



ARCUS

LANDSCAPE AND VISUAL APPRAISAL

SWANSEA NORTH ENERGY MANAGEMENT FACILITY

FOR STATKRAFT UK LTD

JUNE 2020



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1 INTRODUCTION

1.1 Overview

This report presents the findings of a Landscape and Visual Appraisal (LVA) undertaken as part of the planning application for an energy management facility compound ('the Development') located on agricultural land to the east of the existing Swansea North substation and gas compressor station ('the Site'). The Site is currently bounded by agricultural land to the north, east, west and south. However, in the future the Site will be bounded to the north east by the 299MW Abergelli Gas Fired Power Station ('Abergelli Power Station') buildings and structures and associated access road to the south. It is the intention for the Development to utilise the same access road as Abergelli and so the effects of this have not been assessed. In addition, an alternative section of access road may need to be constructed from the Abergelli access corridor into the Swansea substation area, shown on Planning Drawing 3b (included in Appendix 2) as Access Route Option 2.

The LVA describes the landscape and visual effects of the Development alone and in combination with other cumulative development, in this case the Abergelli Power Station.

The LVA has been undertaken by a Chartered Landscape Architect in accordance with good practice guidance and is informed by local landscape character assessments, landscape capacity guidance and other relevant guidance as specified.

1.2 The Development

The Development is intended to provide services supporting the flexible operation of the National Grid and decarbonisation of electricity supply e.g. by balancing electricity supply and demand. The Development will import and export electricity but will not generate any additional electricity. The proposed batteries will store surplus electricity to be fed into the grid when required, while the energy management modules will reduce fluctuations, thus improving stability and reducing the risk of power failures.

The Development consists of the following elements:

- An area enclosed within a 2.4 m high weld mesh security fence accessed from the future Abergelli access corridor and cable route;
- Battery storage containers (12 No.);
- Inverters (6 No.);
- Transformers (2 No.);
- Energy Management Building 10 m high;
- Control room;
- Attenuation ponds;
- Fire stop wall 10 m high; and
- on-site access tracks and supporting infrastructure including a temporary laydown area and an access track from the Abergelli access corridor into the Swansea substation area.

The total footprint of the fenced compound is approximately 1 ha. The wider Site area of the planning application boundary is 5.5 hectares (ha). Access to the site will be gained from the Abergelli Power Station access road which provides a link to the B4489 to the west beyond the Swansea North substation.

The construction period of the Development will last approximately 10 months and the operational period of the Development will be permanent.

The Development has the potential to affect the following landscape and visual resources during construction and operation:

- Physical features and elements of the landscape within the Site (alteration and / or removal);
- Landscape character of the Site and the surrounding area;
- Landscapes designated for their special qualities or scenic beauty; and
- The visual amenity of people in the surrounding area.

The LVA considers the effects of the Development during construction and operation.

The LVA is accompanied by the following Figures in Appendices 1 and 2:

Appendix 1

- Figure 01: Site Location Plan
- Figure 02: Aerial Mapping
- Figure 03: Topography
- Figure 04: Landscape and Visual Baseline
- Figure 05: Zone of Theoretical Visibility
- Figure 06: Photomontage VP 2
- Figure 07: Photomontage VP 4

Appendix 2

- Drawing 3421_DR_LAN_101 Landscape and Biodiversity Mitigation Plan
- Drawing 3421 – DR-P-0001B Proposed Site Layout - Block Plan

1.3 Scope of the LVA

The LVA comprises:

- A description of the existing baseline conditions, including identification of key landscape characteristics, relevant planning designations /constraints and potential visual receptors which may be affected by the Development;
- An assessment of the potential landscape and visual effects; and
- Recommendations for mitigation measures to offset, or reduce, any adverse effects identified.

2 METHODOLOGY

The methodology for the LVA is based on current best practice guidance, namely:

- Landscape Institute and Institute of Environmental Management and Assessment, 2013, Guidelines for Landscape and Visual Impact Assessment, 3rd Edition;
- The Landscape Institute (2013), GLVIA3 Statement of Clarification 1/13¹;
- Landscape Institute (2019) Technical Guidance Note 06/19 Visual representation of Development Proposals²;
- LANDMAP³ ;and
- Swansea Local Development Plan (LDP) 2010-2025. Adopted on the 28th February 2019⁴.

2.1 Study Area

The study area for the LVA was set as a 2 km offset from the site boundary and encompasses the northern outskirts of Swansea and surrounding villages and countryside. It is considered that for a development of this type and scale there would be no substantial landscape or visual effects beyond this distance.

2.2 Desk-Based Study

Information for the LVA was gathered from the following sources:

- Swansea Local Development Plan (LDP) 2010-2025. Adopted 28th February 2019;
- LANDMAP;
- Web GIS data bases;
- Ordnance Survey 1:25000 scale site-centered digital raster map; and
- Georeferenced Aerial photography;
- Contour mapping (1 m); and
- Google Maps (<http://maps.google.co.uk/>).

2.3 Field Study

A field survey was undertaken on the 6th February 2020 to assess:

- The landscape characteristics;
- Views of the site from the surrounding areas;
- The location and sensitivity of visual receptors; and
- The landscape and visual effects arising from the Development.

The survey was undertaken from roads, public rights of way and publicly accessible viewpoints within 2 km of the Site. Access to footpath LC35B was restricted on the day of the site visit at the request of a local landowner.

2.4 Consultation

The four viewpoints considered prior to the site visit were agreed with Swansea Council on the 3rd February 2020. During the site visit access was prevented from a suggested viewpoint along footpath LC35B near Abergelli farm by a local landowner so an alternative viewpoint was taken adjacent to the Betingau Solar Farm at the side of Rhyd-y-pandy Road.

¹ The Landscape Institute (2015) GLVIA3 – Statements of Clarification [Online] Available at: <https://www.landscapeinstitute.org/technical-resource/glvia3-clarifications/> (Accessed 16/11/17)

² https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

³ <https://cdn.naturalresources.wales/media/681752/landmap-methodology-overview-2017-eng.pdf?mode=pad&rnd=131547814890000000>

⁴ <https://www.swansea.gov.uk/ldp>

3 LANDSCAPE PLANNING CONTEXT

In landscape and visual terms the local planning policies of relevance to the Development are detailed in the following sub sections:

3.1 Swansea LDP 2010-2025. (Adopted 2019)

The Swansea Local Development Plan (LDP) 2010-2025 was adopted on the 28th February 2019. Under the provisions of the Planning (Wales) Act, the LDP forms the statutory development plan for Swansea Council. The following individual policies are identified as relevant to Landscape and Visual aspects of the Development.

