4.11. The PV modules would be mounted on south facing galvanised steel and anodised aluminium metal racks. The racks will be laid out in multiple parallel rows running east to west across the various field enclosures. The framework and arrays would be static. The distance between the arrays would respond to topography but would vary between 3.0m to 5.2m. Land between and beneath the panels would be used for biodiversity enhancements, as previously detailed above, and/or seasonal sheep grazing.

4.12. The arrays would be set within a 2.0m high security fence. Cables linking the rows of panels will be buried in the ground within trenches, typically 0.5-1.1m in depth. Further cables will be used to link areas of panels to inverters and then the substation compound located in the eastern parcel of the application site. The dimensions of the cable trenches will vary and compromise:-

- 132KV cable trench – depth between 1m to 2m, and width of 0.85m
- 33KV cable trench – depth between 1m to 1.5m, and width of 0.85m
- 690v Trench – depth between 0.9m to 1.2m, and width of 0.85m.

4.13. Sections of the cable will also be laid via trenchless techniques. A full assessment of the trenchless techniques would be provided for the final DNS application submission. An internal access tracks is required, which involves the laying of permeable aggregate.

Battery Energy Storage System

4.14. The battery energy storage system consists of containerised battery units that can store energy and are able to release or absorb energy from the power network. Being able to absorb and release energy, the battery energy storage system at the proposed development can be used to contribute towards the frequency balancing services, where the power is being generated or absorbed statically or dynamically depending on the system frequency. When there is not enough power, batteries are discharged to balance under frequency preventing black and brown outs. To balance over frequency batteries are charged to prevent dangerous spikes across electricity infrastructure.

4.15. Under normal conditions the battery energy storage system would be unmanned. Visual checks will be undertaken during maintenance visits to the proposed development.

4.16. The equipment and infrastructure to be installed at the battery energy storage system include:

- Internal access tracks
- Vehicular parking
- 52 No. containerised battery units measuring 7.81m by 2.65m with a heigh of 3.05m.

- 8 No. skid mounted transformers and inverters
- The surface of the battery compound will be surfaced with chippings.

Ecological Enhancement and Biodiverse (SiNC) Habitat Management Areas

4.17. Measures have been specifically designed to both enhance habitats after intensive grazing and arable chemicals and mitigate and compensate for the ecological impacts of the solar and battery elements of the development, in order to provide a gain in biodiversity at the site post-development.

4.18. Green infrastructure provision delivered as part of the proposed development will include:-

- Acres of new tree planting
- Vast areas of new hedgerows
- Re-establishment of the Rhos grassland habitats
- Enhancement of riparian habitats along the Afon Llan
- Creation of a lowland meadow
- Targeted habitats for reptiles, invertebrates and farmland birds.

4.19. FHabitat conservation, creation and enhancement measures are proposed across the entire application site in order to increase the extent and quality of habitat along key corridors within and through the application site, notably complete exclusion from development of the most sensitive Rhos grassland SiNC habitat field in the centre of the application site.

4.20. Various measures will strengthen habitat connectivity through the application site, including creation of buffer zones. This will include native wildflower seeding/green hay from a donor site (likely to be from retained habitat to the south) and alteration of grassland management to extend and enhance priority habitat. Planting of native hedge and scrub species, and creation of wild bird cover plots will aim to extend the habitat mosaic and enhance habitat value for a range of species including bats and farmland bird species. The river corridor and adjacent SINC are considered to be a key component of the mitigation approach; a continuous wide corridor of habitat creation and enhancement will be created along the river corridor, extending and linking valuable habitats as an ecological network.

4.21. Open riparian habitats will be retained as part of the mosaic, but with a wider buffer zone than at present. Treatment and removal of extensive Japanese Knotweed will also provide habitat enhancement.

4.22. Recreational benefits would also be incorporated in the ecological design strategy and these may include a permissible informal recreation area fronting Afon Llan and maybe a permissive walkway to increase connectivity from the farm shop to the wider networks of public footpaths within the locality. The ecological design strategy will be further developed in consultation with Swansea Council and National Resource Wales during the informal and formal pre-application.

4.23. Bat boxes and bird boxes will be installed on retained mature trees across the application site to provide new roosting and nesting opportunities for these species. Bird boxes will be suitable for a range of woodland bird species.

4.24. Any brash, log or grass arisings resulting from vegetation management will be utilised to create habitat piles, providing potential habitat and over-wintering sites for invertebrates, amphibians, reptiles and small mammals. At least 10 habitat piles of approximately $1m^3$ in size will be located within relatively undisturbed locations at the edge of the grassland on the application site, including within the reptile mitigation area.

4.25. Based on improvement of the habitat distinctiveness of improved grassland habitats, conversion of arable habitats to grassland, and enhancement of grassland in ecological buffer areas, the development proposals are currently likely to result in a net gain in biodiversity on the site.

Substation and Point of Connection to Overhead Pylon

4.26. A new substation compound will be required for the proposed development, and this will be constructed in the easternmost field of the application site. This is necessary to step up and covert the voltage of the electricity delivered by the solar PV for connection to the National Grid circuit.

4.27. There are two options put forward for the point of connection to the circuit, the first is the overhead pylon located off Ystrad Road, Forestfach. The proposed routing option runs along the existing local highways (namely Swansea Road, Carmarthen Road, Ystrad Road and Denver Road). The alternative point of connection is the terminal overhead pylon tower located to the north off Carmarthenshire Road, near the entrance to the Paper Mill Fisheries.

4.28. Following construction and commissioning the substation compound will be adopted and become the property of the District Network Operator (DNO), who will maintain the compound throughout the lifetime of the development. Under normal conditions the proposed development will be unmanned. Visual checks will be undertaken on a monthly inspection visit. Whilst external lighting will be installed at the substation for emergency work during hours of darkness, the substation will not normally be lit.

4.29. The main design principles of the substation compound are:-

- Security fencing – 2.4m high palisade fencing
- DNO compound comprising: emergency floodlight & CCTV columns; High level connectors; circuit breaker, low level disconnectors; and anchor blocks
- Car parking

4.30. The following elements will be located outside the compound: -

- DNO Control Room & customer switchroom – a small single-storey building housing the DNO main control systems and welfare unit with WC; and the customer switchgear for controlling the power flows from the solar park.
- Cess pit
- 15m high Communications Tower
- 4.5m wide DNO track providing ingress / egress directly to/from Carmarthenshire Road.

Access Arrangements

4.31. The primary access for the development is from the private access road which serves Penyfodau Fawr Farm. Construction vehicles will access the road from the southern arm of the A484 / B4560 Swansea Road roundabout.

4.32. The secondary access is proposed to be served from the rear of an existing lay-by on the southern side of the B4560 Swansea Road (E), approximately 430m east of the Hospital Road access. Access to farm track is currently blocked up by earth bund and the applicant understands that the landowners is looking to reinstate access. Improvement works to the access and track will be delivered as part of the development proposal. This access will be used by the District Network Operator to access its substation compound.

4.33. The development parcel located to the north of the A484, will be served via an existing access on the western side of the B4560 Swansea Road (W), located approximately 30 metres northwest of the A484 / B4560 Swansea Road roundabout.

Temporary Construction Compounds

4.34. Two temporary construction compounds are proposed, the main construction compound will be located off the Penyfodau Fawr Farm access track, the secondary construction compound will be positioned within the field containing the substation. As the proposed development is built out, the construction compounds would be scaled down and removed from the application site.

4.35. The construction compounds would contain the following:

- Temporary site facilities (Port-a-Cabin type) to be used for site office and welfare facilities, including welfare facilities with provision for sealed waste storage and removal.
- Container storage unit(s) for tools and equipment storage.
- Container storage unit(s) for components and materials.
- Refuelling compound for construction vehicles and machinery.
- Adequate parking area for cars, construction vehicles and machinery.
- Designated skips for recycling and construction waste.
- Wheel washing facility.
- Adequate space for HGV to manoeuvre and offload within site to reduce impacts on local roads.

4.36. Construction is expected to be carried out in a single phase of around 8-9 months, depending upon any required enabling works, available daylight hours, ground conditions and ecological considerations. During this period, there will be a combination of HGVs for the component deliveries and cars/vans for construction staff. HGV movements are expected to be most intense throughout the early stages of construction, tailing off towards the final weeks.

4.37. All traffic movements will be carried out between the hours of 07.00 to 19.00 on Monday to Friday and 08.00 to 16.00 on Saturdays.

4.38. For the single field north of the A484, all plant and machinery will be off loaded at the main compound and then transported along the local road to the northern site. The secondary construction compound is principally to aid the construction of the substation, battery storage area and the cable trench works from the substation to the point of connection.

Operational Lifespan

4.39. A temporary operational lifespan of 40 years would be sought for the entire development and linked to the first export date of electrical energy from the development. During the operational phase, the activities on the application site would amount to servicing and maintenance of plant and equipment and vegetation management. Traffic impacts from the operational phase of the proposed development will only consist of between 10-15 Light Goods Vehicles per year.

Decommissioning

4.40. After a 40 year period the proposal would be decommissioned with all electricity generating equipment and built structures associated with the proposed development removed from the application site and the land returned to agricultural use.

4.41. A decommissioning plan would be prepared prior to the decommissioning commencing. The application site will be surveyed by an appropriately qualified ecologist to identify any ecological constraints arising from decommissioning activities. Depending on the ecological value of the habitats that develop over the lifespan of the scheme, it is possible that certain areas of the site may need to be retained due to their value for wildlife on decommissioning. Alternatively, and on application of the mitigation hierarchy principles, their loss may require compensation through on or off-site measures to ensure land/habitats are preserved for wildlife into the future.

4.42. It cannot reasonably be foreseen what legislative protection will be afforded to particular wildlife species at the end of the scheme's lifespan. Further surveys for protected species which could be impacted by decommissioning would also be expected.

4.43. Where possible and when electrical items have an ongoing life-span they will be removed from the application site in whole units and re-used in current form. Where units do not have an ongoing life-cycle they will be placed into a suitable re-cycling skip or container and then removed from the application site to a suitable waste recycling centre. Following decommissioning, there may be a period of soil management aftercare.

Agricultural Matters

4.44. The applicant has advised that as part of the contractual arrangement with the landowners, the tenant farmer would surrender land within the application site in exchange for replacement agricultural assets (the applicant understands that these include alternative fields land of the same and better quality, property and outbuildings owned by the same Estate landlord). The tenant farmer already took occupation of these nearby replacement fields in March 2022. The developer and Estate landlord intend to continue agricultural use by way of sheep grazing during the operational lifetime of the development.

Undertakers

4.45. The layout of the proposed development will provide an appropriate easement for the existing underground infrastructure, which include sewers and gas pipes. No arrays will be erected over the line of any underground infrastructure. The applicant is in discussion with Welsh Water to agree a strategy for the directional drilling of the cable run under its main sewers.

Community Benefits & Shared Ownership

4.46. As part of the community benefits associated with the application proposal, the applicant is also exploring the option of providing an element of shared community ownership of part of the development. The applicant has commissioned Community Energy Wales to discuss local interest to develop shared community ownership with entities such as Gower Power Co-op CIC. As part of the

community benefits the applicant is also looking to enter into a legal agreement to provide funds to the council to upgrade the local PRoW infrastructure.

Public Rights of Way (PRoW)

4.47. The consultation layout incorporates and protects the 'used-line' of the Public Rights of Way traversing the application site. For the final submission and in consultation with the Local Planning Authority, the layout will be amended to incorporate the definitive line where this deviates from the 'used-line'.

Renewable Energy and Carbon Displacement

4.48. The solar power element of the proposed development would generate clean renewable energy for the equivalent of circa 11,500 homes a year. The anticipated CO_2 displacement is up to 18,000 tonnes per annum.

Design Evolution

4.49. Over the course of the design process, the applicant has continuously refined the design of the proposed development to encompass the Council's and other stakeholders' feedback at numerous junctures. The main alternative designs are discussed here.

Preliminary Design A

4.50. The inception design 'Preliminary Design A' related to smaller parcel of land in comparison to the latest layout. The purpose of the preliminary red line was to enable the applicant to engage with and request high level pre-application advice from the local planning authority. The development area considered for the initial pre-application advice is set out below. The pre-application submission was prepared and submitted by SLR on behalf of the applicant. The council's advice is discussed and appended to the Preliminary Consultation Report which accompanies this statutory pre-application formal consultation set of reports. The Local Planning Authority provided without prejudice advice whereby they agreed in principle to the positioning of the development within the green wedge and special landscape area. A detailed design was not available for the preliminary high-level pre-application consultation with the Local Planning Authority.

Preliminary Design A

Preliminary Design B

4.51. Following a technical review by the applicant, the proposed design and land take was modified.

4.52. The 'red line' was extended to provide the additional land necessary to maximise the available grid connection at the application site and to compensate for ecologically and landscape sensitive land removed from the original development area following further design input from the applicant's technical team. Specifically, the application site area was extended to include land to the south of Afon Llan, additional land surrounding Penyfodau Farm, together with land to the north of the A484.

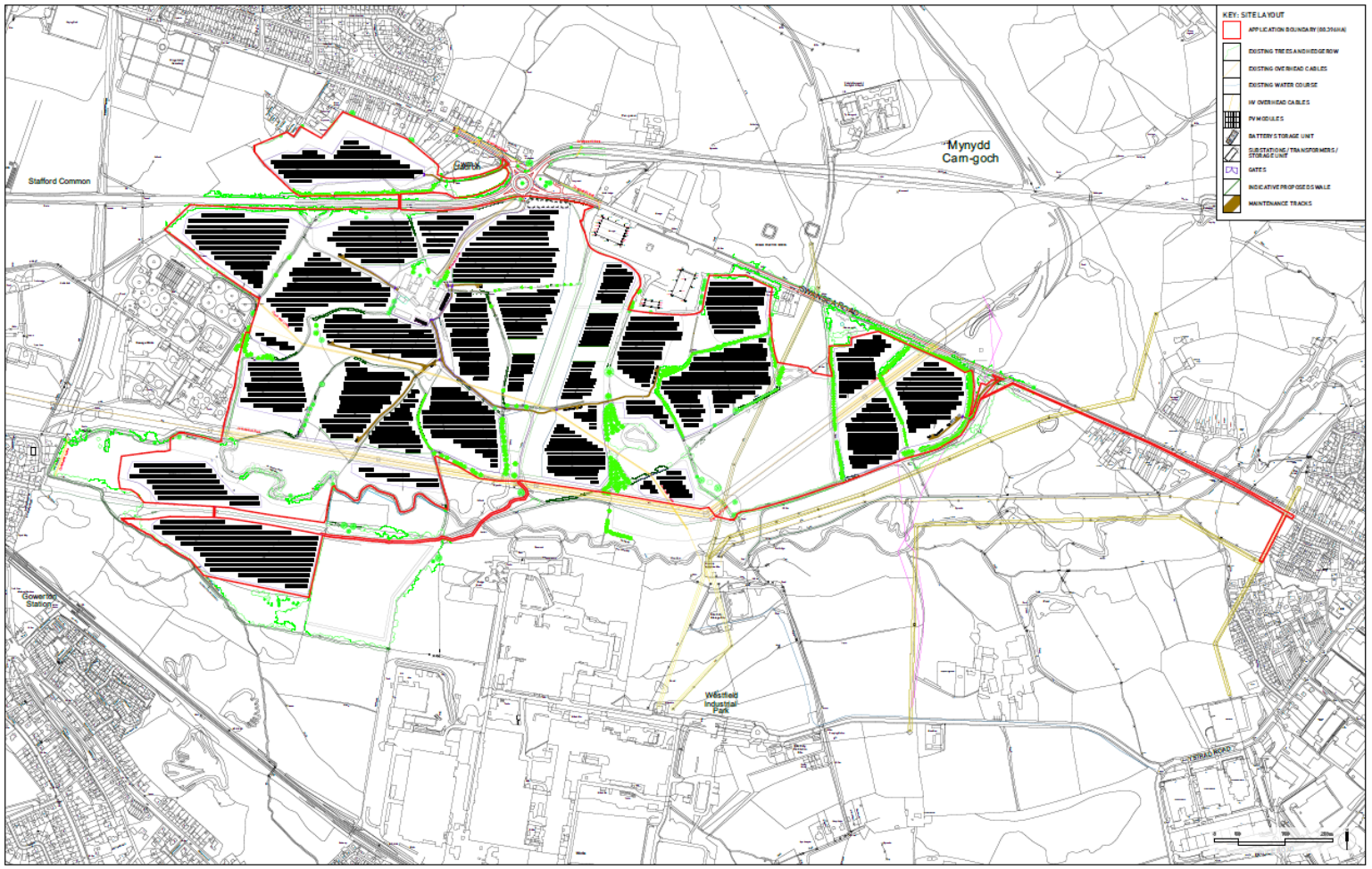
4.53. The applicant removed the field to the immediate south of Glasfryn Terrace in order to respect the amenity space of the residents. Moving southwards, the adjoining field has also been removed from accommodating solar arrays due to its SINC designation. The field remains within the red line as the applicant proposes to restore its habitat standards by altering the management regime and additional seeding where necessary. This will also provide a large area of open habitat for ground-nesting birds. Full details of the proposed creation and management of enhanced green infrastructure and biodiversity areas is provided within the supporting Ecological Appraisal.

4.54. The red line was also updated to show and accommodate the works associated with the preliminary point of connection to the electricity grid located off Swansea Road.

4.55. The evolved design, 'Preliminary Design B' was used for the Environmental Impact Assessment Screening Direction request to PEDW and was used for the initial informal public exhibitions with the community which began in September 2022 and continued until March 2023.

4.56. This design was also used for the basis of detailed informal consultation with the Local Planning Authority. Full details of the informal consultation carried out with the community is presented within the accompanying Preliminary Consultation Report.