3.1.1 Policy CV 2: Development in The Countryside

This policy seeks to ensure development outside defined settlement boundaries is required *'to ensure that the integrity of the countryside is conserved and enhanced.*

There is a presumption against development in the countryside, except where it is for:

- i. The purposes of agriculture, forestry or other rural enterprise;*
- ii. The expansion of an existing rural business;*
- iii. Affordable housing to meet local need at acceptable and sustainable locations within or as infilling or adjoining settlements, or as minor extensions to small groups of dwellings in the countryside;*
- iv. A rural exception site for employment in or adjoining a settlement*
- v. A development to allow a small business to operate from home;*
- vi. One Planet Development;*
- vii. Necessary infrastructure provision and enhancement of infrastructure networks: or*
- viii. Recreational equine activities.*

Countryside development must be of a sustainable form with prudent management of natural resources and respect for the cultural heritage of the area. Wherever possible, existing buildings should be reused or adapted and if this is not feasible new buildings should be located within or close to existing groups of buildings. Proposals to increase the number of residential chalets within the chalet developments of Hareslade, Holts Field, Miles Lane and Sandy Lane will not be permitted.'

3.1.2 Policy ER 2: Strategic Green Infrastructure Network

This seeks development *'to take opportunities to maintain and enhance the extent, quality and connectivity of the County's multi-functional Green Infrastructure network, and where appropriate:*

- i. Create new interconnected areas of Green Infrastructure between the proposed site and the existing strategic network;*
- ii. Fill gaps in the existing network to improve connectivity; and*
- iii. In instances where loss of Green Infrastructure is unavoidable, provide mitigation and compensation for the lost assets'*

3.1.3 Policy ER 5: Landscape Protection

This Policy seeks to ensure that the character and quality of the County's landscapes is protected from inappropriate development. Landscape management, enhancement and the creation of key landscape features is encouraged.

'Development will not be permitted that would have a significant adverse effect on the character and quality of the landscape and setting of the County. Priority will be given to protecting enhancing and managing the character and quality of the following Special Landscape Areas (SLAs), as shown on the Proposals Map and listed below:

- i. Mawr Uplands*
- ii. Lower Loughor Valley and Estuary and Southern part of the Burry Inlet;*
and
- iii. North East Gower and Cockett Valley;*
- iv. Garngoch and Lower Afon Llan Valley*

Within SLAs, development will only be permitted where there is no significant adverse impact, including cumulative impact, on landscape. The development should aim to protect and enhance the features for which the SLA has been designated. Where appropriate, a landscape impact assessment will be required in order to consider the impact of the development on the designated area. In exceptional circumstances, where development is necessary and could result in a significant landscape impact, a landscaping scheme will also be required and appropriate mitigation and enhancement measures should be provided.'

3.1.4 Policy ER 11: Trees, Hedgerows and Development.

This policy seeks to protect existing trees, ancient woodland and hedgerows from *'Development that would adversely affect trees, woodlands and hedgerows of public amenity or natural/cultural heritage value, or that provide important ecosystem services, will not normally be permitted.*

Ancient Woodland, Ancient Woodland Sites, Ancient and Veteran Trees merit specific protection and development will not normally be permitted that would result in:

- i. Fragmentation or loss of Ancient Woodland;*
- ii. The loss of an Ancient or Veteran Tree;*
- iii. Ground damage, loss of understorey or ground disturbance to an area of Ancient Woodland or Ancient or Veteran Tree's root protection area;*
- iv. A reduction in the area of other semi natural habitats adjoining Ancient Woodland;*
- v. Significant alteration to the land use adjoining the Ancient Woodland;*
- vi. An increase in the likely exposure of Ancient Woodland, Ancient or Veteran Tree to air, water or light pollution from the surrounding area;*
- vii. Alteration of the hydrology in a way that might impact on Ancient Woodland, Ancient or Veteran Trees;*
- viii. Destruction of important connecting habitats relating to Ancient Woodland;*
- ix. Destruction of Plantations on Ancient Woodland Sites (PAWS); and/or*
- x. Development in close proximity to Ancient Woodland and Ancient and Veteran Trees.*

3.1.5 Policy EU 1: Renewable and Low Carbon Energy Proposals.

The Site lies within a Local Search Area for Renewable and Low Carbon Energy Proposals. *'Proposals for renewable or low carbon energy development will be permitted subject to the following criteria:*

- i. Strategic Search Area (SSA) - Within or adjacent to the SSA, proposals for wind energy*

development greater than 25MW will be permitted subject to criteria iii to v; all other proposals for renewable and low carbon energy development will only be permitted where they can demonstrate they would not prejudice the purpose of the SSA.

ii. Local Search Areas (LSAs) -

Within the LSAs, proposals for solar PV between 5 – 50 MW will be permitted subject to criteria iii to v. All other proposals for renewable and low carbon energy development will only be permitted where they can demonstrate they would not prejudice the purpose of the LSA.

iii. Proposals for all types of renewable and low carbon energy development and associated infrastructure, either on their own, cumulatively or in combination with existing, approved or proposed development, should comply with all other relevant policies in the Plan and should not have a significant adverse effect on:

a. The characteristics and features of the proposed location as a result of the siting, design, layout, type of installation and materials used;

b. Public amenity or public accessibility to the area;

c. Radar, Aircraft Operations or Telecommunications;

d. Carbon sinks, unless it can be demonstrated that on-site loss can be adequately mitigated;

iv. Satisfactory mitigation should be in place to reduce the impact of the proposal and its associated infrastructure;

and in the case of solar proposals must mitigate against any impacts of glint and glare. Proposals shall make provision for the restoration and after-care of the land for its beneficial re-use. This will be agreed with the LPA prior to the development being carried out.

v. Where necessary, additional compensatory benefits will be sought in accordance with Policy IO 1 Supporting Infrastructure and Planning Obligations.'

3.2 Landscape Planning Designations

This section, which should be read in conjunction with Figure 04, identifies landscape planning policies, designations and constraints relevant to the LVA. Table 1 summarises the constraints within the Site and the 2 km study area.

Table 1: Landscape Designations and Protected Heritage Assets

Landscape Designations	Present Within Site Boundary	Present within 2 km of the site
National Parks	No	No
Special Landscape Areas	No	Yes
Special Areas of Conservation	No	No
World Heritage Sites	No	No
Scheduled Monuments	No	Yes
Conservation Areas	No	No
Listed Buildings	No	Yes

Landscape Designations	Present Within Site Boundary	Present within 2 km of the site
Registered Parks and Gardens	No	No
Historic Battlefields	No	No
Ancient Woodland	No	Yes
Tree Preservation Orders	No	Yes

3.2.1 Special Landscape Area

The Mawr Uplands Special Landscape Area (SLA) is located 1.7 km east of the Site as shown on Figure 04 Landscape and Visual Baseline.

3.2.2 Listed Buildings

There are seven listed structures and buildings within the study area, all located to the south and south west of the Site as shown on Figure 04 Landscape and Visual Baseline. These include:

- Cefnforest-Fawr, a grade II farmhouse – 1.8 km to the south west.
- Tredegar Fawr, a grade II Lofted Pigsty and grade II House - 2 km to the south west.
- Church of St David and St Cyfelach, a grade II* church and grade II* detached medieval tower – 1.8 km to the south, beyond the M4 motorway.
- Llangyfelach, a grade II pair of cast iron boundary posts – circa 2.1 km to the south east, just beyond the study area.