PRELIMIANRY DESIGN B



Preliminary Design C

4.57. For the first stage formal pre-application consultation, undertaken in Summer 2023, the layout evolved to reflect technical matters raised by the project team and the consultee advice provided by the Local Planning Authority and National Resource Wales. The key changes include:-

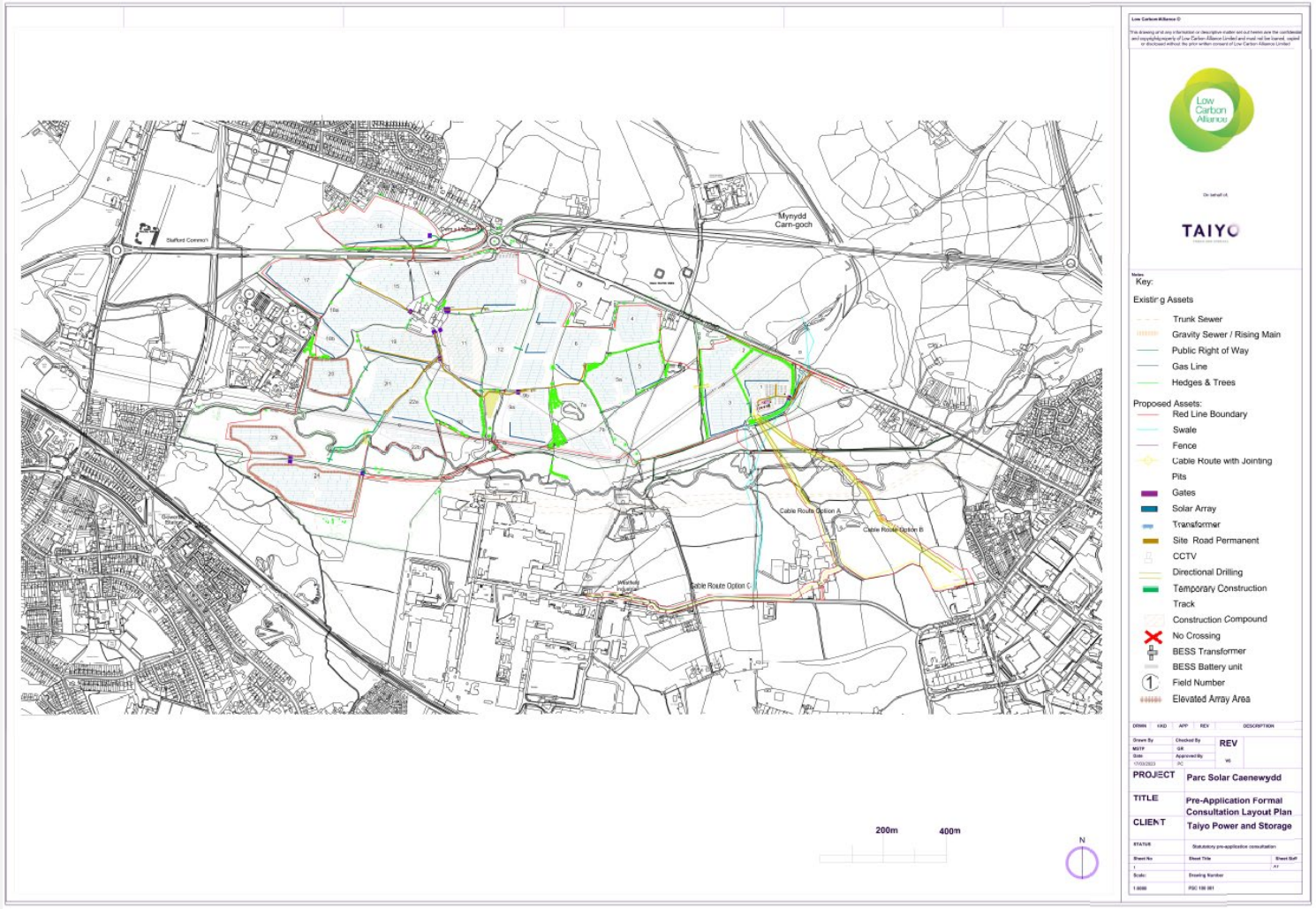
- The layout was revised to accommodate changes to the preferred point of connection located to the south east of the application site. The cable route options were delineated following discussions with the relevant landowners which include the Council's estate office. The applicant has also advised PEDW of the changes to the cable route options.

- To reflect the comments put forward by National Resource Wales, the applicant increased the height of arrays within the flood risk area..

- As recommended by the Local Planning Authority as part of its pre-application advice over Design B, the additional hedgerow and tree planting was incorporated into Design C.

- For Design C, the applicant was able to introduce the detailed designs for the substation and battery storage facilities.

Preliminary Design C – First round of statutory pre-application Consultation



Design D – For Full Statutory Re-Consultation

4.58. Following feedback from consultees, the layout has evolved to reflect technical matters raised by the project team and consultee advice provided. The key changes include: -

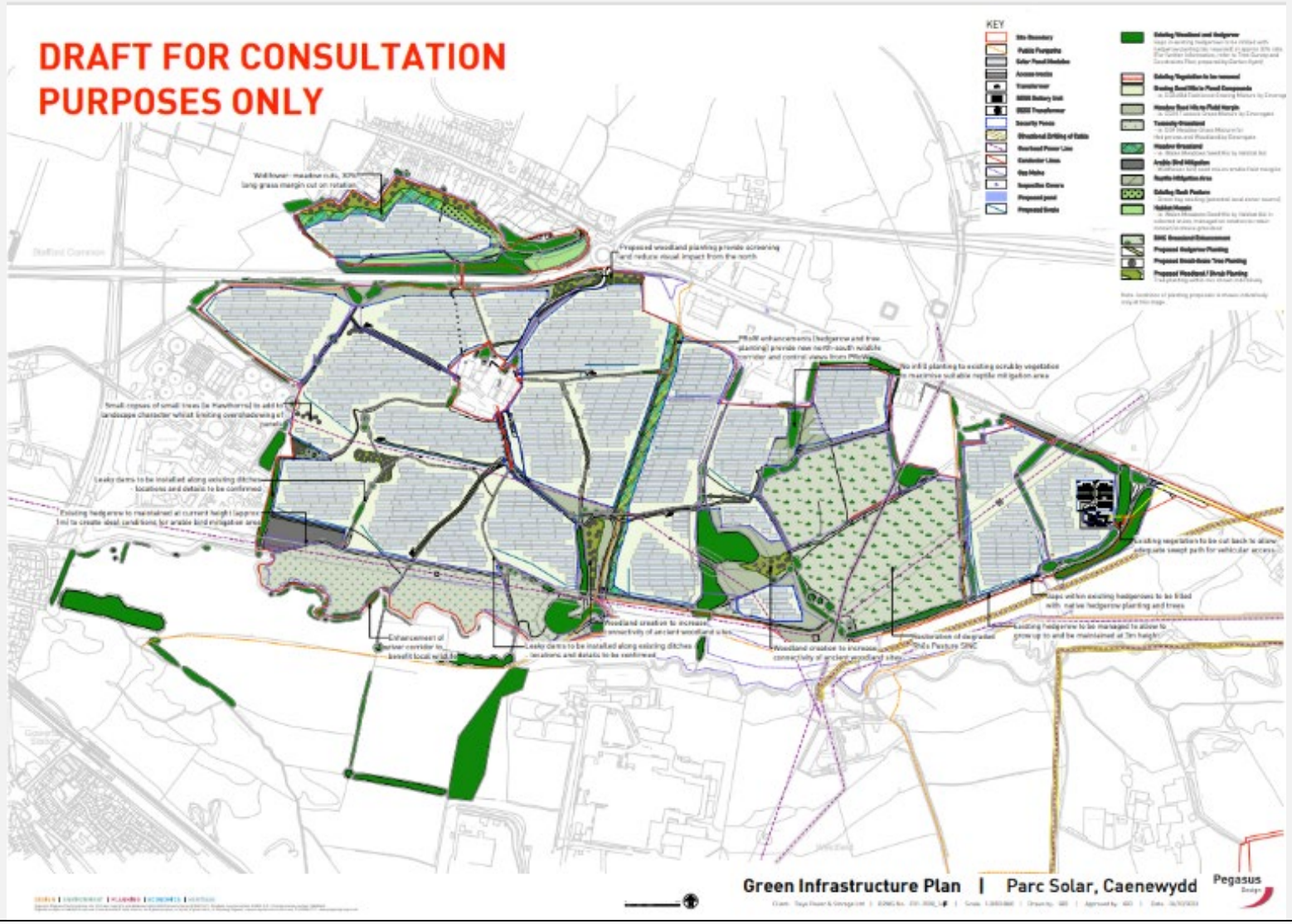
- The layout has been revised to remove land parcels Nos. 5, 5b, 22b, 23 & 24 due to flood risk and ecological stepwise considerations. These parcels will be retained for full continued agricultural use. These proposed modifications have reduced the development areas within the planning application boundary. By removing the arrays to the south of Afon Llan we have also taken out the need for any associated directional drilling works under Afon Llan.

- Following the exclusion of five land parcels (as described above), the applicant has sought to relocate some of the PV modules within the retained fields, no retained panels will be inserted into field 4.

- The proposals presented during the statutory consultation showed three cable routing options, which would traverse agricultural fields and local highways to the south of the river Afon Llan. Three routing options were suggested, however these are no longer available to the applicant. An alternative cabling route is therefore required to connect the existing pylon located off Ystrad Road. To this end, the applicant is now proposing to reroute the cable trench along the existing local highway (namely Swansea Road, Carmarthen Road, Ystrad Road and Denver Road). In addition, a second point of connection option is being introduced to the scheme and this is located to the north off Carmarthenshire Road. The planning application boundary has been extended to accommodate these changes.

- Other refinements to the scheme include, reconfiguration of the battery energy storage system and customer substation compound. The potential introduction of a permissive footpath that would connect Carmarthenshire Road to the existing PRoW running along the river Afon Llan. Reconfiguration of internal construction track through the main site, and within fields 20, 21 & 22 red line will be extended to reach Afon Llan.

Design D – FOR FULL STATUTORY RE-CONSULTATION



5. POLICY CONTEXT

5.1. The accompanying Planning Statement provides a detail assessment of the relevant planning policy and material considerations that are pertinent to the application proposal and to avoid repetition this section will focus on the design related polices set out in Future Wales. In the case of DNS schemes, Planning Policy Wales, at paragraph 5.75, states "Planning applications for onshore generating projects in Wales which have an installed generation capacity of between 10MW and 50MW (there is no upper limit for onshore wind generating stations) are made directly to the Welsh Ministers under the Developments of National Significance (DNS) process *and considered under policies in Future Wales".*

Future Wales: The National Plan 2040 (February 2021)

5.2. Future Wales provides a spatial context for facilitating the delivery of development in Wales over the next 20 years and constitutes the development plan for DNSs in line with section 38(6) of the Planning and Compulsory Purchase Act 2004.

5.3. Future Wales will be used to guide both public and private investment. Welsh Government's aim is to ensure investments and developments – whether large or small in scale - contribute to the broader ambitions of the Welsh Government and to the well-being of communities. Therefore, Future Wales will influence how communities develop over the next 20 years and it is important that we have a comprehensive understanding of the positive and negative effects this could have as the plan developed. Future Wales is the national development framework for Wales and has development plan status.

5.4. Page 15 of Future Wales identifies how Future Wales does not contain statements on all land use matters but it provides specific policies on issues which the Welsh Government considers them to be a national policy at this time, it goes on to state *"deciding where to locate renewable energy generation technology is a spatial issue of such significance that national ambitions are unlikely to be achieved without national planning policies"*.

5.5. Schemes qualifying as energy Developments of National Significance (DNS) must be determined in accordance with Policy 18 of Future Wales. This point is expanded on further below. The First Minister of Wales's Ministerial Foreword makes an early and important reference to the climate emergency faced by Wales. There is a recognised need for Wales to focus on generating the energy it needs to support its communities and industries over the next twenty years. This message is repeated in the Foreword by the Minister for Housing and Local Government which states (inter alia) *"this Government is committed to supporting and delivering more active travel and sustainable transport infrastructure, new renewable energy schemes, improved digital communications infrastructure and new public services and facilities. In all these areas our decisions can contribute towards decarbonisation, healthy and active lifestyles, a resilient and diverse environment and increased economic prosperity and fairness"*.

5.6. In the 'Introduction' to Future Wales, achieving decarbonisation and climate-resilience are noted as being one of the "key national priorities" for Wales; indeed Future Wales only includes policies *"on issues where the Welsh Government considers a national priority*

at this time, or matters which are distinctly spatial and require national leadership. For example, …deciding where to locate renewable energy generation technology is a spatial issue of such significance that national ambitions are unlikely to be achieved without national planning policies." It also acknowledges that Wales faces a climate emergency.

5.7. It is clear that delivering renewable energy is one of the Welsh Government's top national priorities for the next 20 years. Future Wales sets out 11 outcomes that can be achieved by 2040 provided the planning system is focused on the long-term and provides quality development in the right places for the right reasons.

5.8. The application proposal would contribute towards outcome 9, 10 and 11, these are:-

- ***Outcome 9 – A Wales where people live in places that sustainably manage their natural resources and reduce pollution***. Wales' natural resources, including its minerals, soils and geodiversity, coast, water, forests and landscape support a range of activities and sectors and are assets of great value in their own right. The environmental, social and cultural value of our resources will be managed, maintained and enhanced, while economic benefits will be utilised sustainably and appropriately by promoting nature-based solutions and a circular economy. Across Wales the risks of flooding and coastal erosion will be effectively managed and mitigated while better resource choices will be reflected in more sustainable places. Places will benefit from reduced pollution and be healthier and more liveable.

- ***Outcome 10 - a Wales where people live in places with biodiverse, resilient and connected ecosystems***. The variety of flora and fauna found across Wales make Wales a special place. Biodiversity underpins the functioning of healthy, resilient ecosystems and the multiple benefits they provide. While biodiversity has declined in recent decades, we will reverse these losses and enhance the resilience of ecosystems. The planning system will ensure wildlife is able to thrive in healthy, diverse habitats, both in urban and rural areas, recognising and valuing the multiple benefits to people and nature.

- ***Outcome 11 - a Wales where people live in places which are decarbonised and climate-resilient***. The challenges of the climate emergency demand urgent action on carbon emissions and the planning system must help Wales lead the way in promoting and delivering a competitive, sustainable decarbonised society. Decarbonisation commitments and renewable energy targets will be treated as opportunities to build a more resilient and equitable low-carbon economy, develop clean and efficient transport infrastructure, improve public health and generate skilled jobs in new sectors. New homes will be energy efficient and will help communities adapt to the changing climate.

5.9. Future Wales sets a clear direction of how Wales should be investing in infrastructure and development for the greater good of Wales and its people - the provision of renewable energy is firmly embedded to this future direction. In terms of the specific policies in Future Wales, Policies 17 and 18 contain strategic spatial and detailed criteria-based policies respectively and should be considered together in the determination of applications, along with detailed advice on assessing benefits and impacts in Planning Policy Wales.

5.10. Policy 17 states (own emphasis underlined):

Policy 17 – Renewable and Low Carbon Energy and Associated Infrastructure

The Welsh Government strongly supports the principle of developing renewable and low carbon energy from all technologies and at all scales to meet our future energy needs. In determining planning applications for renewable and low carbon energy development, decision-makers must give significant weight to the need to meet Wales' international commitments and our target to generate 70% of consumed electricity by renewable means by 2030 in order to combat the climate emergency. In Pre-Assessed Areas for Wind Energy the Welsh Government has already modelled the likely impact on the landscape and has found them to be capable of accommodating development in an acceptable way. There is a presumption in favour of large-scale wind energy development (including repowering) in these areas, subject to the criteria in policy 18. Applications for large-scale wind and solar will not be permitted in National Parks and Areas of Outstanding Natural Beauty and all proposals should demonstrate that they will not have an unacceptable adverse impact on the environment. Proposals should describe the net benefits the scheme will bring in terms of social, economic, environmental and cultural improvements to local communities. New strategic grid infrastructure for the transmission and distribution of energy should be designed to minimise visual impact on nearby communities. The Welsh Government will work with stakeholders, including National Grid and Distribution Network Operators, to transition to a multi-vector grid network and reduce the barriers to the implementation of new grid infrastructure.

5.11. Reflecting the site selection requirements of Policy 17, the application site is not located within a National Park and not located within an Area of Outstanding Natural Beauty.

5.12. Policy 18 provides a decision-making framework for renewable and low carbon energy technologies. Policy 18 states:

Renewable and Low Carbon Energy Developments of National Significance Proposals for renewable and low carbon energy projects (including repowering) qualifying as Developments of National Significance will be permitted subject to policy 17 and the following criteria:

1. outside of the Pre-Assessed Areas for wind developments and everywhere for all other technologies, the proposal does not have an unacceptable adverse impact on the surrounding landscape (particularly on the setting of National Parks and Areas of Outstanding Natural Beauty);

2. there are no unacceptable adverse visual impacts on nearby communities and individual dwellings;

3. there are no adverse effects on the integrity of Internationally designated sites (including National Site Network sites and Ramsar sites) and the features for which they have been designated (unless there are no alternative solutions, Imperative Reasons of Overriding Public Interest (IROPI) and appropriate compensatory measures have been secured);

4. there are no unacceptable adverse impacts on national statutory designated sites for nature conservation (and the features for which they have been designated), protected habitats and species;

5. the proposal includes biodiversity enhancement measures to provide a net benefit for biodiversity;

6. there are no unacceptable adverse impacts on statutorily protected built heritage assets;

7. there are no unacceptable adverse impacts by way of shadow flicker, noise, reflected light, air quality or electromagnetic disturbance;

8. there are no unacceptable impacts on the operations of defence facilities and operations (including aviation and radar) or the Mid Wales Low Flying Tactical Training Area (TTA-7T);

9. there are no unacceptable adverse impacts on the transport network through the transportation of components or source fuels during its construction and/or ongoing operation;

10. the proposal includes consideration of the materials needed or generated by the development to ensure the sustainable use and management of resources;

11. there are acceptable provisions relating to the decommissioning of the development at the end of its lifetime, including the removal of infrastructure and effective restoration.

The cumulative impacts of existing and consented renewable energy schemes should also be considered.

5.13. The amplification to Policy 18 states *"Irrespective of location or scale, the design and micro-siting of proposals must seek to minimise the landscape and visual impact, particularly those in close proximity to homes and tourism receptors"*. The Designing for Renewable Energy in Wales, a consultation document published by the Design Commission for Wales in April 2023, identifies how the design considerations for large scale DNS energy schemes are drawn from Policies 18 and 19 of Future Wales.

How the development accords with Policy 18 of Future Wales

5.14. The definition of 'unacceptable adverse' and 'adverse' in Future Wales Policy 18 is for the appropriate determining authority to consider. Every renewable energy proposal will have an individual set of circumstances and issues to consider and address, and all schemes are different in some way.

5.15. Policy 18 specifically relates to qualifying Developments of National Significance and presents 11 principles which should be satisfied to secure consent. The requirements set out in Policy 18 are considered in turn below.

Criteria 1: Outside of the Pre-Assessed Areas for wind developments and everywhere for all other technologies, the proposal does not have an unacceptable adverse impact on the surrounding landscape (particularly on the setting of National Parks and Areas of Outstanding Natural Beauty)

5.16. The application site is not located within a statutory protected landscape designation such as a National Park or an Area of Outstanding Natural Beauty of national importance, however it is within a green wedge and a Special Landscape Area. The proposals would inevitably change the character of the application site from undulating pastoral farmland to a solar PV development. However, the arrangement of the proposed solar farm responds positively to the landform and field pattern with the existing hedgerow vegetation being retained and strengthened, where appropriate, meaning that overall *no unacceptable adverse impact will be caused in this regard.* This is fully assessed in the supporting LVIA.

Criteria 2: There are no unacceptable adverse visual impacts on nearby communities and individual dwellings

5.17. The LVIA assessed the effects of the proposed development on landscape elements, landscape character, and visual amenity. These are summarised below and described in further detail in the supporting LVIA.

Potential Effects on Landscape Character

5.18. The landscape elements that constitute the character of the LANDMAP geological, habitats, historic or cultural aspect areas within the application site would generally remain physically unaffected by the proposed development. The effects on landscape character would therefore result from the visual influence of the solar arrays on the LANDMAP visual and sensory aspects including the Afon Llan and surrounds SWNSVS700 and to a lesser extent Gorseinon SWNSVS726.