3.2.3 Scheduled Monument

There are two scheduled monuments within the study area, located to the north west and south east of the Site as shown on Figure 04 Landscape and Visual Baseline.

- Earthwork 1,080 m NNW of Fforest Newydd – 1.4 km to the west.
- Llangyfelach Cross-Base – 1.8 km to the south, beyond the M4 motorway.

3.2.4 Tree Preservation Order

There is an area of woodland approximately 150 m to the north east of the site covered by a Tree Preservation Order which is to the north west of the Abergelli Power Station site.

3.2.5 Ancient Woodland (AW)

The nearest area of AW lies immediately west of the Compound Development area and is shown at the location of and around the perimeter of the substation and gas compressor site. The proposed access road from the Abergelli access corridor into the substation will cross an area of former Ancient woodland which has been replanted. Further detail is included in the Arboriculture report. The Ancient woodland Site is described as '**Ancient Woodland Site of Unknown Category (AWSU)** – woodlands which may be ASNW, RAWS or PAWS. These areas are predominantly in transition and existing tree cover is described as 'shrubs', 'young trees', 'felled' or 'ground prepared for planting.'

4 LANDSCAPE APPRAISAL

An appraisal of the baseline landscape character has been undertaken in order to determine the sensitivity of the landscape and its capacity to accommodate the Development.

The landscape character is considered at three levels:

- National setting, considering the National Landscape Character Areas (NLCA) produced by Natural Resources Wales;
- Regional setting, considering the LANDMAP data, produced by Natural Resources Wales; and
- Local setting, based on field observations to confirm the key features and characteristics pertinent to the study area and the application site.

4.1 National Landscape Character

At a national level the study area falls within two National Landscape Character Areas 'Swansea Bay' NCLA 38 and the South Wales Valleys NCLA 37. See figure 04. The site itself lies wholly within NCLA 38. Key characteristics are listed as:

Swansea Bay NCLA 38

- 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.
- Estuaries – including those of the Rivers Loughor, Tawe, Neath and Ogmore.
- Extensive soft coastline - sand dunes and sweeping sandy beaches and lagoons.
- Kenfig dunes /lagoon have important species including fen orchid and medicinal leech. Relict, prehistoric and later period landscapes, successively buried by wind blown sand.
- Setting of steeply rising hills – in the central section around Port Talbot, and belonging to South Wales Valleys to the north
- Coal measures - beneath much of the area, but Triassic mudstones form the northern bank of the Ogmore Estuary.
- Limestone outcrops - near and Mumbles Porthcawl.
- Major glacial moraine deposits by estuaries e.g. Glais Moraine 1 mile long x 45m high
- Urban areas - dominated by the city of Swansea and the coalescing towns of Llanelli, Neath and Port Talbot. Swansea, with its strong architectural heritage and cultural importance forms a regional focus. Housing and business planned in large estates.
- Heavy industry – giant apparatus with large buildings and chimneys with steam issuing focussed at Port Talbot, with dominating visual and audible presence.
- Major transport corridor – with main road and rail lines linking settlements along the corridor, with associated movement, busyness and noise.
- Ports and docks – at major river estuaries. Historically the focus for industry but today regenerating and redesigning as post-industrial housing, education and leisure marinas.
- Historically strategic location - recognised early for good coal for industry and sea transport, and latterly by rail.
- Agriculture - in areas away from dunes and lagoons that have not been built on. Predominantly pasture for dairy, sheep or horse paddocks in regular, hedged fields.
- In the few remaining rural parts – the pattern is settlements along roads, with scattered stone or white/cream render farmsteads.

South Wales Valleys NCLA 37

- Extensive Upland plateaux – typically wild and windswept, often with unenclosed tracts, running roughly north-south as ‘fingers’ parallel between intervening deep valleys.
- Numerous steep-sided valleys - typically aligned in parallel, flowing in southerly directions, shaped by southward flowing glaciers, leaving behind distinctive corrie ('cwm') and crag features. Major rivers include the Tawe, Taff and Rhymney.
- Ribbon urban and industrial areas in valleys – in places extending up valley sides and to valley heads. The area is sometimes regarded as being part of a ‘city region’. Middle and eastern valleys tend to be the most heavily and continuously developed, e.g Rhondda Valley. The uplands by comparison have little or no settlement.
- Extensive remains of heavy industry – with a mix of derelict, preserved and largely redeveloped areas, notably for coal mining. Preserved as heritage (World heritage Site) at Blaenafon this typically includes old railway alignments, buildings and former tips.
- Contrast of urban valley activity next to quiet uplands – e.g. busy roads, new developments, traffic noise, night lighting, versus the adjacent wilder, remoter, quieter uplands.
- Large blocks of coniferous plantation and deciduous woodland fringes – covering many steep hillsides and hilltops, most notably in the middle to western portion of the area, providing a softer contemporary landscape where there was once industry.
- Heather, rough grassland and steep bracken slopes – dominate many plateaux and are grazed mainly by sheep. Much is common land.
- Improved pastures on some lower valley sides - grazed by sheep and some dairy cattle.
- Field boundaries - dry stone walls mark the boundary of common land while fields on lower slopes are bounded by dense hawthorn hedges, interspersed with swathes of broadleaved woodland.
- Transport routes restricted to valleys – the intervening topography makes valley to valley travel difficult, except at heads and bottoms of valleys. Occasionally there are roads that climb steeply over passes with dramatic views and ‘hair pin’ bends.
- Iconic cultural identity – many popular images of a tough, rugby-playing, religious, radically-minded society still remain associated with the South Wales Valleys, however today’s post-industrial, internet-connected reality is somewhat different.

4.2 Regional Landscape Character

At a regional level the study area falls within the LANDMAP Aspect Areas below:

Visual and Sensory Aspect Area – Rhyd-y-pandy.

Overall evaluation - Moderate.

Summary description - Rolling farmland mosaic on land ranging between 60m and 200m AOD, with slight upland character at these higher elevations generated by the adjacent uplands. Essentially rural landscape, although criss-crossed by network of minor roads and greater detractor of overhead power wires on steel pylons. The southern area is also influenced by road noise from the busy M4. Three separate parts to this aspect area. Change detection 2014: adjacent settlements have expanded into this area in three places - Morrison Hospital, Pontarddulais and Pontlliw. Plus new business park developing on former works site, adjacent to J46 of M4, general erosion of rural character.

LANDMAP guidelines - Medium Term: Restrict overhead pylons, especially steel/lattice support. Sensitive management of urban edge and business park to reduce intrusion.

Landscape Habitats Aspect Area – North of Gorseinon and Swansea.

Overall evaluation – Moderate.

Summary description - Largely improved grassland (95%) with walls and hedgerows as significant features of biodiversity. Bat species will be present within the area.

LANDMAP guidelines - Medium Term: Try to implement Tir Gofal scheme throughout farms.

Historic Landscape Aspect Area – H27 Gower Supraboscus Agricultural.

Overall evaluation - outstanding.

An area of fieldscape not based on the open-field system, but evolving as a result of gradual enclosure of the uplands and their foothills. There is some evidence for enclosure in the pre-Norman period, and the process continued into the second half of the 19th century. Some unenclosed land and woodland remains. Limited industrial activity, mainly mining took place in the 19th century. The settlement pattern is basically dispersed, but ribbon developments occurred in areas of industrial activity.

LANDMAP guidelines - None

Geological Landscape Aspect Area – Penllergaer.

Overall evaluation - outstanding.

Summary description - Broad low-level plateau of E-W low ridges (dip and scarp topography) in gently S dipping SW Pennant Formation (Grovesend Beds, Upper Carboniferous) sandstones and thin coals, dissected by meandering, N- S upper Llan valley. Extensive cover of boulder clay draping topography. Broad areas of glacial sand and gravel, alluvium and some peat through NW-SE broad upper Llan valley and plateau. NE-SW to N-S faults cutting topography. Tirdonkin Fault controlling upper Llan valley. Many disused coal mines.

LANDMAP guidelines - Immediate: Ensure that SSSI is maintained in favourable condition by implementation of management plan. Long Term: Ensure that no further key features of geological or geomorphological significance are lost/damaged due to development, forestry, etc.

Cultural Landscape Aspect Area – The Mawr.

Overall evaluation - high.

Summary description - Significant landscape character influences are: Agricultural, Rural Settlement and Other infrastructure (The Lliw Valley Reservoirs 015). Area includes Post1950, Inter War, Victorian & Edwardian, Late Medieval and Medieval chronological periods.

LANDMAP guidelines – None.

4.3 Local Landscape Character

The Site is located within a semi improved agricultural field which slopes gently from a high point of circa 90 m Above Ordnance Datum (AOD) in the north east corner of the field towards the south west. The site has a mix of boundaries in varying condition including post and wire fencing, ditch, stone bank and individual trees to the south, post and wire fence with a few scattered trees and gorse along the eastern boundary, to the north lies a taller hedge with gaps and to the west is post and wire fence and a vegetated ditch with small trees, bramble, gorse and rush.

The wider landscape is predominantly rural countryside with some man-made visual detractors but appears well wooded. There are several large scale-built features which sit within the landscape including the Moriston Hospital chimney to the south east, the DVLA building to the south which forms a striking and incongruous focal point on the hillside.

There is also large-scale pylon infrastructure passing to the south of the site, wooden electricity poles and overhead cables within the site, the substation to the west and solar farms to the east and north. The presence of these features creates visual detractors although due to the high level of tree and woodland cover surrounding them, they are partially assimilated into the landscape.

The wider landscape of the study area and beyond appears to have a good network of existing landscape features such as trees and woodlands although many of the field boundaries are post and wire with defunct hedgerows and taller trees grown out of the former hedge line and hedge banks removed. The surrounding agricultural land is predominately used for grazing sheep and horses.

Footpath LC117 adjacent to the existing substation does not seem well used and is impassable and indistinct in places due to bramble undergrowth. The footpath entrance near Maes-egwlys is also blocked by a fallen tree and woodpile.

The topography within the study area is undulating rising to a high point of 213 m AOD to the east at Mynydd Gelliwasted and 127 m AOD to the west, 100 m AOD to the south and 140 m AOD to the north.

Residential building styles include the characteristic white rendered stone buildings as well as modern styles. Residential properties are predominantly individual farm steads and individual or small groups of rural houses to the north (properties at and adjacent to Abergelli farm), north east (Cefn Betingau) and larger clusters to the south at Pant-Issau near Swansea Hospital.

The proposed Option 2 access road is located partly within an agricultural field and partly within an area of young to semi mature tree planting and natural regeneration.

4.4 Landscape Sensitivity

Sensitivity has been determined by consideration of the LANDMAP Aspect Areas which range from Moderate to Outstanding and consideration of the immediate landscape of the site and study area following fieldwork. The Site is considered to be of medium landscape sensitivity due to the absence of designations, degraded boundary features together with the presence of landscape detractors in the form of the distant noise of the M4, the existing substation and gas compressor site and power lines immediately adjacent to the site.

However, the overgrown hedgerows and tall hedgerow trees and woodland cover provides a well wooded appearance in the wider landscape. The existing large-scale infrastructure present is well absorbed due to the level of woodland cover and the wider countryside maintains many of its rural qualities.

It is considered that the Site could absorb the type of structures proposed due to its location adjacent to existing woodland and with the mitigation planting suggested.

4.5 Potential Landscape Effects

Table 2: Potential Landscape Effects

Changes to the landform	The Site is located on gently sloping land within a relatively flat immediate landscape. The Site is located at approximately 90 m AOD. There will be localised changes to topography with approximately a 1 m depth cut to accommodate the site infrastructure.
Changes to the type and extent of vegetation cover	An area of young to semi mature tree planting and natural regeneration will be removed associated with access route option 2. See Arboricultural Report for further detail.

Change in land use	<p>The land use will change from agricultural land to a new energy management facility with associated hardstanding covering an area of approximately 1 ha with the remaining areas comprising woodland, scrub, grassland and the access road. At the location of the proposed access road the land use will change from pasture and young to semi mature woodland.</p>
Effects on water courses/bodies.	<p>A section of existing ditch will be culverted (approximately 4m) to allow the access road to be built to the south of the site. This section of road is already consented as part of the Abergelli Power Station.</p>
Effects on notable landscape features	<p>There will be an increase in electrical development into the receiving agricultural landscape. Several small trees/part of a hedgerow within the line of the field boundary are proposed to be removed to accommodate the access road and cutting.</p>
Effect on established footpaths, public rights of way and access	<p>Public footpath LC117 will cross the proposed access road. This access road will shortly be built as part of the approved Abergelli Power Station. The existing setting of the footpath is pastoral with the back drop of power infrastructure and woodland. This will change due to an increase in hard surfacing and power infrastructure although over time the Development will be incrementally assimilated into the landscape once the mitigation woodland planting has matured. The setting of other paths and public rights of way are not predicted to be affected due to distance from the site and intervening vegetation.</p>
Effects on cultural associations /historic setting	<p>There are a number of listed buildings and two scheduled monuments (SM's) within the study area contributing to the historic character of the area. There is no inter visibility between the buildings/SAM's and Site due to topography and vegetation and therefore it is considered there will be no effects on the setting of these features.</p>
Changes to the remoteness/tranquillity of the area	<p>There are elements of the wider landscape that appear remote and tranquil with narrow rural lanes. However, the noise of the M4 and the large-scale power infrastructure of the area partly erodes these qualities over the majority of the southern portion of the study area. The Development would form an extension of power infrastructure in the area.</p>
Changes to the character, pattern, colour and scale of the landscape	<p>Changes to the landscape pattern, colour and scale would be related to the extension of power infrastructure replacing existing farmland. The character of the landscape would be affected through the cumulative effects of the future Abergelli Power Station and the introduction of the Development into the landscape potentially providing a continuous band of man-made infrastructure. However, the proposed mitigation woodland planting is intended to limit this change in colour and pattern. It is considered the Development would have a limited effect on character due to the existing and planned power infrastructure in the area.</p>

4.6 Summary of Landscape Effects

Given the similar scale and height of the Development to existing adjacent infrastructure and mitigation measures it is assessed that the receiving landscape has the capacity to accommodate the Development without adverse effects on character and quality of the landscape.