5.19. Aspect Area, 'Afon Llan and surrounds' (SWNSVS700) which covers most of the application site is described as "***Valley floor with Afon Llan flowing through it, urban areas surround it some being immediately adjacent. Pylons cross the area as do a number of roads with the A484 forming part of the northern boundary. Visual detractors within include a sewage works, roads, pylons. Factories and urban areas border it in places. Some hedgerow field boundaries but has a distinct urban edge character….***"

5.20. The parcel of the application site north of A484 is within 'Gorseinon' (SWNSVS726) aspect area which covers predominantly the whole of the urban area stretching northwest, is described as: ***"Urban area than encompasses the settlements of Goseinon, Gowerton and Grovesend. The area is largely residential with some retail and small areas of industry. Views out are largely on to farmland with some views to the south east edge onto saltmarsh and Loughor estuary. Northeast part of this area includes much open country…"***

5.21. Due to the limited visibility of the application site within the study area, the landscape character of the LANDMAP aspect areas would generally prevail with the proposed development in place.

Potential Effects on Landscape Elements

5.22. The landscape elements that constitute the landscape character of the application site would remain largely unaffected by the proposed development. Site topography, field pattern and enclosure, woodlands, hedgerows and trees would generally remain physically intact with the solar arrays and supporting infrastructure in place. *Enhancements to landscape elements would be made in terms of the maintenance and infilling of hedgerows to enhance visual screening, species diversity, age structure, health, and the long-term contribution to the character of the site*.

5.23. New hedgerows and trees are proposed to provide an overall net gain of the site's hedgerow and tree resource. The existing hedgerows would be managed to improve the visual screening of the solar panels and security fencing, and to enhance the landscape character and biodiversity of the site. Owing to the ease of removal of all the above ground structures, ground fixings and associated infrastructure, any effects upon landscape elements resulting from the proposed development are reversible with the land being returned to agricultural land use on decommissioning.

Potential Effects on Visual Amenity

5.24. The zone of theoretical visibility for the application site reflects the undulating topography and treecover and the theoretical visibility which is generally contained by built form within 5km of the application site. The 'actual' visibility of the application site is less than illustrated in the ZTV mapping as demonstrated by the representative viewpoints. The reduced extent and pattern of visibility of the proposed development is due to the visual containment provided by the steeply rising topography and treecover within the Afon Llan Valley and surrounding settlement. The entire application site is not intervisible with itself and it is therefore not possible to view the entirety of it within a single field of view thus reducing the perceived scale of the proposed development in the wider landscape.

5.25. There would be limited to no effects on the majority of residential receptors due to factors such as orientation, intervening landform, built form and vegetation. There are likely major effects at year 1 on residential receptors on high ground Waunarlwydd (see Viewpoint 20 of the accompanying LVIA, Junction of Heol Will George and Sardis Close). However, mitigation measures, which are proposed to be put in place (such as new lengths of hedgerows to break up the series of panels along the visible slopes of the application site) would help to reduce potential effects at year 15.

5.26. Based on the location of some of the properties close to the application site, their orientation, number of storeys, nature and character of their curtilage it is predicted that major visual effects may occur at Penyfodau Fawr Farm, and properties along Swansea Road (B4560) overlooking the eastern corner of the proposed development. Boundary mitigation measures have been proposed to help mitigate against these effects, reducing them by year 15.

5.27. Considering the intervening boundary vegetation and low-lying profile of the proposed development it is assessed that views from the surrounding network of PRoW would be considerably screened and visual effects would not be adverse.

5.28. Due to boundary vegetation, there would be no major effects on road users along Swansea Road/A484, Titanium Road, Statutory Access land users north and west of the site, or long distance footpath users (Wales Coast Path and the Gower Way).

5.29. More than half of the proposed development (63%) 57 acres will form the green infrastructure across the application site. The proposed solar PV element of the proposed development would result in a degree of harm to the landscape character and visual amenity of the part of the application site fronting the A484 and Swansea Road (B4560). However, the landscape and visual effects would be localised owing to the sloping landform of the Afon Llan valley, the surrounding built form, woodland and high sided hedgerows. For these reasons, *the proposed development is not considered to materially conflict with criteria 3 of Policy 18*.

Criteria 3 - There are no adverse effects on the integrity of Internationally designated sites (including National Site Network sites and Ramsar sites) and the features for which they have been designated (unless there are no alternative solutions, Imperative Reasons of Overriding Public Interest (IROPI) and appropriate compensatory measures have been secured)

5.30. The statutory consultation is supported by an Ecological Appraisal undertaken by Devon Wildlife Consultants. The Ecological Appraisal provides an assessment of impacts of the proposed development on internationally designated sites. The salient points are set out below.

Camarthen Bay and Estuaries SAC

5.31. The Afon Llan is connected to the SAC, creating a potential downstream pathway linking the development site to the SAC. During construction there is the potential for sediment runoff and pollution as a result of construction activity. However, any such impacts can be mitigated through adequate construction control and runoff design measures. These are set out within the Outline Construction Environmental Management Plan.

5.32. During operation of the scheme, it is considered that sediment runoff and nutrient load will be reduced due to the change to grassland from ploughed arable land, particularly for the fields adjacent and uphill of the river. Therefore, *a Habitats Regulations Assessment (HRA) is not required as there are no identified likely significant impacts upon this designated site or its key designated habitats and species. The works are likely to have no likely significant impact on the SAC.*

Burry Inlet Ramsar Site and SSSI

5.33. No significant wading bird species have been recorded utilising the application site during the targeted bird surveys. It is considered unlikely that the application site is utilised regularly by wading birds and waterfowl. Therefore, there are considered to be no significant impacts on the waterfowl assemblage associated with Burry Inlet Ramsar Site and SSSI. *The works are likely to have no significant impact on the Ramsar Site and SSSI.*

Penyfodau Fawr To Llewitha and Alcoa Wet Meadows SINCs

5.34. The proposed layout presented for the original statutory consultation (June to August 2023) proposed solar PV arrays within designated SINC fields. For this full re-consultation, the applicant has removed all solar PV from SINC fields.

5.35. Habitat retention/creation/management as detailed in the ecological appraisal have been specifically designed to maintain and enhance priority habitat associated with these SINCs, from the current suboptimal habitat condition. *The works are considered likely to have a Minor Positive impact at a District level.*

Criteria 5 – The proposal includes biodiversity enhancement measures to provide a net benefit for biodiversity

5.36. It is noted that potential impacts of the proposed development include the loss or alteration of grassland habitat beneath the solar arrays, particularly within the footprint of the SINCs, and the loss of open habitat for ground-nesting birds. However, the enhancement measures carried out within the large mitigation field and farmland bird mitigation area will mitigate these impacts, as will the proposed sympathetic grassland management within and around the solar arrays.

5.37. Habitat retention, creation and enhancement measures are designed to increase the extent and quality of habitat on key corridors within and through the application site. These measures will strengthen habitat connectivity through the application site, including creation of buffer zones. This will include native wildflower seeding/green hay from a donor site (likely to be from retained habitat to the south) and alteration of grassland management to extend and enhance priority habitat.

5.38. Planting of native hedge, tree and scrub, and creation of wild bird cover plots will aim to extend the habitat mosaic and enhance habitat value for a range of species including bats and farmland bird species. Enhancement of rhos pasture and creation of butterfly banks will enhance habitat and connectivity for butterfly species.

5.39. A wildlife corridor will be created along the public right of way linking the site from north to south. This will comprise a habitat mosaic of grassland, scrub and hedgerow planting. Additional woodland and hedgerow creation and infill planting will also strengthen habitat connectivity across the wider site.

5.40. The river corridor and adjacent SINC are considered to be a key component of the mitigation approach; a continuous wide corridor of habitat creation and enhancement will be created along the river corridor within the redline boundary, extending and linking valuable habitats as an ecological network. Open riparian habitats will be retained as part of the mosaic, but with a wider buffer zone than at present. An area of farmland bird mitigation will also be created adjacent to the river. Treatment and removal of extensive Japanese Knotweed will also provide habitat enhancement.

5.41. The proposed development will provide a series of enhancements such as swales, basins, leaky dams and filter trenches along arrays rows and in existing drainage ditches, as part of a SuDS betterment which will provide additional wetland habitat diversity. The additional hedgerows and the Rhos grassland field provide flood betterment once the cattle poaching has stopped, and the meadow grasses recover.

5.42. *These proposals for green infrastructure, ecological connectivity and enhancement have been designed to meet Policy 9 of Future Wales, Resilient Ecological Networks and Green Infrastructure.* A Green Infrastructure map is presented in Appendix 3 to illustrate these proposed linkages and enhancements.

5.43. bat boxes and bird boxes will be installed on retained mature trees across the application site to provide new roosting and nesting opportunities for these species. Bird boxes will be suitable for a range of woodland bird species.

5.44. Any brash, log or grass arisings resulting from vegetation management will be utilised to create habitat piles, providing potential habitat and over-wintering sites for invertebrates, amphibians, reptiles and small mammals. At least 10 habitat piles of approximately 1m3 in size will be located within relatively undisturbed locations at the edge of the grassland on site, including within the reptile mitigation area.

Biodiversity Net Gain (BNG)

5.45. The emerging NRW Biodiversity toolkit is not yet available. Therefore, the Defra metric 3.1 has been used to provide a quantitative preliminary indication of whether net gain can be achieved at the application site.

5.46. Preliminary calculations for habitat areas have been made using the Defra metric 3.1 to ascertain whether the development proposals are likely to result in a net gain for biodiversity post-development. A breakdown of changes in each habitat group is presented in Table below.

5.47. The proposal will result in a habitat improvement when measured against the existing baseline conditions. By improving the habitat distinctiveness of improved grassland habitats, conversion of arable habitats to grassland, and enhancement of grassland in ecological buffer areas, the development proposals are currently likely to result in a significant net gain in biodiversity on the application site.

Criteria 6 - There are no unacceptable adverse impacts on statutorily protected built heritage assets

5.48. The statutory pre-application consultation is supported by a Heritage Statement undertaken by Pegasus Group. With regards to the built environment, an appropriate and proportionate level of settings assessment has been undertaken for designated historic assets located within a 5km radius of the application site. Particular attention has been given to the Scheduled Monuments of Roman practice camps at Carn Gôch Common and Stafford Common. It was established that their historic associations with one another, the Roman Swansea–Loughor road, and the forts at Swansea and Loughor, and the close-ranging views of the earthworks from within the designated areas contribute through setting to their significance. No association or intervisibility with the application site has been identified.

5.49. It is considered that the application site does not contribute through setting to the significance of these or any other Scheduled Monuments, or to the significance of any Listed Building.

5.50. Turning to archaeology, the assessment has been informed by a review of historic environment record data, available historic maps and aerial photographs, and a walkover survey. 'Monuments' recorded within the site by GGAT HER include a post-medieval leat from Afon Llan, the post-medieval farmstead of Penyfodau Fawr, a post-medieval coal pit, and a modern coal pile or drift. Infrastructure recorded within the site on 19th- and 20th-century maps include the Penclawwd Canal and tramway, two other sections of tramway, and a mineral railway.

5.51. As well as the features described above, there is potential in the northern part of the application site for archaeological evidence relating to the Roman Swansea–Loughor road. Buried Roman features, the extant stone-built farm buildings, and any buried remains of the leat, canal, tramways, and mineral railway would be considered non-designated historic assets.

5.52. In consultation with GGAT, geophysical survey and targeted trial trenching has been undertaken at the site. The results of the field work have been reported within the following accompanying reports

- Geophysical survey prepared by Magnitude Surveys
- Archaeological Field Evaluation, prepared by Archaeology Wales

5.53. A summary review of the field works undertaken to date is provided within the accompanying report prepared by Heritage Archaeology and the salient matters are discussed below.

5.54. A geophysical survey of the entire accessible and suitable site area was undertaken between July and September 2022. The survey identified two areas of potential enclosures in the northern part of the application site. One of these areas was subsequently removed from the red line boundary for the proposed development. Anomalies indicative of historical agricultural activity were identified, some of which can be correlated to boundaries marked on historic mapping. Areas of former mineshafts, an aqueduct and mineral railway

were also identified, corresponding to the results of the desk-based assessment. A number of anomalies classed as 'undetermined' were also plotted, the potential for an archaeological interpretation for these cannot be ruled out from the geophysical survey alone.

5.55. As a result of the geophysical survey a targeted programme of archaeological trenched evaluation was undertaken in November – December 2022. In consultation with GGAT, thirty trenches were excavated within the site, targeting anomalies interpreted as 'archaeology possible', 'agricultural', and 'undetermined' by the geophysical survey. The evaluation revealed a site that has been extensively drained, particularly from the industrial period. Some of the features were identifiable as land drains of post medieval to modern date, some clearly correspond to post medieval and modern field boundaries. No finds or environmental evidence was obtained to date the remaining features but it is likely that they are also of post-medieval or modern date. One feature interpreted by the geophysical survey as a possible enclosure in the northern part of the site was removed from the red line boundary so not tested by trenching, the other feature identified as a possible enclosure was tested by trenching but was not present.

5.56. The results of the intrusive and non-intrusive surveys conclude that there is evidence for post medieval agricultural activity within the application site and for later post medieval coal mining activity. This confirms and supports the conclusions of the desk-based assessment and helps to clarify the extent of coal mining disturbance within the site. Despite the proximity of the northern part of the application site to two scheduled Roman marching camps, no evidence for Roman activity was identified within the application site. The evidence indicates a site that has been improved by drainage for agricultural use and *no evidence for activity within the site pre-dating the post medieval period has been identified within the application site*.

5.57. The results of the intrusive and non-intrusive surveys indicate that the application site does not include any historic assets with archaeological interest of equivalent significance to a scheduled monument. An amendment to the red line boundary excluded a potential archaeological feature identified during the geophysical survey from the development footprint (a potential enclosure). Other features identified through the desk-based assessment and geophysical survey (for example the course of the Penclawdd Canal and tramway) are also excluded from the development footprint.

5.58. No additional mitigation is proposed as a result of the surveys to date, but any other historic assets present within the application site that warrant mitigation could be safeguarded through additional minor amendments to the layout and foundation design. This would be determined in response to the final design and layout and agreed through conclusion of the ongoing consultation with GGAT.

5.59. Overall, the proposed development is not considered to alter the setting of any of these assets,. It would therefore not be contrary to Section 66(1) of the Planning (Listed Buildings and Conservation Areas) Act, 1990 and to the 'desirability of preserving an ancient monument and its setting' and the 'desirability of preserving the building, or its setting' of Planning Policy Wales.

Criteria 7 - There are no unacceptable adverse impacts by way of shadow flicker, noise, reflected light, air quality or electromagnetic disturbance

5.60. Criteria 7 sets out the development management considerations for both wind and ground mounted solar. Shadow and flicker are constraint pertinent only to wind turbines and are therefore not relevant in relation to the proposed development.

5.61. Turning to noise, the application is supported by a noise assessment prepared by ION Acoustics. Overall, the noise assessment indicates that operational noise from the proposed development during the likely operating hours would be relatively low in absolute terms and would largely comply with the operational noise target at all the noise sensitive receptors. To that end, noise from the proposed development is unlikely to be audible and the resultant impact across all receptor locations is low. *It is considered that there are no noise-related issues associated with the proposed development which would prevent the granting of full planning permission*.

5.62. Turning to reflected light, the application is supported by a Glint and Glare Assessment, prepared by Pager Power, which concludes that the measured intensity of a reflection from solar panels can vary from 2% to 30% depending on the angle of incidence. It is also noted that evidence shows that reflections from solar panels are significantly less intense than many other reflective surfaces, which are common in an outdoor environment. Given the existing vegetation and terrain within and surrounding the application site, no mitigation is required meaning that no unacceptable adverse impacts are caused from reflected light.

5.63. Turning to air quality considerations, the application site is not located near any Air Quality Management Area as per Wales Airborne Pollution Map. The Wales Airborne Pollution map 2017 background air pollution data for the development site suggests an annual mean background concentration of 10.7 μ g/m3 for PM10 which is below the objective of 40 μ g/m3. It is anticipated that the development would introduce additional road traffic and construction dust. The construction impacts associated with the proposed development would likely generate a small magnitude of dust and PM10.

5.64. Impacts from dust emissions during the construction phase would be not significant, which is supported by the low levels of annual mean emissions. It is considered that despite there not being a defined risk present, it is still advisable that a number of good practice measures are implemented, such as considerate traffic speed and observing minimal dust dispersion where at all possible during construction and transport activities and these can be incorporated in a Construction Environmental Management Plan.

5.65. Maintenance vehicles are only expected to visit the application site periodically. Therefore it is unlikely that the number of vehicle movements during the operational phase will exceed those of the construction phase. As a result, operational phase impacts associated with road traffic emissions are deemed to be not significant. The Outline Construction Environmental Management Plan which supports the Environmental Statement details appropriate housekeeping and mitigation measures that would be followed at the construction and operational stages to minimise any adverse impact on air quality.

5.66. With regards to electromagnetic disturbance, all equipment that generates, distributes or uses electricity produces electric and magnetic fields (EMFs). The technical specifications of the proposed substation accompanying the application identifies how the proposed development complies with EMF exposure guidelines. The main potential source of interference is the substation. Solar panels and underground cables do not in general produce any significant radio-frequency emissions. The substation would operate

in accordance with the management practices of the DNO, when operating under a full load, the field levels located at the boundary of the compound would be significantly less than the EC Council Recommendation 1999 (EC 1999) Reference Levels which form the UK Guidance for electromagnetic field limits. Therefore, it is expected that the electromagnetic fields produced by the proposed development would not present a hazard to members of the public in accessible areas outside of the site boundary and along the public footpath.

5.67. *For the reasons set out above it is considered that the proposed development duly accords with the requirements of criteria 7.*

Criteria 8 - There are no unacceptable impacts on the operations of defence facilities and operations (including aviation and radar) or the Mid Wales Low Flying Tactical Training Area (TTA-7T)

5.68. There are no identified defence facilities or operations within the vicinity of the application site, and the proposed development will not result in unacceptable impacts on the Mid Wales Low Flying Tactical Training Area (TTA 7T).

5.69. *The development therefore accords with the requirements of criteria 8.*

Criteria 9 - There are no unacceptable adverse impacts on the transport network through the transportation of components or source fuels during its construction and/or ongoing operation

5.70. The pre-application consultation is supported by a Construction Traffic Management Plan prepared by Pegasus Group. The salient points of the report are set out below.

5.71. The primary construction and operational access for the solar development is from the private access road which serves Penyfodau Fawr Farm. Construction vehicles will access the road from the southern arm of the A484 / B4560 Swansea Road roundabout. The preliminary consultation response from Swansea Council Highways confirms there is no issue with the use of this access in principle, although there may be a need to widen the access road to accommodate the construction traffic.

5.72. The main construction compound for the green infrastructure and renewable energy facility is anticipated to be located in the Central Development Parcel. This will be where all deliveries will be made to throughout the construction phase. This includes deliveries of materials and plant. All machinery and deliveries will be off loaded here before being transported by either a 10-metre rigid vehicle or a tractor and trailer before being dropped off at each parcel of land, respectively.

5.73. The secondary construction and operational access for the Central Development Parcel is proposed to be served from the rear of an existing lay-by on the southern side of the B4560 Swansea Road (E), approximately 430m east of the Hospital Road access. The area is currently overgrown and will require clearance prior to construction of the access. It is also proposed to stop up the lay-by. The applicant understands that the Estate landowner is looking to reinstate the access. During the operational phase, it is expected that

this access will be used by the District Network Operator to gain access to the proposed substation and by the site operator to gain access to the battery compound.