The Site does not lie within any landscape designation. The Mawr Uplands Special Landscape Area is located 1.7 km east of the Site and the ZTV illustrates that views are potentially available from the edge of the SLA to the Development. However, these views are distant and limited by intervening vegetation.

There are other designations within the 2 km study area including seven Listed Buildings/ Structures and two Scheduled Monuments. However, there is no inter visibility between the Development and these designations.

There are areas of Ancient Woodland to the west of the Development, none of which would be affected. There is an area of woodland to the north east of the site with a TPO, however this will not be affected.

In term of landscape character, the Site and study area show limited elements of NCLA 37 and more elements described in NCLA 38 and LANDMAP are present within the Study Area. The following create positive features in the wider landscape of the Site as follows:

- Coniferous plantation to the west and deciduous woodland areas;
- The pattern of settlement is along roads, with scattered stone or white/cream render farmsteads.

These landscape features provide positive landscape features within the study area. Given the scale and extent of the Development it is unlikely that the Development would affect or influence such features within the study area.

There are also some negative aspects of NCLA 37, NCLA 38 and LANDMAP which detract from the quality of the existing landscape and these are found within the immediate study area, within 300 m of the Site and further south towards the M4, as follows:

- Hedge and hedgerow bank loss weakening landscape character and increasing openness of agricultural landscape;
- General erosion of rural character through new infrastructure such as the new business park and noise associated with the M4 motorway;
- Detractors in the landscape include overhead power lines;
- Predominantly pasture for sheep or horse paddocks in regular fields bounded by defunct/tall hedgerows or post and wire fences.

The presence of hedge and hedgerow bank loss, substation and overhead cables adjacent and within the Site and noise of the M4 located approximately 2 km to the south reduces the value of the landscape within approximately 300 m of the Development southwards. It does however present an opportunity to improve the landscape baseline following Development through appropriate landscape enhancement in the form of hedgerow and woodland planting and other recommendations as detailed in Drawing 3421_DR_LAN_101 Landscape and Biodiversity Mitigation Plan provided in Appendix 2.

Given the above it is assessed that the Site does have the capacity to absorb the Development due to the scale and height of development proposed and setting adjacent to existing power infrastructure and woodland. No landscape designations are likely to be affected by the Development and there is opportunity to address the perceived expansion of power infrastructure through appropriate landscape enhancement. The enhancement will create a vegetated backdrop for the Development but also to introduce lost landscape structure into the Site to address negative aspects identified in the character descriptions, such as historic hedgerow loss.

5 VISUAL APPRAISAL

The visual appraisal considers the effects on visual receptors, who are currently afforded views towards the Site and therefore may be affected by the Development.

5.1 Zone of Theoretical Visibility

Figure 5 illustrates the main areas from which the Development may be visible. The ZTV has been created using a combination of bare earth model and surface features such as tree data. It does have some limitations as it does not take into account existing vertical features such as buildings, structures, infrastructure or vegetation such as hedgerows which may screen views and or restrict visibility. It therefore provides a useful first analysis tool to help determine the extent of visual influence the Site has within the existing landscape.

5.2 Viewpoint Appraisal

An appraisal of visual effects was undertaken from 4 viewpoints, which were selected to represent typical views from key receptors at varying distances and orientations from the Site at publicly accessible locations. In addition, other sensitive viewpoints were visited and assessed and a summary is provided in Table 3.

For each photographic viewpoint the following information is provided:

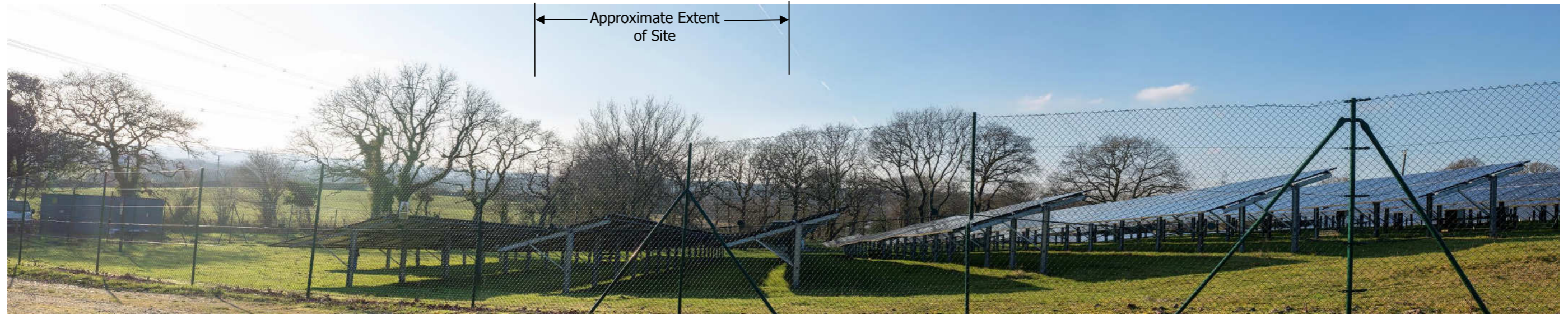
- A representative photograph;
- A description of the existing view; and
- A qualitative assessment of the potential visual effects.

Viewpoint locations 1-4 are shown below.

The following sheets present a viewpoint image along with an overview of the typical viewer, the distance to the Development, a description of the existing view and a description of the change in view with the Development.

Two photomontages are shown on Figures 6-7 and show the development from viewpoint 2 and viewpoint 4 at year 5 post construction with mitigation planting.

Viewpoint 1: Rhyd-y-pandy Road, Looking West



Type of Viewer and distance from the application Site	Viewer Type	Distance from Site
Existing View	Users of the Rhyd-y-pandy Road.	950m to the edge of the Development
	The foreground views are dominated by the perimeter fencing and solar panels of the Betingau Solar Farm, tall hedgerow trees and overhead lines. Middle distance views towards the site are obscured by the intervening hedgerow trees. Distant views consist of a well wooded agricultural landscape, pylons and the edge of Swansea forming the distant horizon.	
Potential Changes to the View	The Development is unlikely to be seen from this location due to the intervening vegetation.	