5.74. The Northern Development Parcel is proposed to be served via an existing access on the western side of the B4560 Swansea Road (W), located approximately 30 metres northwest of the A484 / B4560 Swansea Road roundabout. It is anticipated that all plant and machinery will be decanted within an internal site compound in the Central Development Parcel, prior to being transported to the Northern Development Parcel via a 10m Rigid Vehicle or a tractor and trailer.

5.75. *For the reasons summarised above, the proposed development will not have any unacceptable adverse impacts on the transport network and, therefore, duly accords with the requirements of criteria 9 of Policy 18.*

Criteria 10 - the proposal includes consideration of the materials needed or generated by the development to ensure the sustainable use and management of resources

5.76. The outline Construction Environmental Management Plan details the appropriate pollution protection techniques that will be adopted by the appointed contractor team. The purpose of the document is to demonstrate the measures that could be used during the build out phase to adequately protect the environmental resources including potential impact upon human receptors. The detailed CEMP will be submitted for approval subject to whether the scheme is granted permission.

5.77. It is important that the proposed development does not increase run-off from the application site and thereby increase the risks of flooding for others. There may be risks associated with soil compaction or degradation during construction or brought about by the rain-shadows under the arrays. However, many such risks also exist with modern farming practices. It is therefore recommended that following installation of the panels the application site is chisel-ploughed or similarly cultivated and seeded with native meadow grass and wildflowers. Chisel-ploughing will reduce soil compaction on the site and promote seed growth; it has been proven to significantly increase infiltration thereby reducing runoff rates from the site. Additionally, longer meadow type grasses and wildflower vegetation provide high levels of natural storage which will serve to reduce the risks of erosion and limit surface water flows across the site. With the implementation of Chisel-ploughing, changing the site's primary function to solar power generation will have several potential longer-term benefits regarding surface water runoff rates. Further information can be found in the accompanying Ecological Appraisal by Devon Wildlife Consultants.

5.78. The absence of intensive farming activity will provide the following benefits which serve to reduce soil compaction and runoff rates from the application site:

- The field will not be left without vegetation coverage in the winter (if in arable production);
- The field will not be intensively trodden or over grazed; and

- The field will not be regularly traversed by heavy machinery.

5.79. Using the site for solar power generation therefore has the potential to provide betterment to the existing land use in terms of surface water runoff rates and downstream flood risk.

5.80. Turning to surface water management, it is proposed to provide a series of enhancements such as swales, basins, check dams and filter trenches along arrays rows that will be provided to aid in the slowing down of flood waters as part of a SuDS type train which will allow the flows of water to be contained and slow the flows of waters across these areas when flooding occurs during extreme events.This will provide a betterment in overall flood risk to the site but also impact on the current fast rate of connection to the existing watercourses.

5.81. *For the reasons summarised above, the proposed development duly considers the materials needed or generated by the development to ensure the sustainable use and management of resources and, therefore, accords with the requirements of criteria 10 of Policy 18.*

Criteria 11 - There are acceptable provisions relating to the decommissioning of the development at the end of its lifetime, including the removal of infrastructure and effective restoration

5.82. Following a 40 year generation period, the proposed development will enter into a decommissioning stage and this can be secured by a suitably worded planning condition.

5.83. The applicant will either be insured or enter into a bond to guarantee that the scheme is decommissioned at the end of its operational lifespan. The applicant has therefore made acceptable provisions for the decommissioning of the proposed development. No more than 12 months prior to the decommissioning commencing, an ecological survey would be undertaken to identify ecological constraints arising from decommissioning activities. The application site will be surveyed by an appropriately qualified ecologist to identify any ecological constraints arising from decommissioning activities.

5.84. Depending on the ecological value of the habitats that develop over the lifespan of the scheme, it is possible that certain areas of the site may need to be retained due to their value for wildlife on decommissioning. Alternatively, and on application of the mitigation hierarchy principles, their loss may require compensation through on or off-site measures to ensure land/habitats are preserved for wildlife into the future.

5.85. It cannot reasonably be foreseen what legislative protection will be afforded to particular wildlife species at the end of the scheme's lifespan. Further surveys for protected species which could be impacted by decommissioning would also be expected.

5.86. No less than 6 months before the 40th anniversary of the first export date, a decommissioning and site restoration scheme would be submitted to the relevant planning authority for approval. The decommissioning strategy would detail how plant and equipment

located within the application site would be removed. The decommissioning strategy will follow the principles laid out in this Outline Decommissioning Strategy and informed by any mitigation requirements identified by the pre-decommissioning ecological survey(s).

5.87. *Overall the proposed development duly accords with the 11 principles set out in Policy 18 of Future Wales and when weighed against the benefits, the proposal favour approval.*

6. CONSTRUCTION

6.1. Details regarding the construction programme and delivery vehicle types have been provided by the applicant based on experience in supporting the development of similar sites elsewhere in the UK whilst taking into account the specifics of the application site.

6.2. It is acknowledged that further assessment of the construction activity movements has been requested by Swansea Council's consultation response, including a breakdown of vehicle types and movements across an average day for the duration of the constriction period. This information is not available at this stage. However, a full construction programme is anticipated to be available later at time of application submission.

6.3. The applicant anticipates that the solar and battery & storage facility will take approximately eight to nine months (up to 39 weeks) to complete. This includes the preparation of the application site, the temporary access roads (if necessary), erection of security fencing, assembly and erection and installation of the cabling and solar module arrays, PV strings, installation of the transformer, battery and substation containers and grid connection.

6.4. The location(s) of where staff will travel from is unknown at this stage as it will depend upon the appointed contractor. However, it is anticipated at this stage that the non-local workforce will stay at local accommodation and general operatives will be transported to the site by minibuses to minimise the impact on the local highway network. The number of car trips to the application site will be minimised to those of specialist engineers, National Grid engineers, public authority officers and senior staff, such as project managers and health and safety executives.

6.5. The construction period will include the use of HGVs to bring the equipment onto the application site, which will be strictly managed via a Construction Traffic Management Plan, to ensure that vehicle movements are controlled. The proposed construction route will ensure, as far as practicable, that heavy construction vehicles associated with the application site will not pass through the centre of any villages or small towns; which is unlikely given the proximity to the M4 and connecting A-roads to the main proposed site entrance. As such, special announcements and liaison with residents throughout the construction phase are not considered necessary.

6.6. The applicant estimates that around 15 15.4m HGVs may be required for every MWp at the application site, split equally between the modules and mounting structures; yet depending upon the module technology procured.

Vehicle Movements

6.7. An average of around 50 construction workers are forecast to be on site during peak times during the construction period. Temporary storage, welfare and car parking areas (including spaces for minibuses) will be provided on the application site within a contractor's compound. Parking will therefore be contained within the application site and no unnecessary parking will occur on the local highway network.

6.8. The application site is designed to achieve 44.4MW DC, with approximately 85,000 modules. As per paragraph 6.4, this would equate to a total of up to around 660 deliveries by 15.4m HGVs. Assuming an eight to nine month construction period (total) and a six-day working week, this equates to, on average, up to around five deliveries per day by the largest vehicle.

6.9. The current conceptual layout plans show a total of 203 inverters, eight transformers, 29 battery storage containers, two substations and two storage customer switchgear containers (one for use, one spare) across 31 hectares of module arrays. It is assumed that each component will arrive at the application site by the smallest possible vehicle, which is anticipated at this stage to be a 10m Rigid Vehicle for inverters and 15.4m HGV for the battery storage, transformer, substation and storage containers. It is assumed that these components will be transported individually due to their weight and as such this would equate to a total of 244 deliveries.

6.10. Some deliveries will be associated with the preparation of the access tracks within the application site. As a worst case, stone may be required to construct sections of the temporary access tracks on the site. The stone is likely to arrive on 10m Rigid Vehicles. The precise number will depend on the amount of stone required, but for the purpose of this assessment we have assumed that around 100 deliveries of stone may be required. This is considered to provide a robust estimate of the likely number of deliveries for the access track as in reality, it is likely that temporary access matting and/or soil stabilisation will be used instead resulting in fewer deliveries.

6.11. A number of front end JCBs may also be required to transport equipment around the site, and to distribute stone, as necessary. This is a similar size to a tractor and will either be transported to the site or be driven to the site. For the purpose of this assessment, we have assumed that around three JCBs could be required.

6.12. It is envisaged that up to around five 16.5-metre-long articulated vehicles will also be required to transport the compound portacabins/storage to the application site.

6.13. Overall, it is estimated that 1,025 deliveries (2,050 two-way movements) could be made by vehicles associated with construction, at an average of around four HGV deliveries (eight two-way movements) per day, based on an eight to nine month construction period. This would equate to around one delivery every two hours, should deliveries outside of highway network peak hours be considered necessary. During the busiest times four articulated lorries and 10 rigid lorries will visit the site per day. In addition to the HGV movements, there will also be a number of construction movements associated with smaller vehicles such as the collection of skips for waste management, the transport of construction workers and sub-contractors.

Operational Phase

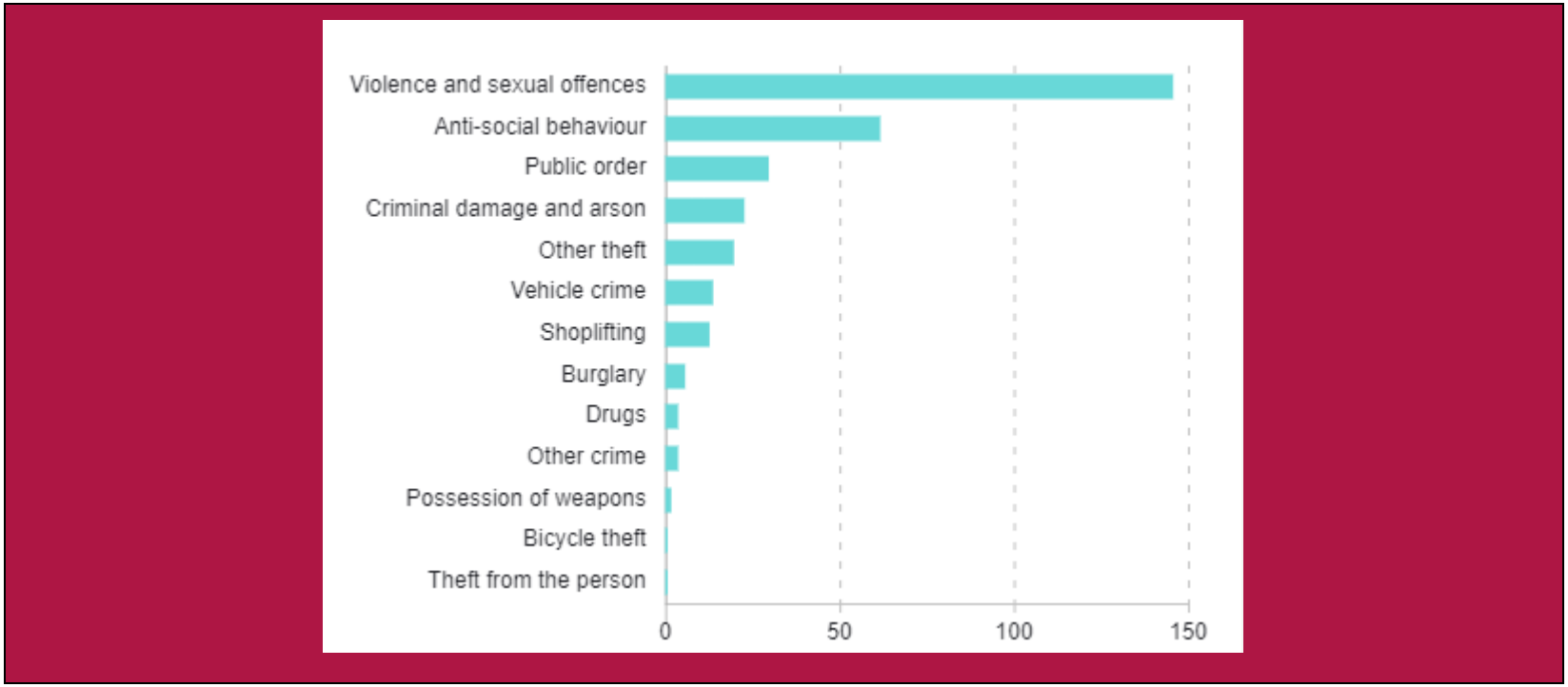
6.14. Following the completion of the construction phase the applicant anticipates a low number of trips generated by the application site as operationally, the site would work on an ad-hoc basis. It is forecast that there are expected to be a maximum of 2 maintenance trips per week to the application site once it is fully operational by 7.5t vans. This is a non-material increase in traffic and is not considered to be an intensification of use.

7. CRIME AND IMPACT ASSESSMENT

7.1. This section of the Design and Access Statement deals with the issue of crime. The Crime Impact Assessment process involves identifying, evaluating and mitigating the crime and disorder effects of a development proposal early in the design process.

7.2. The goal is to reduce the developments vulnerability to crime by taking into account the analysis of the proposed development context and the crime issues in the area.

7.3. The www.police.uk website provides data on crime levels. For the catchment area of Gowerton between 20 to 45 crime incidents have been reported per month over the last 12 months (March 2022 to February 2023). No crime has been recorded within the demise of the application site over the last 12 months. A breakdown of crime types is displayed in the table below.



General Risk Assessment

7.4. The typical security issues for a development of this nature are:

- Acts of criminal damage during the construction period;
- Theft of components during the construction phase;
- Criminal damage during operational phase;
- Theft of components during the operational phase;
- Theft of components during site restoration.

Construction Site Risk Assessment

7.5. A secure temporary construction compound will be used to store materials and ancillary welfare facilities during the construction period. Security teams are likely to be detailed to additionally secure the application site.

Design, Layout and Security Requirements

7.6. Taking into account the low level of recorded crime for the locality, the following security measures are considered to be appropriate to combat potential criminal activity and unauthorised access into the arrays:

- A 2.0 m high stock fence will encompass the fields containing the solar panels;
- Cameras with external perimeter intruder detection (PID) may be fitted on top of extended poles at appropriate intervals along the stock fence.

8. CONCLUSIONS

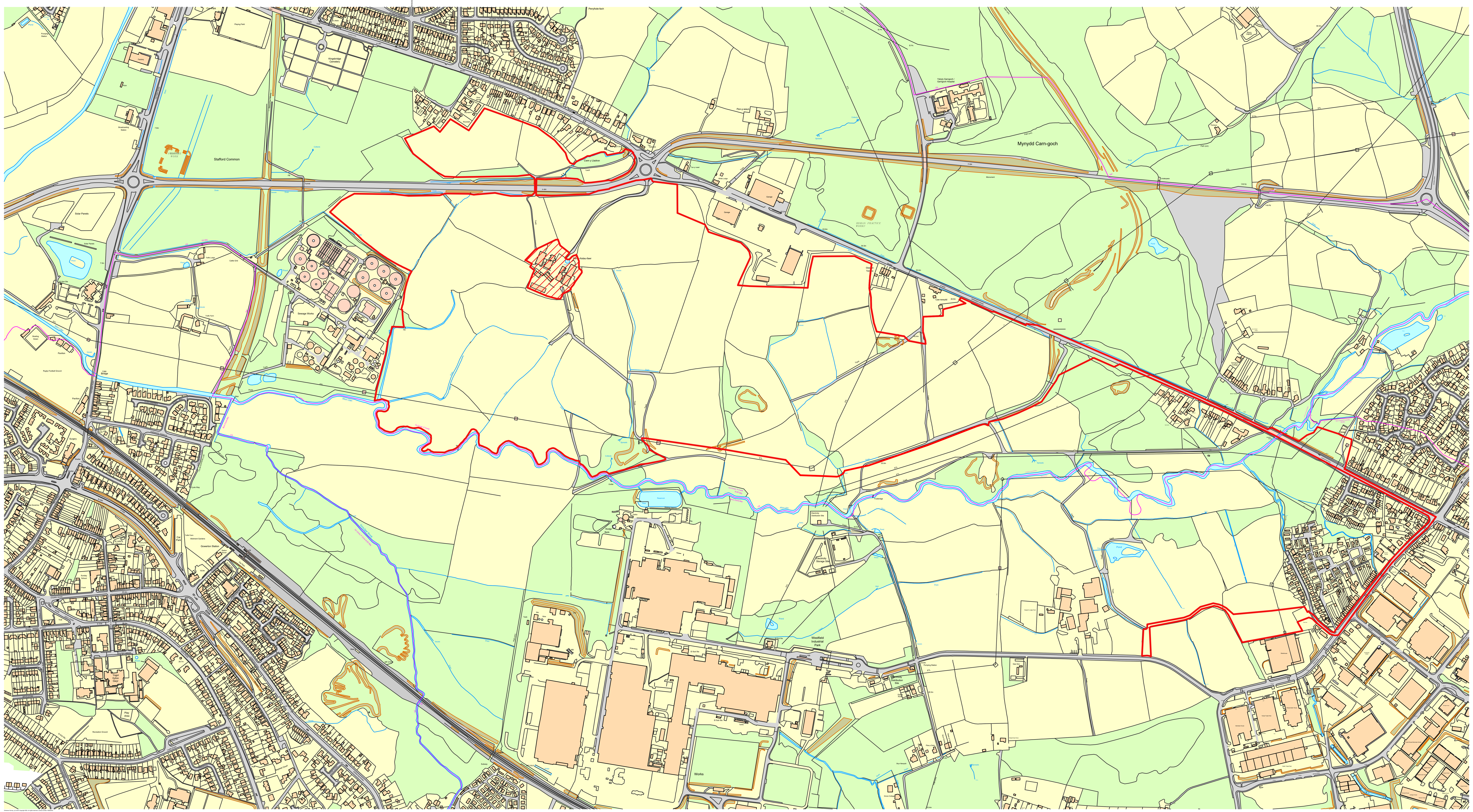
8.1. Matters pertaining to design, access and crime for the proposed development have been explored and presented within this draft Design and Access Statement. Taking not account the matters set out in this statement and the accompanying Planning Statement and other technical documents, the application site is deemed to be appropriate in that it can accommodate the proposed solar scheme with an installed capacity of 44MW DC and 33MW AC export to the grid. The applicant duly considers that the application site can suitably accommodate the development proposal without causing any unacceptable impact on the local environment.

8.2. The benefits of the development are multiple:

- It would provide a valuable contribution with regards to provision of decentralised renewable energy for the south west region of Wales.
- It would deliver biodiversity net gain and this would be managed and maintained during the lifetime of the proposed development.
- Development is temporary and would be decommissioned and removed from site after 40 years.
- As part of the applicant's contribution towards community benefits, the applicant is exploring the potential of community shared ownership of part of the scheme.
- Economic benefits would be secured in terms of construction and less so operational management of the application proposal. The application proposal will provide employment and business opportunities for component suppliers / installers and those involved in grid connection, transport and logistics. Where possible, local businesses will be contracted for relevant parts of the scope of works over the period of construction, operation and maintenance. There will be additional induced impacts during the construction period with any incoming construction workers (engineers, project managers etc) spending their wages at a local level (restaurants, retail stores etc) and using local accommodation.

8.3. The temporary and reversible nature of the proposed development, together with the measures that are to be taken to enhance and encourage the ecological diversity of the application site will ensure that in the long term the application site can not only be restored to its current use, but will also have been improved. The wider environmental benefits and sustainability credentials associated with the increased production of energy from renewable sources represents a significant case in favour of the development proposals. This Statement demonstrates how the application proposal accords with the relevant design policies set out in Future Wales, namely Policies 17 and 18. Compliance with these policies demonstrates the applicant's commitment towards good design.

APPENDIX 1 – SITE LOCATION PLAN



200m 400m

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On behalf of;

Notes

Key:

Red Line Boundary

DRWN	CKD	APP	REV	DESCRIPTION

Drawn By	Checked By	REV
GR	GR	
Date	Approved By	V8
27/09/2023	SC	

PROJECT	Parc Solar Caenewydd	
TITLE	RE-Consultation Site Location PLan	
CLIENT	Taiyo Power and Storage	
STATUS	Pre-Planning Approval	
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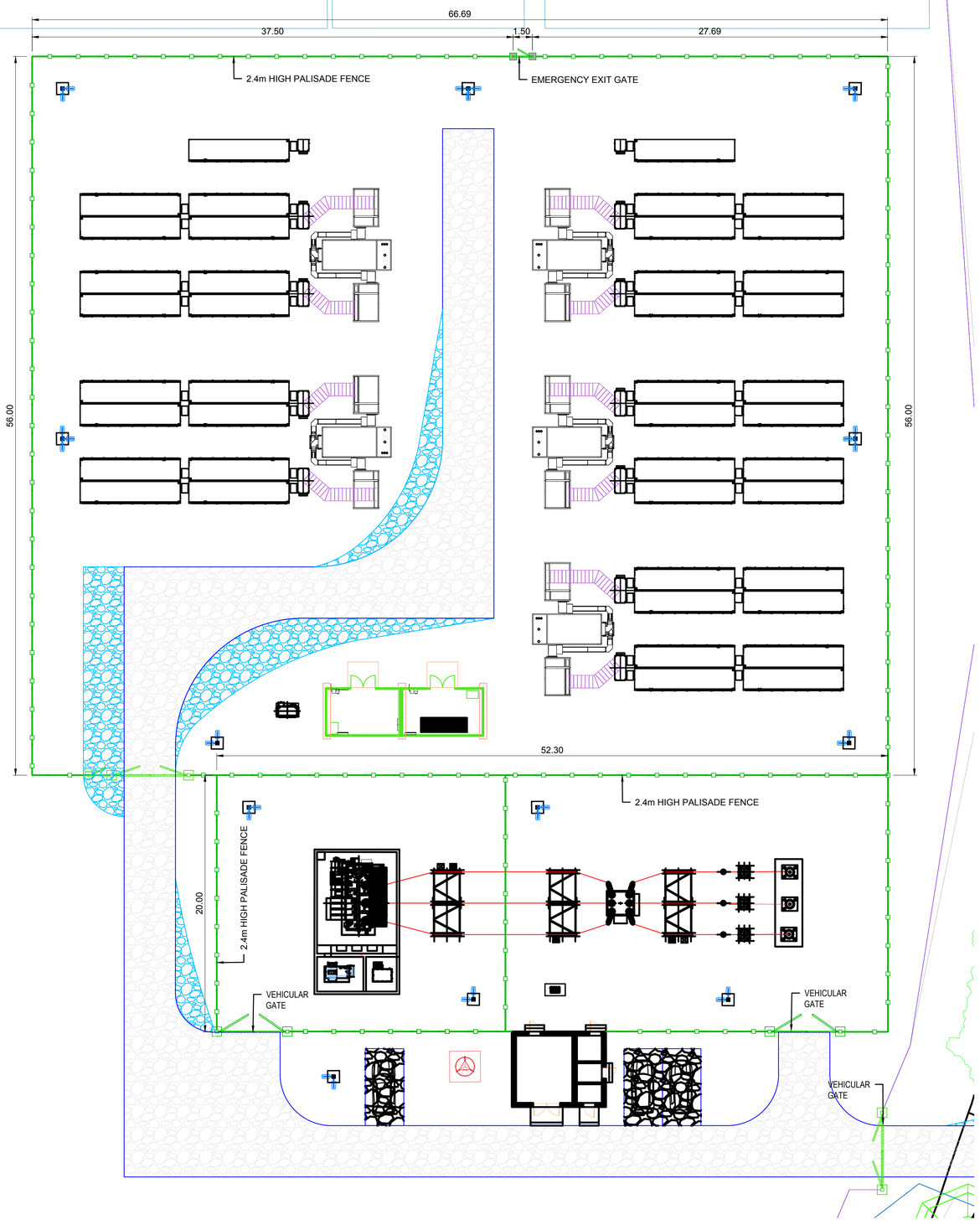
Scale:	Drawing Number	
1:5000	PSC 100 002	

APPENDIX 2 – PLANNING APPLICATION DRAWINGS



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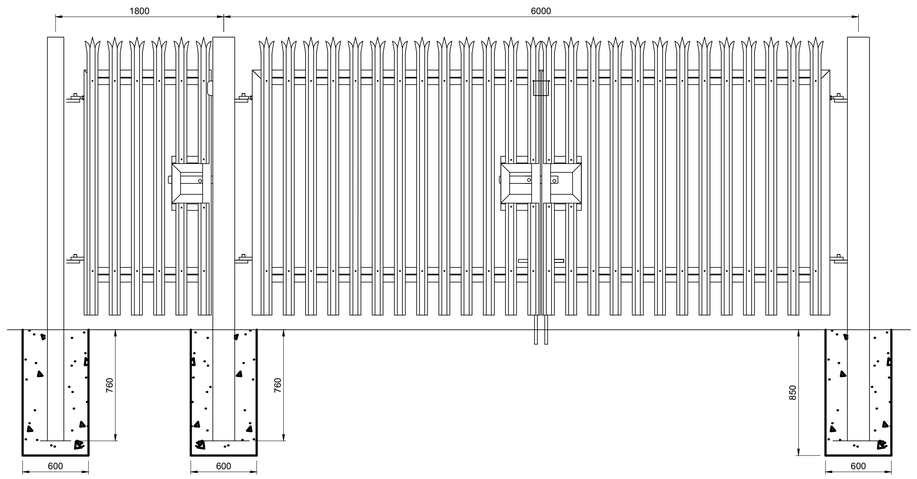
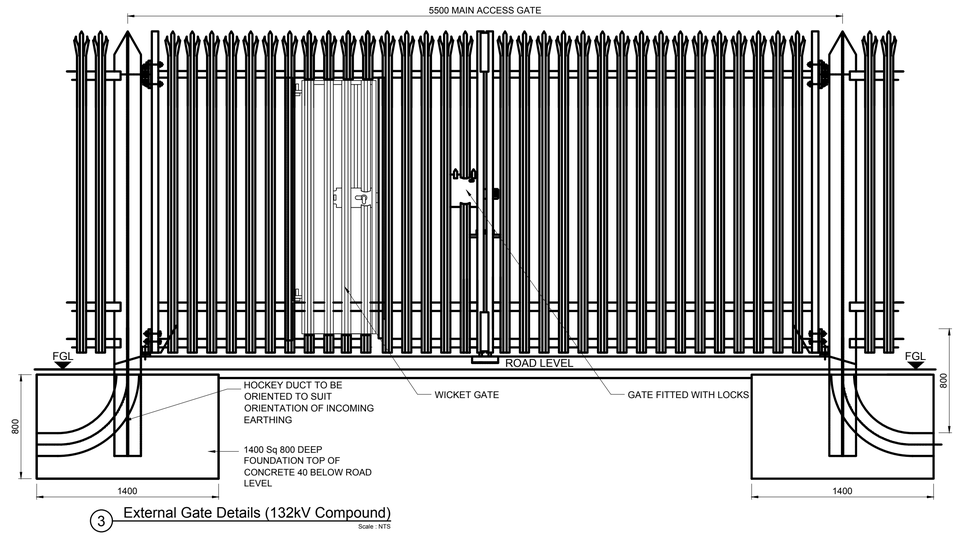
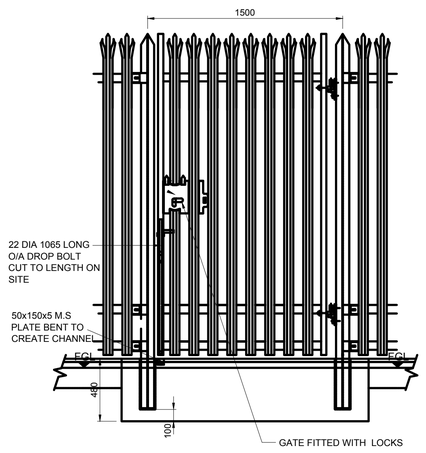


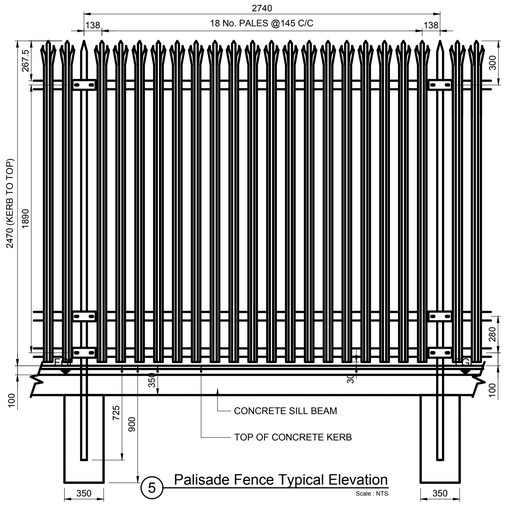
2 External Gate Details (BOP Compound)
Scale : NTS



3 External Gate Details (132kV Compound)
Scale : NTS



4 Pedestrian / Emergency Gate Details
Scale : NTS



5 Palisade Fence Typical Elevation
Scale : NTS

Legend

- 2.4m High Palisade Fence
- CCTV/Lighting Column

Site Address : Gowerton Solar PV & BESS, Swansea Road, Goreinon, Swansea, South Wales
Site Postcode: SA4 4LE

Issue	Date	Purpose of Issue	Drawn	Checked
1.0	08.09.2023	ORIGINAL	SF	SF

SUCCESS CONNECTIONS
YOUR GRID CONNECTION EXPERTS

Suite 5, Exhchange Station, Tithebarn St, Liverpool, L2 2QP

Client: Low Carbon Alliance

Drawing Title: BOP & 132kV Compound Fencing Details

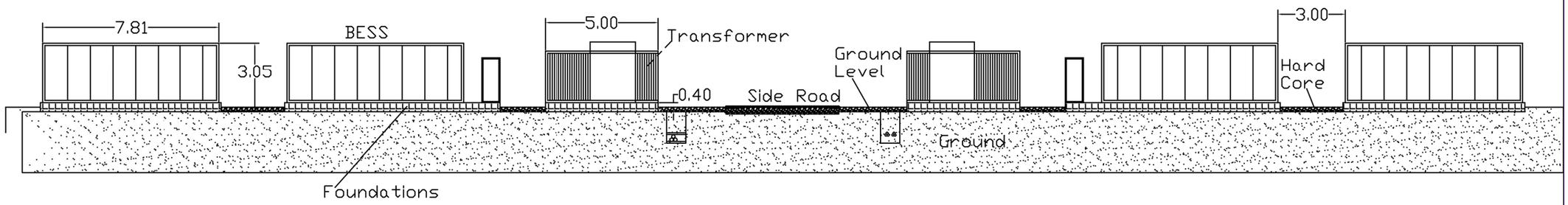
Drawn:	Date:	Checked:	Date:
SF	08.09.2023	SF	08.09.2023

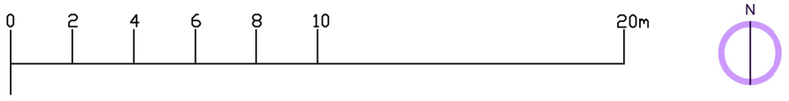
Project Title: Parc Solar Caenewydd

Job Ref:	Scale:
SC PJ 55 02	As Shown @ A1

Drawing Number:	Page Number:	Issue
SC PJ 55 02-150-20	1 of 1	1.0

Report all errors, omissions and modifications to the Low Carbon Alliance	Dimensions in meters unless otherwise stated	If in doubt, ask	Do not scale





Notes

1. If no comment is received against the submitted document within 10 working days from the date of issue, this will be deemed as being approved.

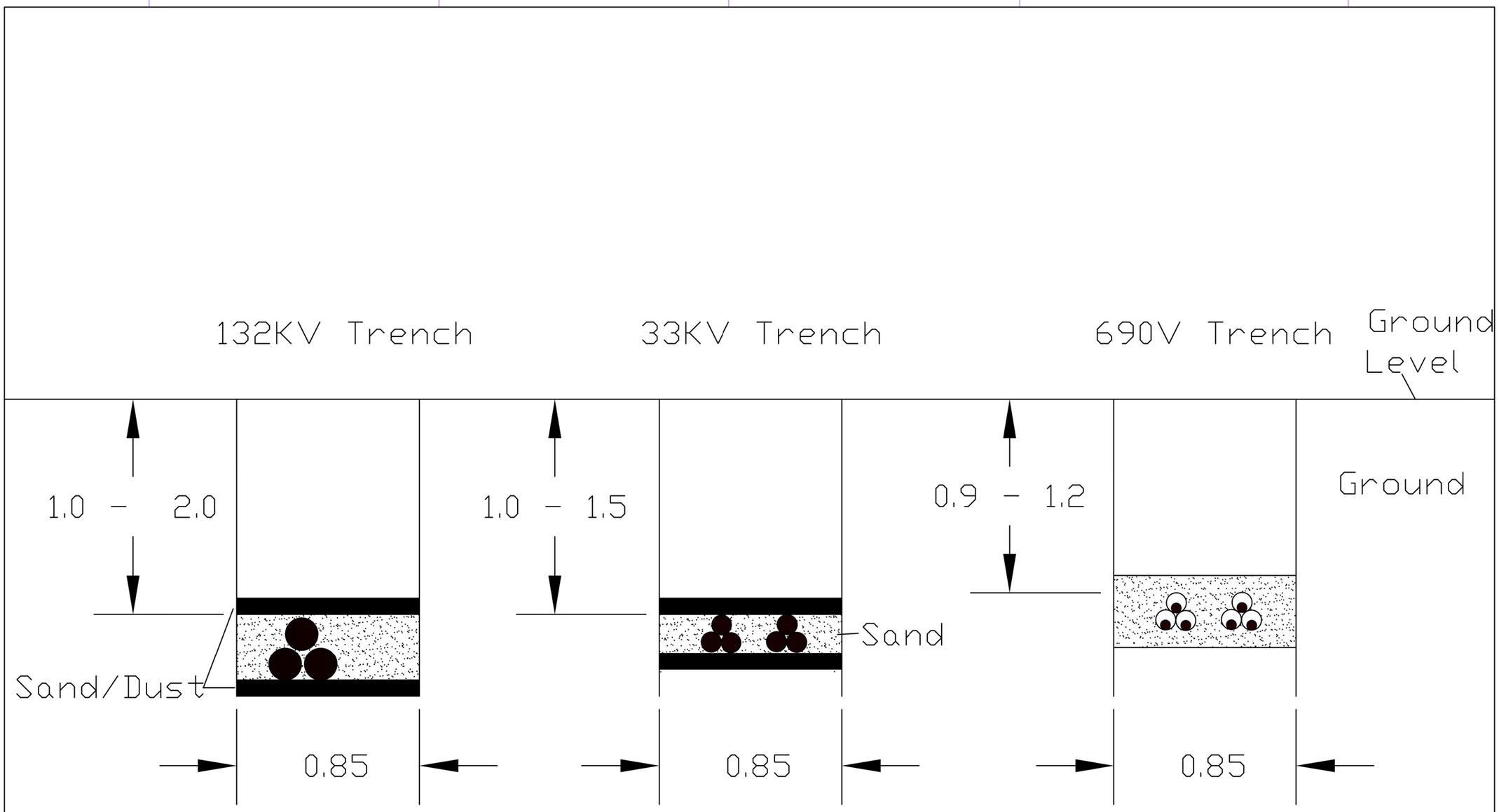
THIS DRAWING IS NOT FOR CONSTRUCTION

Drawn By	Checked By	REV	
MSTP	PC		
Date	Approved By		
17/03/2023	PC		

PROJECT	Parc Solar Caenewydd
TITLE	Proposed BESS Compound Cross Section
CLIENT	Taiyo Power and Storage
STATUS	Statutory pre-application consultation

Sheet No	Sheet Title	Sheet Size
		A3
Scale	Drawing Number	
1:200	PSC 100 011	

Report all errors, omissions and modifications to the Low Carbon Alliance | Dimensions in meters unless otherwise stated | If in doubt, ask | Do not scale



Notes

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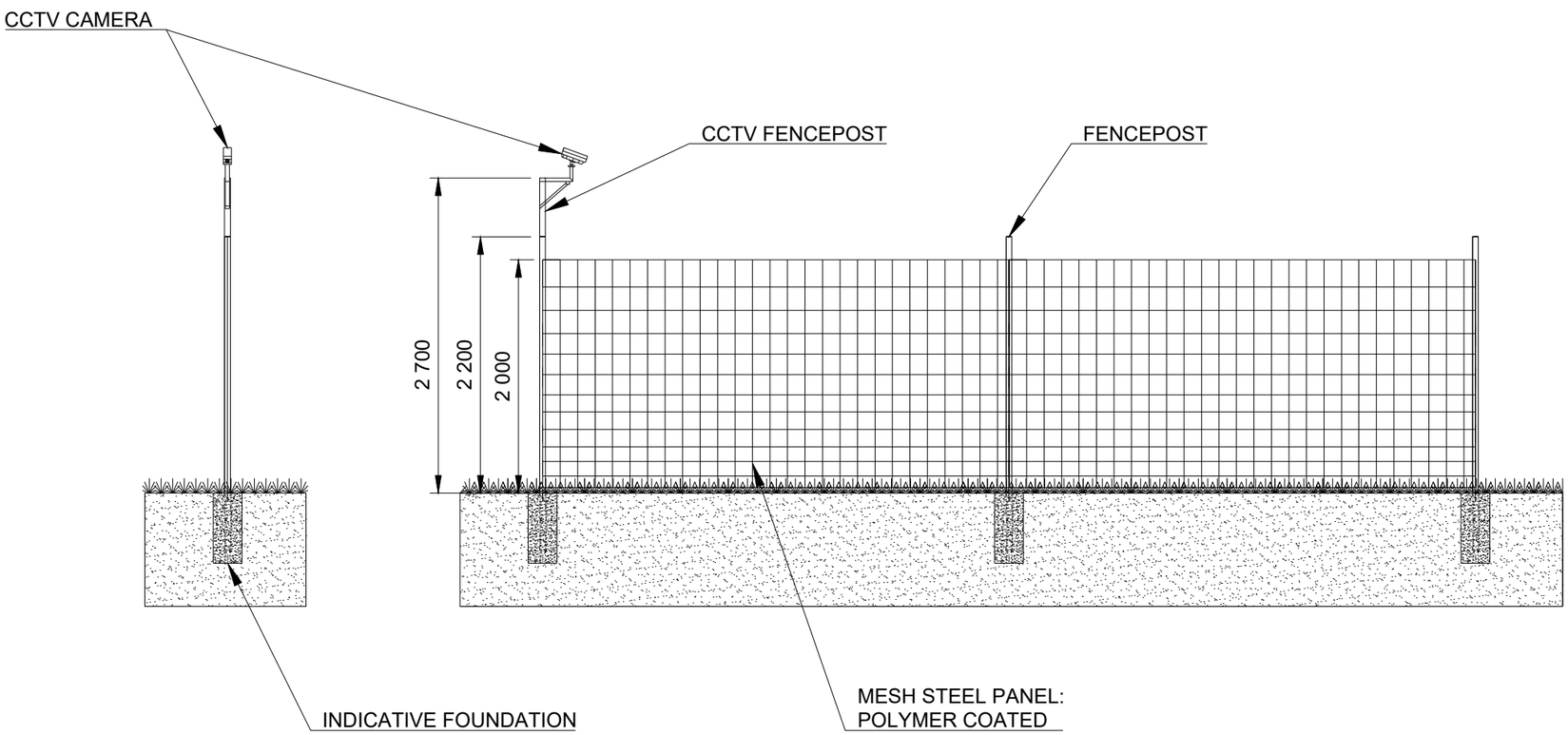
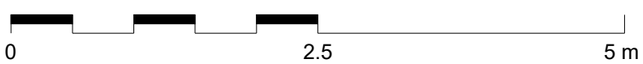
Drawn By	Checked By	REV	
MSTP	PC		
Date	Approved By		
17/03/2023	PC		

PROJECT	Parc Solar Caenewydd	
TITLE	Proposed Cable Trenches	
CLIENT	Taiyo Power and Storage	
STATUS	Statutory pre-application consultation	
Sheet No	Sheet Title	Sheet Size
		A3
Scale	Drawing Number	
1:20	PSC 100 014	

SIDE VIEW

FRONT VIEW





Notes:

1. All dimensions to be confirmed on site prior to installation.
2. All dimensions are indicative only and in mm unless otherwise specified.
3. Distances that needs to be site specific and decided by subcontractor.