Viewpoint 2: Public Footpath LC117, Looking East



Type of Viewer and distance from the application Site	Viewer Type	Distance from Site
	Public footpath users	300m to the edge of the Development
Existing View	Foreground views over agricultural fields used for sheep grazing. The existing substation and gas compressor station (left of view) although large in scale is partially hidden by the mature trees within the woodland that surrounds it. Beyond this the wider view composition consists of further agricultural land, pylons, a mixture of field boundaries including ditches, hedge banks and grown out hedges with individual trees along boundaries with post and wire fencing. Distance views to the north east of rising ground, pylons and further agricultural land.	
Potential Changes to the View	As part of the approved Abergelli Power Station a new access road will be built and cross the ditch within the centre of the view to the south of the existing woodland/substation/gas compressor station. This access would be utilised as part of the Development. A new access road will also be created into the substation. The Abergelli Power Station will be located to the right of the photo and is likely to be partially hidden by intervening woodland and hedgerow trees. The combined effect of the development would result in an extension of industrial influence to the area although this will be mitigated through tree and hedgerow planting (refer photomontage Figure 6) and the existing locations of the substation, gas compressor station and Abergelli Power Station within a wooded backdrop. The Development would be seen in the context of the existing electrical substation, gas compressor facility and future gas power station and access corridor. Views of the development from the footpath are more extensive further north and the footpath will cross the proposed access track to the south of the woodland surrounding the substation and gas compressor station affording close distance views of the development.	

Viewpoint 3: Public Footpath LC117 adjacent to the substation, Looking North-East



Type of Viewer and distance from the application Site	Viewer Type	Distance from Site
	Public footpath users	100m to the edge of the Development
Existing View	Filtered views through woodland trees towards farmland grazed with sheep and tall trees along defunct hedgerows, boundary ditches and post and wire fencing. The background and distant views, where not obscured by vegetation, consists of a rural landscape with views towards higher ground to the north east. The section of this footpath where it enters the woodland to the south of the substation is indistinct and overgrown with bramble and does not seem used.	
Potential Changes to the View	The Development would introduce further built form of an industrial nature into filtered views through the woodland. These views will be predominantly screened by intervening vegetation within the woodland around the substation and along the western boundary of the site by small trees along the ditch line. The Development may be seen in the context of the future Abergelli Power Station although partially limited by intervening vegetation and the rising topography within the Site.	

Viewpoint 4: Public Footpath LC35B, Looking South






Type of Viewer and distance from the application Site	Viewer Type Public footpath users Visitors and residents travelling to Abergelli farm	Distance from Site 1.1km to the edge of the Development
Existing View	Views over farmland grazed by horses with a mix of field boundaries including post and wire fencing and overgrown hedgerows with tall hedgerow trees providing a well wooded appearance. Middle-distance views of the Abergelli Solar farm and row of pylons which sit within an undulating landscape. The background and distant views consist of a vegetated backdrop of trees with land rising to the south and east. The tall cube shaped DVLA building forms a prominent focal point on the skyline.	
Potential Changes to the View	The Development would introduce further built form of an industrial nature into the central portion of the view. However, it would be predominantly hidden behind intervening landform which would cause a barely perceptible change in the view. Refer photomontage Figure 7.	


5.3 Predicted Visual Effects

Table 3 below sets out the key visual effects, which are likely to result from the Development.

Table 3: Predicted Visual Effects

<p>Viewpoints</p>	<p>Views of the Site are visible to varying degrees from viewpoints 3-4. It is unlikely viewpoint 1 will have views of the site due to intervening vegetation. In viewpoint 2 the Development is seen within the context of the existing substation/gas compressor site and the future Abergelli Power Station, although views of all this power infrastructure will be broken with existing woodland and proposed mitigation planting so would reduce their cumulative presence in the landscape. (Refer Figure 6 Photomontage VP 2) Views range from between 100m (at the closest point) to 1.1km (at the farthest point) to the Development. The access road shared with Abergelli Power Station enable users of the footpath to cross the access road and view the proposed access road into the substation. Viewpoint 3 is seen within the context of the woodland surrounding the substation/gas compressor, the development and possibly the Abergelli Power Station; however, mitigation planting will help assimilate the development into the landscape and reduce the cumulative effect of the large-scale power infrastructure here. Viewpoint 4 is distant and the Development is also likely to be seen in the context of the future Abergelli Power Station. However, views are predominantly obscured by intervening landform as shown in Photomontage VP 4, Figure 7.</p>
<p>Zone of Theoretical Visibility</p>	<p>The ZTV indicates that theoretical uninterrupted views of the Development could be possible from up to 2 km to the east and south and approximately up to 700 m to the west and up to 500 m to 2 km of interrupted views to the north. The ZTV also suggest wider views are also theoretically possible from higher ground beyond the study area to the north east and south.</p> <p>ZTVs do have a couple of limitations which need to be considered when looking at the theoretical visibility illustrated. Firstly, whilst they do take account of tree data, they do not take account of screening elements such as buildings, vegetation, hedgerows and local landform which can substantially reduce visibility. Secondly, ZTVs do not take account of the decreasing size of the Development with increased distance as a proportion of the view, and the reduction in effect arising from this.</p> <p>The ZTV has therefore been augmented by field work to understand the visibility accurately. Viewpoints 1-4 have been chosen to represent the extents of visibility likely to affect sensitive receptors from publicly accessible areas. Beyond these viewpoints the presence of existing vegetation, built form and structures reduces or removes visibility, or the Development is such a minor element in the landscape that it is not discernible within the view composition and unlikely to have any effects upon the receptor or there are no receptors present.</p>
<p>Views from residential properties</p>	<p>Views are available from approximately 4 groups of properties to the north west, north east and south east. These include: Houses along the western edge of Pant Issau; Maes-egwyls properties; Abergelli farm and 2 adjacent properties; and Cefn-betingau properties</p> <p>Views from properties at Pant Issau, Abergelli farm and Cefn-betingau are most affected due to proximity and the presence of direct views of the Development.</p> <p>Views from Maes-egwyls and adjacent properties are slightly oblique or oblique and partially limited by intervening landform and vegetation.</p>

	<p>Views from the Site towards properties at Pant Issau below:</p>  <p>Views from the Site towards properties at Abergelli Farm below:</p>  <p>Views from the Site towards properties at Maes Eglyws partly obscured by vegetation and DVLA building in distance.</p> 
<p>Residential Amenity/ overlooking, or overshadowing of properties</p>	<p>Due to their proximity to the Development properties at Pant Issau, Abergelli farm and Cef-betingau are likely to be affected during construction of the Development and operation although effects would recede with time until the mitigation planting has matured. Construction effects would be of short duration (approximately 10 months). Following construction of the Development access would be limited to vehicular movements associated with maintenance of the Development which would be infrequent as the site would be operated remotely. There would be no overshadowing of these properties and no properties would be overlooked.</p>