Proposal only

Revisions:

Rev	Date	Comments	Drawn

Project:	Parc Solar Caenewydd
Location:	Land South of A484 and Swansea Road (B4560) Gowerton, Swansea
Title:	CCTV Details

Drawn:	DETRA / MG	Checked:	LCA PC
Scale:	1:50@A3	Date:	31/01/22
Drawing No:	LOA1002-215	Rev:	--

TAIYO
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10, St. Giles Square, London WC2H 8AP

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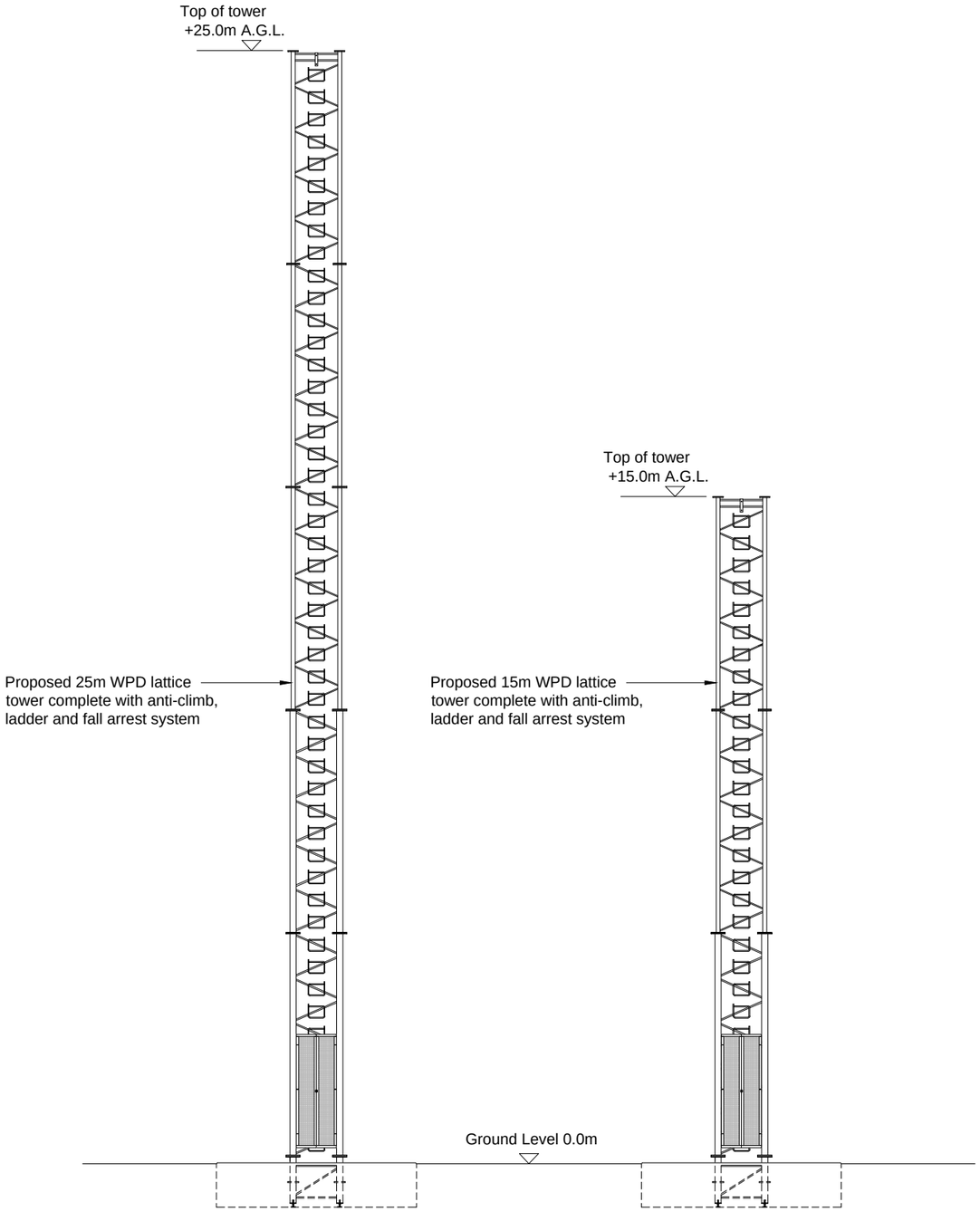

TYPICAL TOWER ELEVATION

GENERAL NOTES

1. All dimensions in mm unless noted otherwise.

2. Do not scale this drawing.

REV	DATE	NAME	REVISION	REV' CHECK

TYPICAL TOWER ELEVATION

DRAWING No.1

CAPITA
Property and infrastructure
Special Projects, 2nd Floor Clemence House, Mellor Road,
Cheadle Hulme. SK8 5AT
Web: www.capita.co.uk/infrastructure
T: +44 (0) 161 488 1500
E: Special.Projects@Capita.co.uk
Capita Property and Infrastructure Ltd.

DRAWN AT OFFICE	DRAWN BY C.A.D.
CHEADLE HULME	K.H.
SCALE	DATE	CHECKED BY
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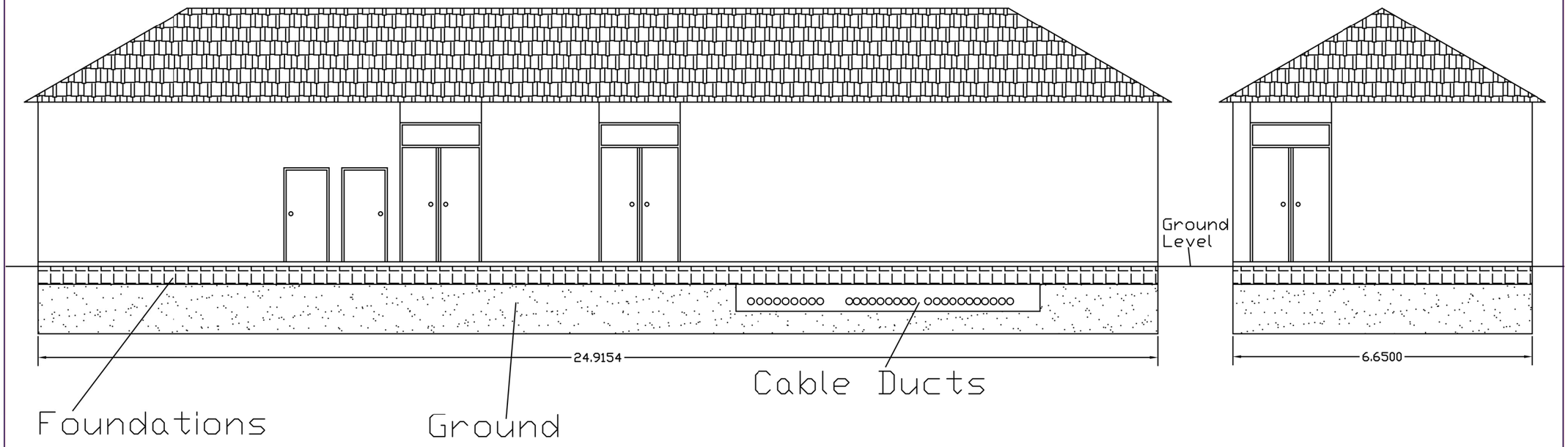
-	26/07/16	N Goodier

WESTERN POWER DISTRIBUTION

DRAWING No

CS014381-61042-100

Report all errors, omissions and modifications to the Low Carbon Alliance	Dimensions in meters unless otherwise stated	If in doubt, ask	Do not scale



0 1 2 3 4 5 10m

N

Low Carbon Alliance

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Notes

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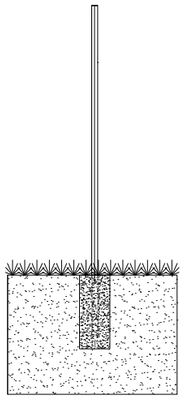
THIS DRAWING IS NOT FOR CONSTRUCTION

Drawn By	Checked By	REV	
MSTP	PC		
Date	Approved By		
17/03/2023	PC		

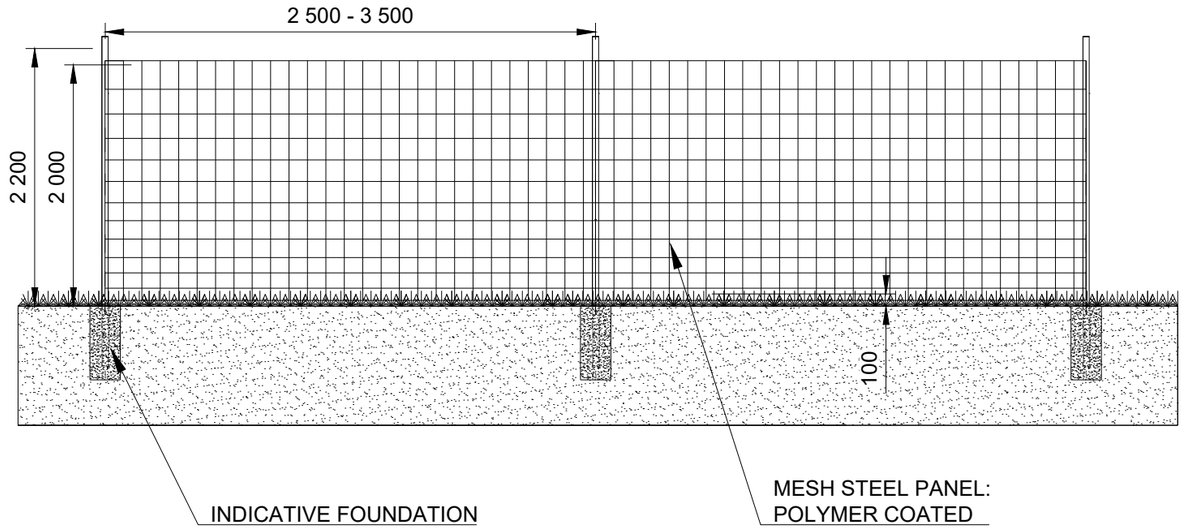
PROJECT	Parc Solar Caenewydd	
TITLE	Control Room 132KV Substation	
CLIENT	Taiyo Power and Storage	
STATUS	Statutory pre-application consultation	
Sheet No	Sheet Title	Sheet Size
		A3
Scale	Drawing Number	
1:100	PSC 100 018	

DETAIL A | FENCE
M 1:50@A3

SIDE VIEW

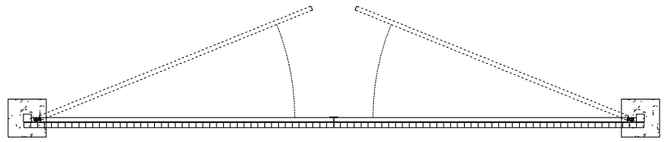


FRONT VIEW

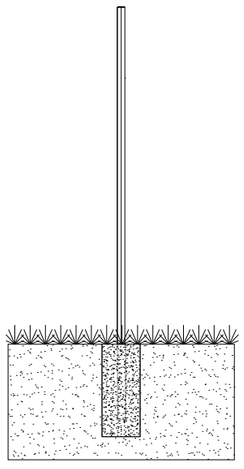


DETAIL A | GATE
M 1:50@A3

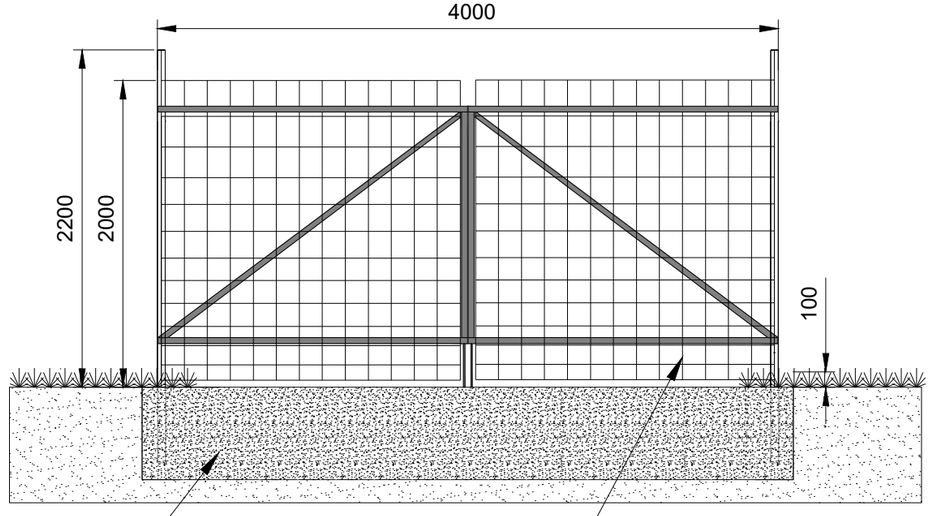
TOP VIEW



SIDE VIEW



FRONT VIEW



Notes:

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3. Distances that needs to be site specific and decided by subcontractor.

Proposal only

Revisions:

Rev	Date	Comments	Drawn

Project:	Parc Solar Caenewydd		
Location:	Land South of A484 and Swansea Road (B4560) Gowerton, Swansea		
Title:	Fence & Gate Section Details		
Drawn:	DETRA / MG	Checked:	LCA PC
Scale:	1:50@A3	Date:	31/01/22
Drawing No:	LOA1002-214	Rev:	--

TAIYO
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PROPOSED PLANTING SCHEDULE

PROPOSED HEDGEROW TREE PLANTING

To be planted in centre line of hedgerow (Oaks only where overshadowing of panels not an issue)

Species	Common Name	Girth	Height (cm)	Form	Root condition
Corylus avellana	Hazel	8-10	250-300	Standard	RB
Crataegus monogyna	Hawthorn	8-10	250-300	Standard	RB
Prunus spinosa	Blackthorn	8-10	250-300	Standard	RB
Quercus robur	English Oak	8-10	250-300	Standard	RB

PROPOSED HEDGEROW PLANTING

To be planted at 5 per linear metre in double staggered rows, rows will be 40cm apart or as appropriate where infilling gaps in existing hedgerows

Species	Common Name	Mix (%)	Height (cm)	Form	Age/ Times transplanted	Root Condition
Acer campestre	Field maple	10	60-80	Transplant	1+1	B
Cornus sanguinea	Dogwood	5	60-80	Transplant	1+1	B
Corylus avellana	Hazel	5	60-80	Transplant	1+1	B
Crataegus monogyna	Common Hawthorn	40	60-80	Transplant	1+1	B
Fagus sylvatica	Common Beech	20	60-80	Transplant	1+1	B
Prunus spinosa	Blackthorn	20	60-80	Transplant	1+1	B

PROPOSED NATIVE WOODLAND PLANTING

To be planted at 3m centres (tree locations shown illustratively only on plan)

Species	Common Name	Mix (%)	Height (cm)	Form	Age/ Times transplanted	Root condition
Acer campestre	Field Maple	25	150-175	Feathered; 3 breaks	2x	B
Acer pseudoplatanus	Sycamore	15	150-175	Feathered; 3 breaks	2x	B
Betula pendula	Silver Birch	20	150-175	Feathered; 3 breaks	2x	B
Prunus padus	Bird Cherry	20	150-175	Feathered; 3 breaks	2x	B
Quercus robur	English oak	15	175-200	Feathered; 3 breaks	2x	B
Sorbus torminalis	Wild Service Tree	5	175-200	Feathered; 3 breaks	2x	B

KEY

- Site Boundary
- Public Footpaths
- Solar Panel Modules
- Access tracks
- Transformer
- BESS Battery Unit
- BESS Transformer
- Security Fence
- Directional Drilling of Cable
- Overhead Power Line
- Conductor Lines
- Gas Mains
- Inspection Covers
- Proposed pond
- Proposed Swale
- Existing Woodland and Hedgerow
  Gaps in existing hedgerows to be infilled with hedgerow panting (as required) at approx 30% rate. (For further information, refer to Tree Survey and Constraints Plan prepared by Barton Hyett)
- Existing Vegetation to be removed
- Grazing Seed Mix to Panel Compounds
  - ie. EG26Old Fashioned Grazing Mixture by Emorsgate
- Meadow Seed Mix to Field Margin
  - ie. EG10 Tussock Grass Mixture by Emorsgate
- Tussocky Grassland
  - ie. EG9 Meadow Grass Mixture for Hedgerows and Woodland by Emorsgate (may be grazed, but maintained suitably short as lapwing breeding habitat)
- Meadow Grassland
  - ie. Wales Meadows Seed Mix by Habitat Aid
- Arable Bird Mitigation
  - Wildflower bird seed mix on arable field margins
- Reptile Mitigation Area
- Existing Rush Pasture
  - Green hay seeding (potential local donor source)
- Habitat Mosaic
  - ie. Wales Meadows Seed Mix by Habitat Aid in selected areas, managed on rotation to retain mosaic/increase grassland
- SINC Grassland Enhancement
- Proposed Hedgerow Planting
- Proposed Small-Scale Tree Planting
- Proposed Woodland / Shrub Planting
  Tree planting within mix shown indicatively

Note: locations of planting proposals is shown indicatively only at this stage.

DRAFT FOR CONSULTATION PURPOSES ONLY

PLANTING SPECIFICATION

These implementation and maintenance guidelines are for planning purposes only to indicate the level of workmanship to be specified and do not constitute a detailed specification.

1. GENERAL

1.1. All landscape operatives will be appropriately trained, certified and qualified to undertake the tasks required. When required, the relevant certificates will be made available for inspection. All work is to be carried out in accordance with the relevant British Standards, Codes of Practice and Legislation.

1.2. All plants shall conform to BS 3936 Nursery Stock Specification for Trees and Shrubs and be in accordance with the National Plant Specification. Supplying nurseries shall be registered under the HTA Nursery Certification Scheme. All plants shall be packed and transported in accordance with the Code of Practice for Plant Handling as produced by CPSE.

1.3. Planting shall not be carried out when the ground is waterlogged, frost bound or during periods of cold drying winds. All bareroot planting stock will be kept covered until actually planted in order to minimise water-loss and prevent the roots from drying out. Tree handling, storage and planting shall be in accordance with BS 8545 Trees: From nursery to independence in the landscape, Chapters 9 to10 and Annexes E to F.

1.4. The landscape contractor shall maintain all areas of new planting for a period of 12 months following practical completion. All stock deemed to be dead, dying or diseased within the defects period shall be replaced by the contractor at his own cost.

1.5. A minimum intervention approach will be used in terms of weed control. In areas of transplant tree/shrub or ornamental shrub planting this is to be achieved by using mulch mats. Weed killer and other chemicals will be used as little as possible on site. Spot removal of weeds will be carried out by hand removal as necessary.

2. TREE PLANTING

Ground Preparation and Tree Pit Excavation

2.1. Where necessary remove existing weeds by hand. Chemical removal using a glyphosate based herbicide (and/ or other suitable alternative) will be avoided unless large areas need clearing – following which allow a suitable period to elapse, as recommended by the manufacturer, for the herbicide to take effect.

2.2. Tree pits of at least 75mm diameter greater than the root system and no deeper than the rootball / container depth are to be excavated and the sides well scarified to prevent smearing. All extraneous matter such as plastic, wood, metal and stones greater than 50mm in any dimension shall be removed from site.

2.3. During excavation of the pit, the soil dug should be placed to one side separating topsoil and subsoil as far as is practical.

Tree Planting

2.4. Trees shall be planted as per the planting arrangement as set out on the planting plan and plant schedule.

2.5. The typical rooting depth for trees is 900mm. The first 300mm shall be made up of topsoil; it shall be ensured that a suitable subsoil provides the remainder of the minimum rooting depth.

2.6. The root system of the tree should be wetted prior to planting. The tree should be planted at the correct depth taking into account the position of the root flare and the finished level - the rootball or root stem transition should be level with the existing host soil or surface. The base of the rootball should typically sit on subsoil, for larger rootballs the subsoil will sit around the lower portion of the rootball.

2.7. Tree pits should be backfilled with the excavated topsoil, if the original topsoil is not available or deemed unsuitable, a multi-purpose topsoil should be used. Any subsoil excavated should be discarded and the subsoil depth (beyond 300mm deep) backfilled with a high sand content subsoil. Backfill should be added gradually, in layers of 150mm to 230mm depth, ensuring the tree is held upright at each stage the fill should be firmed in to eliminate all air pockets under and around the root system, but with care being taken not to excessively compact the soil. The final layer should not be consolidated.

2.8. General-purpose slow release fertiliser (at the rate of 75gm/m2) and Tree Planting and Mulching Compost at the rate of (20litres/m2) are to be incorporated into the top 150mm of topsoil during final cultivations.

2.9. Selected standard trees will be protected from rabbit and deer damage by fitting appropriate tree guards.

2.10. Heavy Standard trees are to be single staked with 75mm dia stakes. Stakes should be driven at least 300mm into undisturbed ground before planting the tree, taking care to avoid underground services and cables etc. and should typically be one third the height of the tree stem above ground.

2.11. Staked trees shall be secured to stakes with suitable proprietary rubber tree ties and spacers.

2.12. Immediately after planting, but before applying the below bark mulch, all trees should be saturated to field capacity.

2.13. Ornamental composted bark mulch will be spread to a depth of 50mm across a 1m dia circle around individual trees, ensuring that the root flare and base of the stem, along with any ground cover plants, are not buried.

3. NATIVE HEDGEROW PLANTING

Ground Preparation

3.1. Where necessary existing weeds will be treated with a glyphosate-based herbicide (and/ or other suitable alternative) and a suitable period allowed to elapse, as recommended by the manufacturer, for the herbicide to take effect.

3.2. All extraneous matter such as plastic, wood, metal and stones greater than 50mm diameter shall be removed from site.

Planting

3.3. The planting arrangement shall be as set out in the plant schedule on the relevant planting plan.

3.4. Bare-root hedge plants shall be notch planted in a double staggered row at the rate of 5 plants per linear metre (using L- shaped notches) using spades of a design suitable for this purpose. The notches must be vertical and deep enough for the roots to hang freely, with the transplant being planted so that the root collar is exactly level with the ground surface. The notch must then be closed and the soil will be well firmed round the roots in line with the guidelines as set out in BS 4428 (1989).

3.5. All bare-root hedge planting stock will be protected from rabbit damage using approved proprietary 600mm clear plastic spiral guards, supported with 0.9m 12/14ib canes as advised by the manufacturer.

Maintenance during first growing season

3.6. All dead, dying or diseased hedge plants will be replaced with plants of similar size and species. If the failure of the plant is due to disease and the disease is considered likely to re-occur then an alternative species may be used as replacement if agreed with the LPA.

3.7. The planting area will be kept weed free throughout the maintenance period by manually removing (or using approved herbicides where necessary in April, June and August).

4. NATIVE HEDGEROW SUPPLEMENTARY INFILL PLANTING

Ground Preparation

4.1. Where necessary existing weeds will be treated with a glyphosate-based herbicide (and/ or other suitable alternative) and a suitable period allowed to elapse, as recommended by the manufacturer, for the herbicide to take effect.

4.2. All extraneous matter such as plastic, wood, metal and stones greater than 50mm diameter will be removed from site to a registered waste disposal facility.

Planting

4.3. The planting arrangement shall be as set out in the plant schedule on the relevant planting plan.

4.4. Bare-root hedge plants shall be notch planted in a double staggered row at the rate of 5 plants per linear metre (using L-shaped notches) using spades of a design suitable for this purpose. The notches must be vertical and deep enough for the roots to hang freely, with the transplant being planted so that the root collar is exactly level with the ground surface. The notch must then be closed and the soil will be well firmed round the roots in line with the guidelines as set out in BS 4428 (1989).

4.5. All container-grown planting stock will be protected from rabbit damage using approved proprietary 600mm plastic shrub shelters, supported with 0.9m x 32mm x 32mm softwood stakes as advised by the manufacturer.

4.6. All bare-root hedge planting stock will be protected from rabbit damage using approved proprietary 600mm clear plastic spiral guards, supported with 0.9m 12/14ib canes as advised by the manufacturer.

Maintenance during first growing season

4.7. All dead, dying or diseased hedge plants will be replaced with plants of similar size and species. If the failure of the plant is due to disease and the disease is considered likely to re-occur, then an alternative species may be used as replacement if agreed with the LPA.

5. NATIVE WOODLAND PLANTING

Ground Preparation

5.1. Cut existing rough grass and weeds to between 20mm and 30mm and remove 300x300mm squares of turf.

Planting

5.2. All native shrub planting to be UK grown, cell grown 60-80cm stock.

5.3. The minimum overall recommended rooting depth for shrubs is 600mm and for trees is 900mm. The first 300mm shall be made up of multi-purpose topsoil; it shall be ensured that a suitable subsoil provides the remainder of the minimum rooting depth. Before receiving topsoil, subsoils should be loosened using ripping equipment; this shall be done when the subsoil is dry to encourage soil shattering. All stones and other objects larger than 50 mm shall be removed from the prepared surface.

5.4. Shrub / tree planting is to be as per the planting pattern as set out on the planting plan and planting schedule, with shrubs / trees planted at even spaces into the prepared soil at the specified number per centre, with minimal disturbance to the rootball, and well firmed in. Planting should avoid man-made grids and lines, and should group species together in groups of 5-7 plants. Spread ornamental pine bark mulch to a depth of 75mm to a 900mm diameter around each planting station.

5.5. All bare-root planting stock will be protected from rabbit damage using approved proprietary 0.6m (for shrub species) or 1.2m (for tree species) plastic shrub/tree guards, supported with 0.9m (or 1.35m for trees) x 32mm x 32mm softwood stakes as advised by the manufacturer.

5.6. All areas to receive native shrub planting to be covered with weed supressing coir matting and pinned into place. Wood chip mulch be spread to a depth of 75mm across the full extent of the coir matting, ensuring that the root flare and base of the stem, along with any ground cover plants, are not buried.

Maintenance

5.7. Using approved herbicides, a 900mm diameter circle centred on each planting station shall be kept weed free throughout the maintenance period. In the autumn following planting the CA will prepare a list of all plants which are dead, dying or diseased and are to be replaced during the following planting season.

6. GRAZING MIXTURE AND MEADOW MIXTURE

Preparation

6.1. Areas of grassland to be seeded shall be sprayed out with a glyphosate herbicide (and/ or other suitable alternative) and cultivated to a depth of 100mm removing all weeds debris and stones over 75mm diameter. The surface shall be raked to smooth flowing contours with a fine tilth.

Seeding

6.2. Seeds shall be sown in September during calm weather and not when the ground is frost bound or waterlogged.

6.3. To achieve an even sowing, bulk with an inert carrier, such as sand. Seed shall be sown in two equal sowings in transverse directions at e.g. EG26 Standard old Fashioned Grazing Mixture and EM2 Standard General Purpose Meadow Mixture, 4g/m2. After sowing the contractor shall roll in the seed to guarantee intimate contact with the soil, ensuring not to rake or cover the seed with soil.

7. GENERAL MAINTENANCE

7.1. The Landscape contractor shall maintain all areas of new planting for a period of 12 months following practical completion. All stock deemed to be dead, dying or diseased within the defects period shall be replaced by the contractor at his own cost. The site is to be visited monthly throughout the year to undertake the Following operations:

- Weed clearance: All planting areas to be kept weed free by herbicide treatment.
- Litter clearance: All litter is to be removed from planting beds.
- Watering: All planted areas are to be watered for the first two years from May to September following any dry periods of 7 days.

Trees and Shrubs

7.2. All trees are to be watered weekly from May to the end of September unless unnecessary due to heavy rain; to receive 20 gallons of water. All shrubs are to be watered for the first two years from May to September following any dry periods of 7 days. All tree ties and stakes are to be checked and adjusted if too loose, too tight or if chaffing is occurring. Any broken stakes are to be replaced. Any damaged shoots/branches are to be pruned back to healthy wood. Plants are to be pruned in accordance with good horticultural practice to maintain healthy, well-shaped specimens. Native shrubs - Using approved herbicides a 1m diameter circle centred on each planting station shall be kept weed free throughout the maintenance period. Stakes may be removed from Year 2 if plant is fully established and if shelter is suppressing further growth.

Hedges

7.3. Hedge lines shall be kept mulched until established. At the end of the Defects Liability Period / First Year's Maintenance the CA will prepare a list of all plants which are dead, dying or diseased and are to be replaced during the following planting season at the contractor's expense.

0 100m N

Revisions:
First Issue- 15/06/2022 LAB
A- (21/06/2022 LAB| Landscape proposal updated to client comment
B - (04/07/2022 IHW| Amended to client and ecologists comments
C - (08/07/2022 IHW| Amended to client and commments
D - (14/08/2022 IHW| Proposed pond added, panels simplified
E - (31/10/2022 IHW| Hedgerow alignments amended to central PRoW corridor following comments received from LPA PRoW officer
F - (13/02/2023 IHW| Redline amended; landscape adjusted to revised layout; PRoW alignments updated; connecting cable routes added
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H - (01/03/2023 IHW| Solar layout amended
J - (04/10/2023 IBD| Red line amended to exclude southern fields; solar layout amended site-wide; landscape proposals amended to suit revised solar layout
K - (05/10/2023 IBD| Reptile Mitigation Area amended

Landscape Strategy
Parc Solar, Caenewydd

Client: Taiyo Power & Storage Ltd

DRWG No: **P21-2998_12** REV: K

Drawn by : LAB/IBD Approved by: IBD

Date: 05/10/2023

Scale: 1:2000 @ A0

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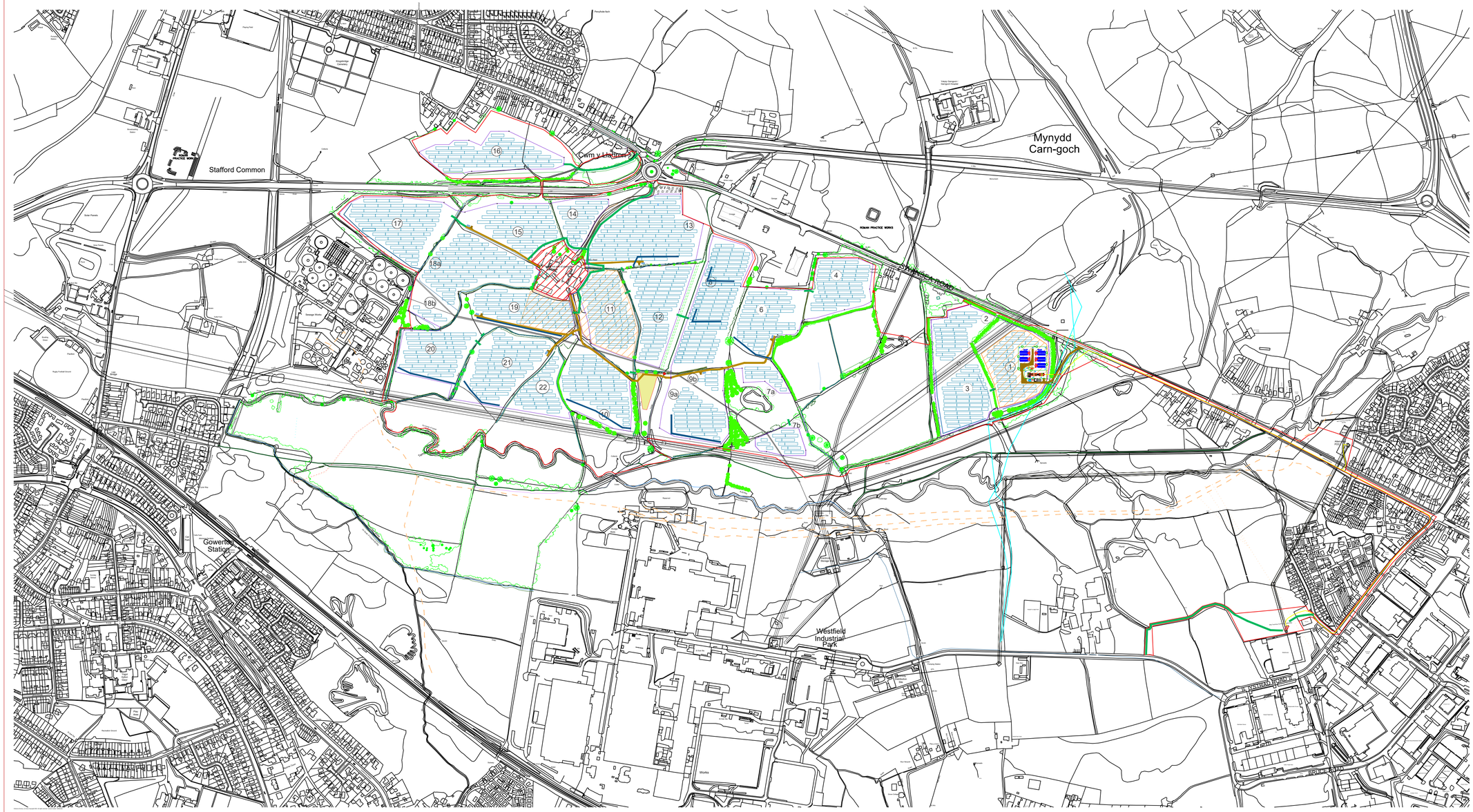

Low Carbon Alliance

On behalf of;

TAIYO POWER AND STORAGE

Notes

Key:

Existing Assets

- Trunk Sewer
- Gravity Sewer / Rising Main
- Public Right of Way
- Gas Line
- Hedges & Trees

Proposed Assets:

- Planning Application Boundary
- Swale
- Fence
- Cable Route with Jointing
- Pits
- Gates
- Solar Array
- Transformer
- Site Road Permanent
- CCTV
- Directional Drilling
- Temporary Construction
- Track
- Construction Compound
- No Crossing
- BESS Transformer
- BESS Battery unit
- (1) Field Number

DRWN	CKD	APP	REV	DESCRIPTION

Drawn By	Checked By	REV
MSTP	GR	
Date	Approved By	V10
27.09.2023	SC	

PROJECT	**Parc Solar Caenewydd**
TITLE	Re-Consultation Layout Plan
CLIENT	**Taiyo Power and Storage**
STATUS	**Pre-Planning Approval**

Sheet No	Sheet Title	Sheet Size
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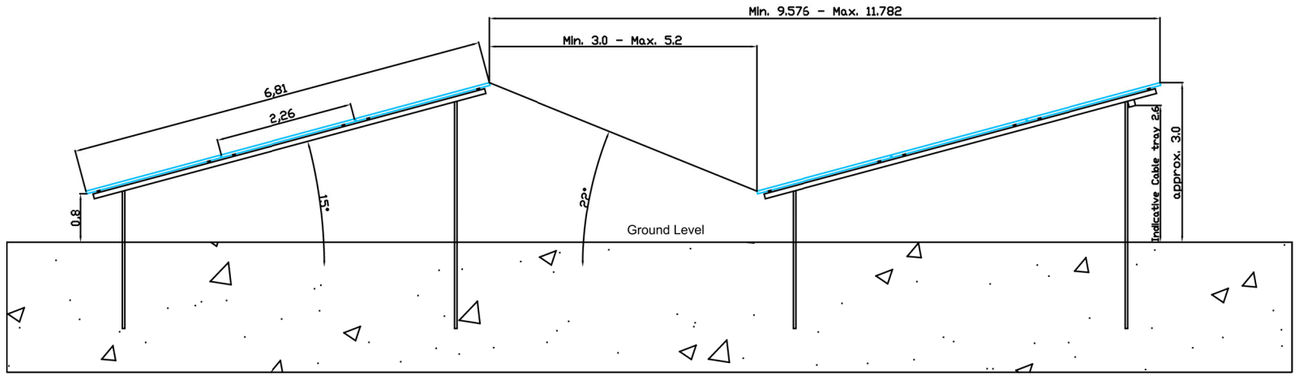
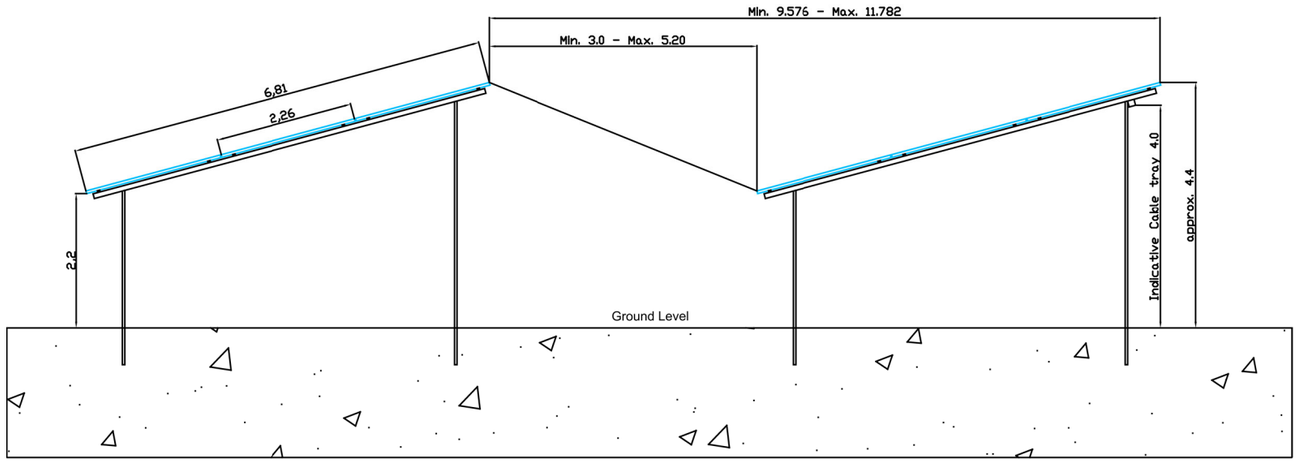
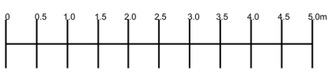
Scale:	Drawing Number
1:5000	PSC 100 001