<p>Visual obstruction</p>	<p>The Development would partially obstruct existing views over farmland and woodland from all these properties. In addition, the introduction of new native species woodland used to both screen and add green infrastructure to the landscape would partially screen views from the north east, south east and north west.</p>
<p>Views from Public Rights-of-Way</p>	<p>Close distance views of the Development would be available from a section of footpath LC117. Refer to Viewpoint 2 and Photomontage VP 2. This footpath will cross the access road to the south of the substation/gas compressor station/woodland area. Close distance partly filtered views are available for approximately 0.5km+ although the section passing through the woodland is indistinct and heavily overgrown with bramble and seems unused. Hedgerow trees also partially limit views. Views from footpath LC35B (VP 4) would also be visible although partially limited by intervening vegetation. Refer to Viewpoint 4 and Photomontage VP 4. The development is unlikely to be visible from other public rights of way in the study area predominately due to the tall hedgerow and hedgerow trees within the landscape.</p> <p>Footpath LC117 is overgrown or inaccessible in places, see photographs below:</p> 
<p>Views from other receptors</p>	<p>There are views from other receptors within the study area including the following: users of local roads, farm businesses and other places of work such as the Betingau solar farm. These receptors are considered to be of lower value and views from local roads are very restricted due to tall hedgerows along road sides.</p>
<p>Views from Conservation Areas</p>	<p>There are no views from Conservation Areas.</p>
<p>Views from Listed Buildings /Structures</p>	<p>There are seven listed buildings and structures within the study area. There are no views of the Development due to intervening vegetation.</p>
<p>Views from Scheduled Monuments</p>	<p>There are no views from the Scheduled Monument due to intervening topography and vegetation.</p>

5.4 Summary of Visual Effects

The LVA indicates that views of the Development from the surrounding areas would be limited to four groups of residential receptors, these include small farms, isolated rural properties and residential housing areas with some intermittent views from Rhyd-y-Pandy road at gaps in existing vegetation, and public footpaths.

Visual effects from residential properties are not represented by viewpoints 1-4 as public access was not possible. However, the photographs in Table 3 are taken from within the Site towards the residential receptors to provide context. The Development will be visible and will be seen as a potential visual extension to the existing substation/gas compressor for receptors to the south and east. However, the mature trees surrounding the substation and gas compressor assimilate the large infrastructure into the landscape. Residential receptors to the north will have views partially limited by the existing vegetation along the northern boundary.

The Development appears in all views against a backdrop of existing agricultural fields and/or mature hedgerows or woodland. All views are/or would be seen in the context of the existing substation/gas compressor, Abergelli Power Station and access road and associated power infrastructure consisting of metal pylons and overhead cables.

6 CUMULATIVE EFFECTS

All views of the Development are seen or will be seen in the context of the existing substation/gas compressor and future Abergelli Power Station and access road resulting in potential in combination landscape and visual cumulative effects. The Development considered cumulatively with the substation and Abergelli Power Station would serve to increase the power infrastructure over a localised area although this influence is limited to a small geographical area.

The receiving landscape due to the high level of woodland and tall hedgerows has the capacity to absorb the Development alongside the existing substation/gas compressor and Abergelli Power Station due to existing mature woodland and tall hedgerows in the immediate area.

Furthermore, landscape mitigation and enhancement is proposed, see Section 7 and Appendix 2, which seeks to reduce the visual impact of the Development and increase biodiversity and extend the green infrastructure network.

7 MITIGATION AND ENHANCEMENT MEASURES

The landscape immediately surrounding the Site to the north, east and south has degraded landscape features, in the form of remnant hedgerows, although the overgrown hedges do provide a landscape perceived to be well wooded. The surrounding landscape beyond 300 m from the Site contains a more complex mixture of boundary hedgerows and pockets of woodland.

The Development provides an opportunity to both screen the Development from sensitive residential receptors and improve the existing baseline landscape features/ green infrastructure of the immediate site. The Development includes a significant amount of new planting and biodiversity enhancements in the form of native species, hedgerow, woodland and scrub planting as follows:

- 35 m of native species hedgerow planting with hedgerow trees;
- 0.81 ha of native species woodland and shrub planting; and
- 0.2 ha of wildflower and grass seeding on embankments.

Landscape and biodiversity mitigation is shown on the Landscape and Biodiversity Mitigation Plan 3421_DR_LAN_101 (Appendix 2) and visually represented in Figures 06-07 (Appendix 1) in photomontages illustrating the view as existing and 5-years post construction. This helps to demonstrate the beneficial impact of planting after 5 years growth.

The planning application also includes a Green Infrastructure Statement and Biodiversity Metrics Assessment; a document which assesses the nett change in biodiversity following the Development.

8 CONCLUSIONS

The Development is located to the east of the existing Swansea Substation and Gas Compressor site and adjacent field and is also bounded by agricultural land to the north, east and south. A line of overhead transmission lines on pylons runs close to the Site (250 m) to the south and overhead cables and wooden electricity poles cross the Site to the north. The site of the recently approved Abergelli Power Station lies to the north east adjacent to an area of woodland. The Development will utilise much of the access road which is being built for the above power station.

The Development consists of the construction and operation of an energy management facility with a footprint of 1 hectares (ha) and a wider Site area of 2.5 (ha) which includes the site entrance and temporary construction compound area and mitigation planting. This would result in the partial loss of agricultural grassland with the permanent replacement with power infrastructure, woodland, scrub, hedgerow and grassland. There would be some loss of young to semi mature tree planting along the proposed Option 2 access road route into the substation, if this is required as part of the Development. See Drawing 3421-DR-P-0001B and the Arboricultural Report. Views of the new access route are limited to receptors using the nearby footpath LC117 otherwise the access route is well screened from the wider area by existing vegetation.

All views of the Development are seen in the context of the existing substation and gas compressor site within a woodland area immediately to the west and overhead power lines to the south. The Development is located within an open agricultural landscape with a mix of boundaries including defunct hedgerows and post and wire fencing and stone hedge banks surrounded by pastoral agricultural land. Wooden electricity poles and cables currently cross the Site within the northern portion of the boundary.

Views from receptors are limited to approximately 4 groups of residential properties, and potentially glimpsed views from a small number of locations on the local road network through gateways or gaps in vegetation. Properties at and near Abergelli Farm, Maes-eglwys, Pant-Iasau and Cefn-Betingau would be most affected by the Development. All of these properties have oblique or direct views from their property curtilage, although partially limited by vegetation. Properties at and near Abergelli Farm are elevated with views of the Development although partially limited by the intervening tall hedgerow which lines the northern boundary of the Site.

Properties on the western edge of Pant -issau have open elevated views towards the Development. Properties at Maes-eglwys have oblique views although limited by vegetation and topography. Properties at Cefn-Betingau have open elevated views across to the Site.

In Landscape terms, the Development is located on relatively flat ground with a localised change in topography of approximately 1 m rising from the south to the north east. In order to minimise the impact of the Development and as part of the iterative design process the levels on site are proposed to be reduced at its deepest by approximately 1 m. This will result in the majority of the Development located on the 89 m AOD contour. This reduction in levels in the context of the existing vegetation along the northern boundary and height of the proposed structures partially reduces the effects upon both landscape and visual receptors.