Report all errors, omissions and modifications to the Low Carbon Alliance	Dimensions in meters unless otherwise stated	If in doubt, ask	Do not scale







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Drawn By	Checked By	REV	
MSTP	PC		
Date	Approved By		
17/03/2023	PC		

PROJECT	Parc Solar Caenewydd	
TITLE	PV Array Details 3 Modules Vertical	
CLIENT	Taiyo Power and Storage	
STATUS	Statutory pre-application consultation	
Sheet No	Sheet Title	Sheet Size
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Scale	Drawing Number	
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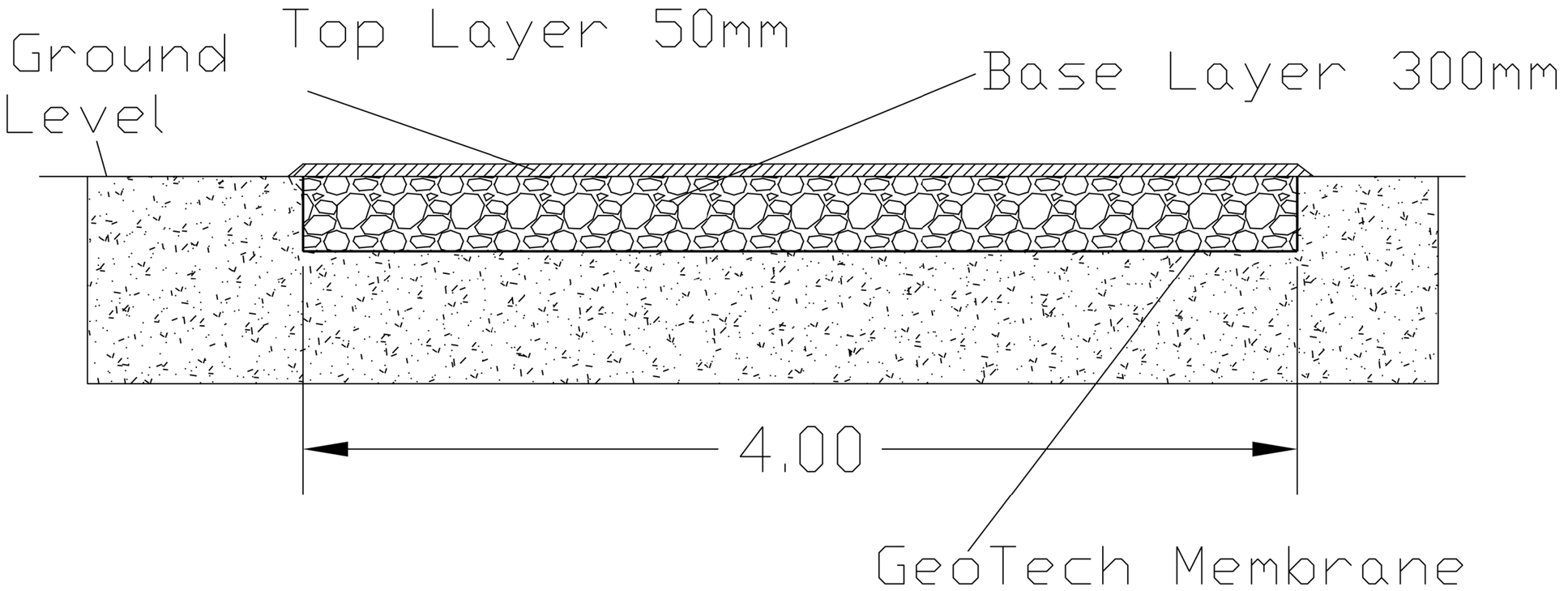

0 0.2 0.4 0.6 0.8 1.0 2.0m

N

Low Carbon Alliance

TAIYO POWER AND STORAGE

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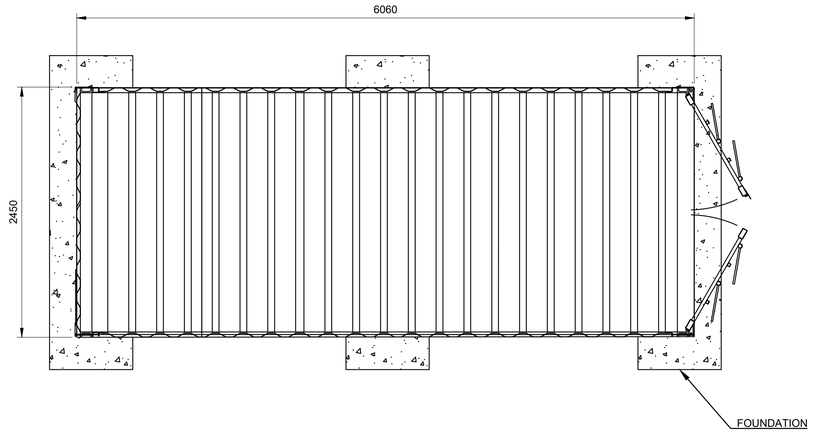
Drawn By	Checked By	REV	
MSTP	PC		
Date	Approved By		
17/03/2023	PC		

PROJECT	Parc Solar Caenewydd
TITLE	Site Road Cross Section
CLIENT	Taiyo Power and Storage
STATUS	Statutory pre-application consultation

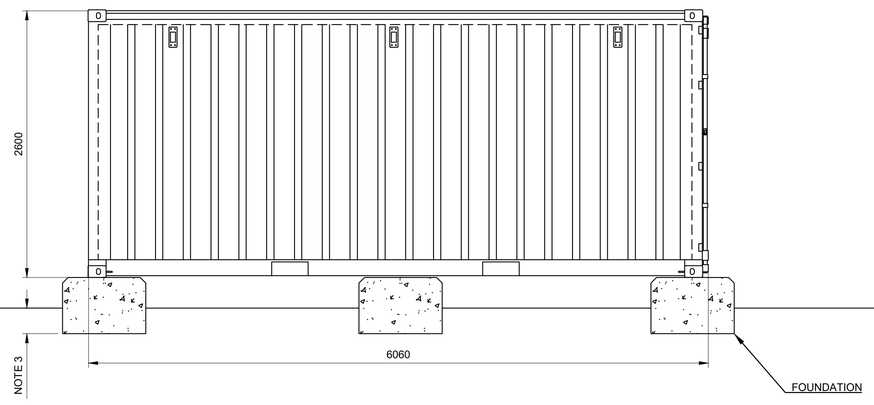
Sheet No	Sheet Title	Sheet Size
		A3
Scale	Drawing Number	
1:20	PSC 100 016	

Proposal only

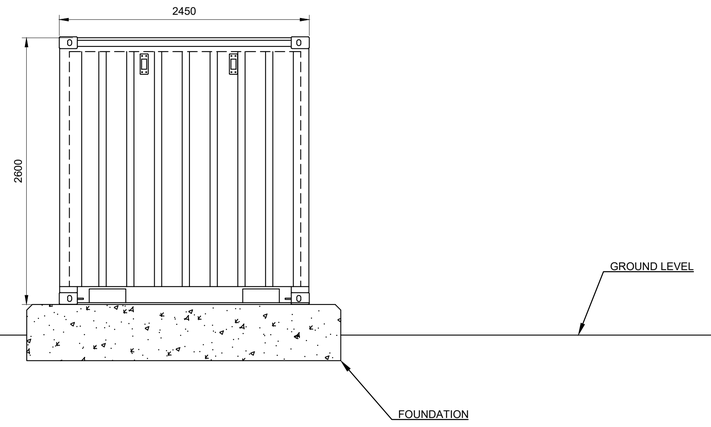
TOP VIEW



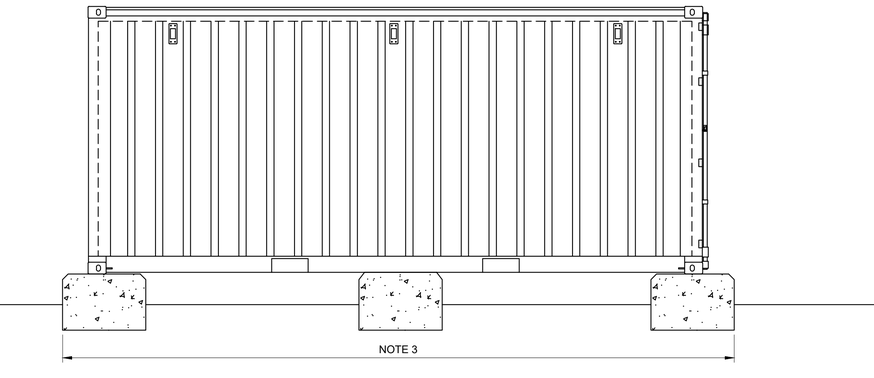
FRONT SIDE VIEW



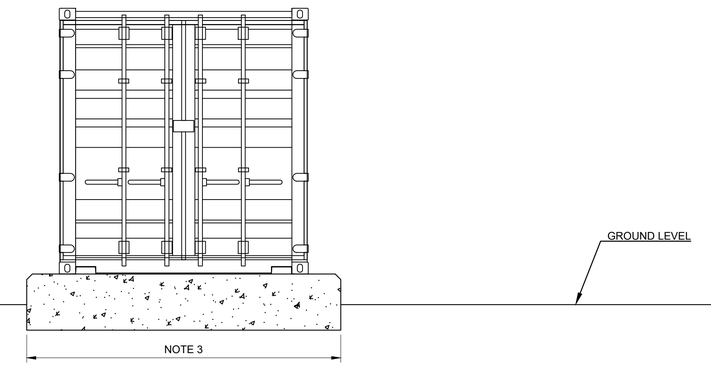
RIGHT SIDE VIEW



REAR SIDE VIEW



LEFT SIDE VIEW



0 1.5 3 m

Notes:

1. All dimensions to be confirmed on site prior to installation.
2. All dimensions are indicative only and in mm unless otherwise specified.
3. Distances that needs to be site specific and decided by subcontractor.

Revisions:

Rev	Date	Comments	Drawn

Project: Parc Solar Caenewydd

Location: Land South of A484 and Swansea Road (B4560)
Gowerton, Swansea

Title: Spare Parts Container Details

Drawn:	DETRA / MG	Checked:	LCA PC
Scale:	1:30@A1	Date:	31/01/22
Drawing No:	LOA1002-212	Rev:	--

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POWER AND STORAGE
10 St. Giles Square, London WC2H 8AP
TAIYO2050.CO.UK
Tel: +44 (0)207 434 8790

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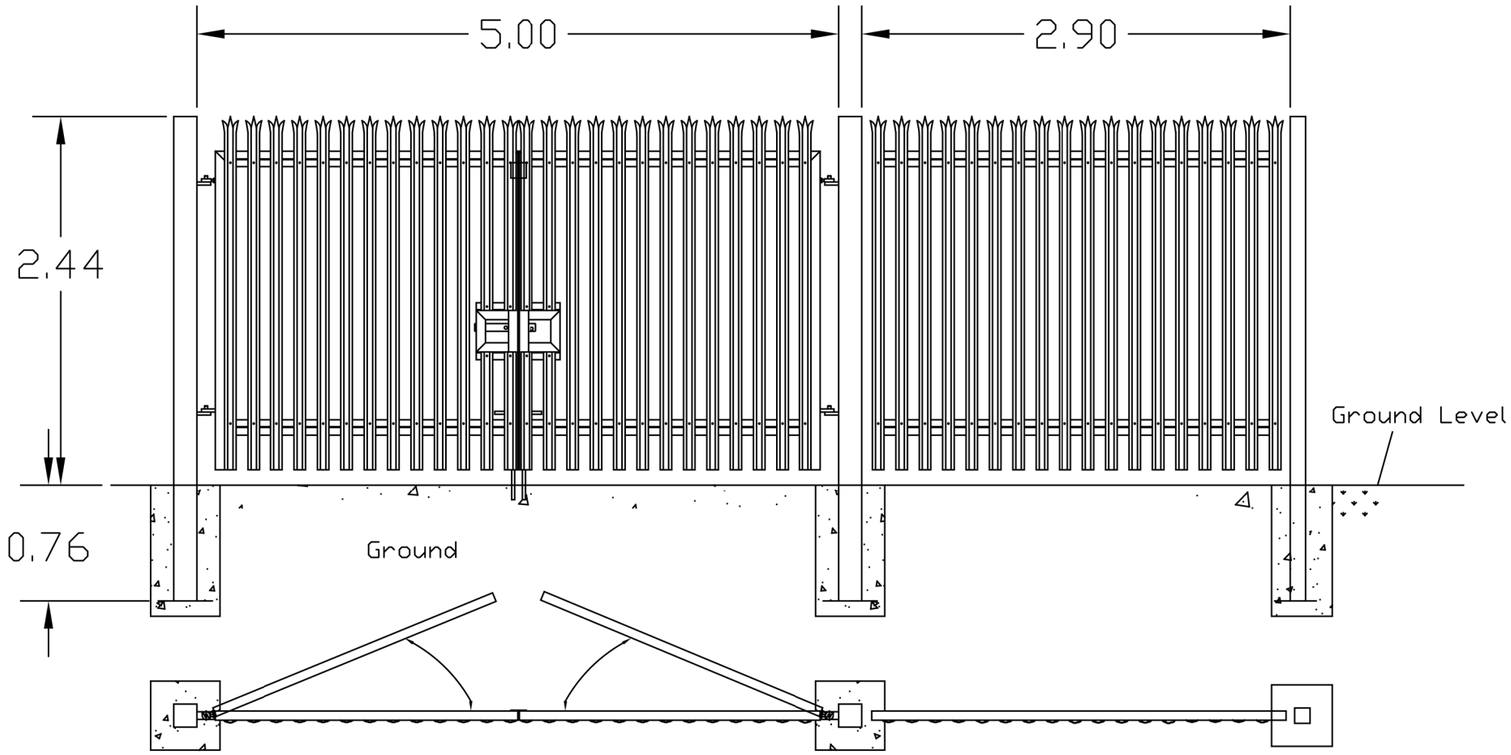

0 0.4 0.8 1.20 1.6 2.0 4.0m

N

TAIYO POWER AND STORAGE

Notes

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Drawn By	Checked By	REV	
MSTP	PC		
Date	Approved By		
17/03/2023	PC		

PROJECT	Parc Solar Caenewydd
TITLE	Palisade Fencing 132KV Substation
CLIENT	Taiyo Power and Storage
STATUS	Statutory pre-application consultation

Sheet No	Sheet Title	Sheet Size
		A3
Scale	Drawing Number	
1:40	PSC 100 015	

APPENDIX 3 – GREEN INFRASTRUCTURE MAP

KEY

- Site Boundary
- Public Footpaths
- Solar Panel Modules
- Access tracks
- Transformer
- BESS Battery Unit
- BESS Transformer
- Security Fence
- Directional Drilling of Cable
- Overhead Power Line
- Conductor Lines
- Gas Mains
- Inspection Covers
- Proposed pond
- Proposed Swale

- **Existing Woodland and Hedgerow**
  Gaps in existing hedgerows to be infilled with hedgerow panting (as required) at approx 30% rate. (For further information, refer to Tree Survey and Constraints Plan prepared by Barton Hyett)
- **Existing Vegetation to be removed**
- **Grazing Seed Mix to Panel Compounds**
  - ie. EG26Old Fashioned Grazing Mixture by Emorsgate
- **Meadow Seed Mix to Field Margin**
  - ie. EG10 Tussock Grass Mixture by Emorsgate
- **Tussocky Grassland**
  - ie. EG9 Meadow Grass Mixture for Hedgerows and Woodland by Emorsgate (may be grazed, but maintained suitably short as lapwing breeding habitat)
- **Meadow Grassland**
  - ie. Wales Meadows Seed Mix by Habitat Aid
- **Arable Bird Mitigation**
  - Wildflower bird seed mix on arable field margins
- **Reptile Mitigation Area**
- **Existing Rush Pasture**
  - Green hay seeding (potential local donor source)
- **Habitat Mosaic**
  - ie. Wales Meadows Seed Mix by Habitat Aid in selected areas, managed on rotation to retain mosaic/increase grassland
- **SINC Grassland Enhancement**
- **Proposed Hedgerow Planting**
- **Proposed Small-Scale Tree Planting**
- **Proposed Woodland / Shrub Planting**
  Tree planting within mix shown indicatively

Note: locations of planting proposals is shown indicatively only at this stage.

Widlfower: meadow cuts, 30% long grass margin cut on rotation

Proposed woodland planting provide screening and reduce visual impact from the north

Reinforce existing hedgerow with additional hedgerow planting

PRoW enhancements (hedgerow and tree planting) provide new north-south wildlife corridor and control views from PRoW

Small copses of small trees (ie Hawthorns) to add to landscape character whilst limiting overshadowing of panels

No infill planting to existing scrubby vegetation to maximise suitable reptile mitigation area

Leaky dams to be installed along existing ditches - locations and details to be confirmed

Existing hedgerow to maintained at current height (approx. 1m) to create ideal conditions for arable bird mitigation area

Gaps within existing hedgerows to be filled with native hedgerow planting and trees

Existing vegetation to be cut back to allow adequate swept path for vehicular access

Proposed hedgerow to be managed to allow to grow up to and be maintained at 3m height

Gaps within existing hedgerows to be filled with native hedgerow planting and trees

Existing hedgerow to be managed to allow to grow up to and be maintained at 3m height

Leaky dams to be installed along existing ditches - locations and details to be confirmed

Woodland creation to increase connectivity of ancient woodland sites

Enhancement of river corridor to benefit local wildlife

Restoration of degraded Rhôs Pasture SINC

Woodland creation to increase connectivity of ancient woodland sites

Stafford Common

Gowerton Station

Westfield

SWANSEA ROAD

DRAFT FOR CONSULTATION PURPOSES ONLY

Revisions:
First Issue- 05/07/2022
A - (08/07/2022 IHW) Amended to client and comments
B - (14/08/2022 IHW) Proposed pond added, panels simplified
C - (31/10/2022 IHW) Hedgerow alignments amended to central PRoW corridor following comments receiver from LPA PRoW officer
D - (13/02/2023 IHW) Redline amended; landscape adjusted to revised layout; PRoW alignments updated; connecting cable routes added
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H - (05/10/2023 IBD) Reptile Mitigation Area amended

Green Infrastructure Plan
Parc Solar, Caenewydd

Client: Taiyo Power & Storage Ltd

DRWG No: **P21-2998_13** REV: H

Drawn by : IBD Approved by: IBD

Date: 05/10/2023

Scale: 1:2000 @ A0

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