A Landscape and Biodiversity Mitigation Plan (Appendix 2) has been produced to provide screen and hedgerow planting around the northern, eastern and southern areas within the site boundary to screen and assimilate the Development into the landscape and provide biodiversity benefits. The existing substation and gas compressor site has been assimilated successfully by siting it adjacent to mature woodland, and with time the Development whilst potentially resulting in short term combined cumulative effects would be in close proximity to similar infrastructure and contained and partially screened by the proposed mitigation

planting. As such the Development is considered to be in line with policy CV2 Development in the Countryside and EU1 Renewable and Low Carbon Energy Proposals.

However, it is recognised that the proposed planting would take time to mature and limit the visibility of the Development. Figures 07-08 in Appendix 1 illustrates the proposed planting at five years post construction.

Such planting introduces native planting of local provenance into the landscape and extends into existing landscape features to connect the new planting at the Site and existing vegetation. The introduction of these new features would overall have a positive effect on the local and wider landscape context and character once planting has matured, together with siting the Development at a lower level, close to existing infrastructure. This would minimise intrusion of the Development and help assimilate it into the landscape creating an improved green infrastructure network in line with policies ER2 Strategic Green Infrastructure Network and ER5 Landscape Protection.

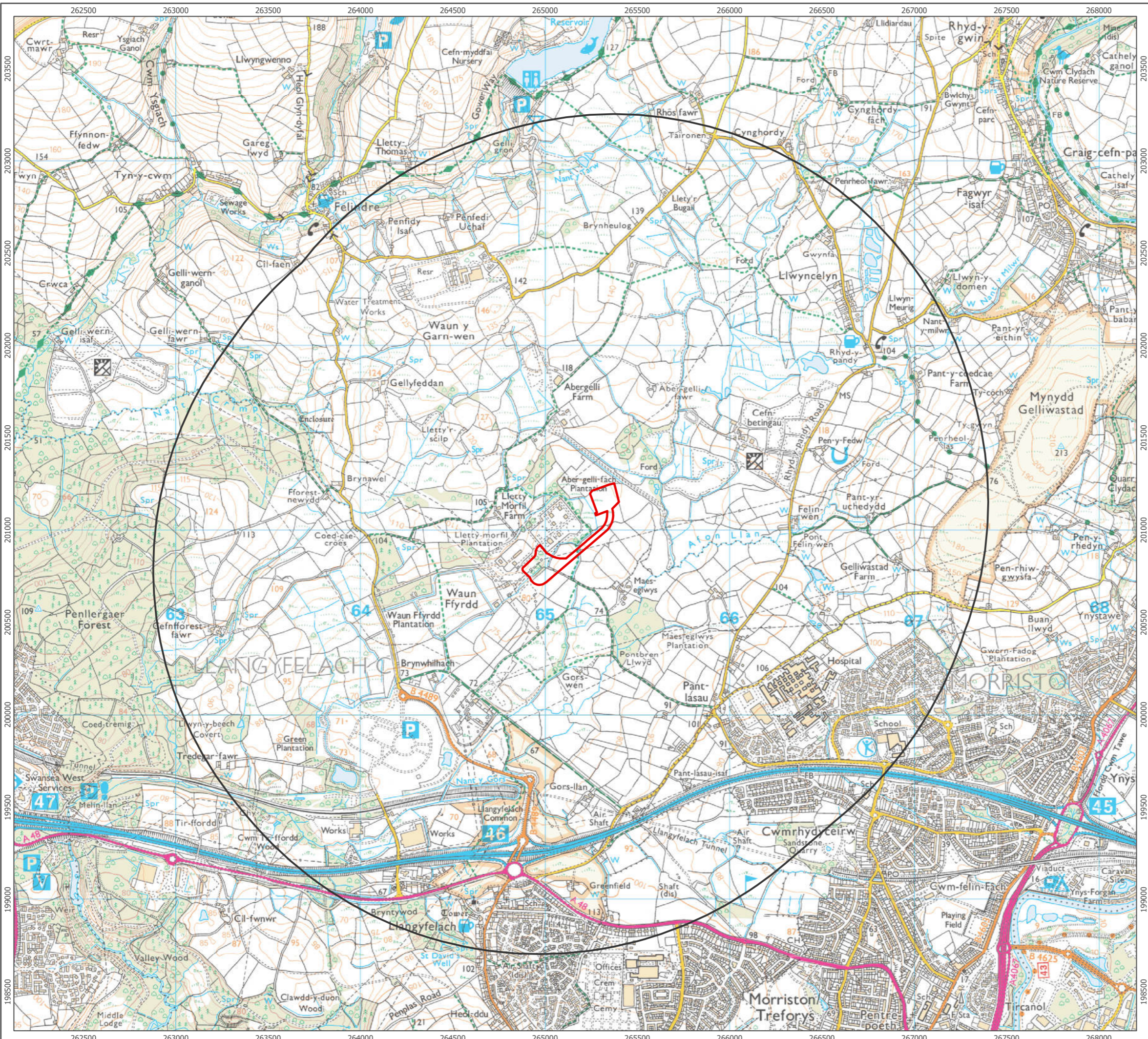
Overall, the Development introduces new native planting surrounding the Development. Whilst introducing a change in land use from agriculture and expanding the power infrastructure in the immediate area, the position of the Development has been sensitively considered taking account of the landscape context and has the ability to be screened from views in a short to medium (i.e. 5-10 years) period of time and would improve the baseline landscape above its current state.

Given the similar scale and height of the Development to existing adjacent infrastructure, and mitigation measures that have been proposed, it is assessed that the receiving landscape has the capacity to accommodate the Development without adverse effects on the character and quality of the landscape.

APPENDIX 1 - FIGURES

Figure 01:	Site Location Plan
Figure 02:	Aerial Mapping
Figure 03:	Topography
Figure 04:	Landscape and Visual Baseline
Figure 05:	Zone of Theoretical Visibility
Figure 06:	Photomontage VP 2
Figure 07:	Photomontage VP 4

Site Boundary
 2 km Study Area



1:20,000 Scale @ A3

Produced By: KM	Ref: 3421-REP-003
Checked By: GW	Date: 16/06/2020

Site Location
 Figure 1
Swansea North
Energy Management Facility
Landscape and Visual Appraisal

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- Site Boundary
- 2 km Study Area



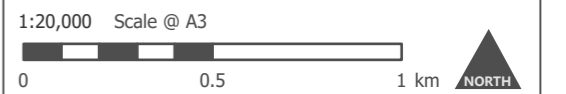
Produced By: KM	Ref: 3421.-REP-004
Checked By: GW	Date: 16/06/2020

Aerial Mapping
Figure 2

**Swansea North
Energy Management Facility
Landscape and Visual Appraisal**

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

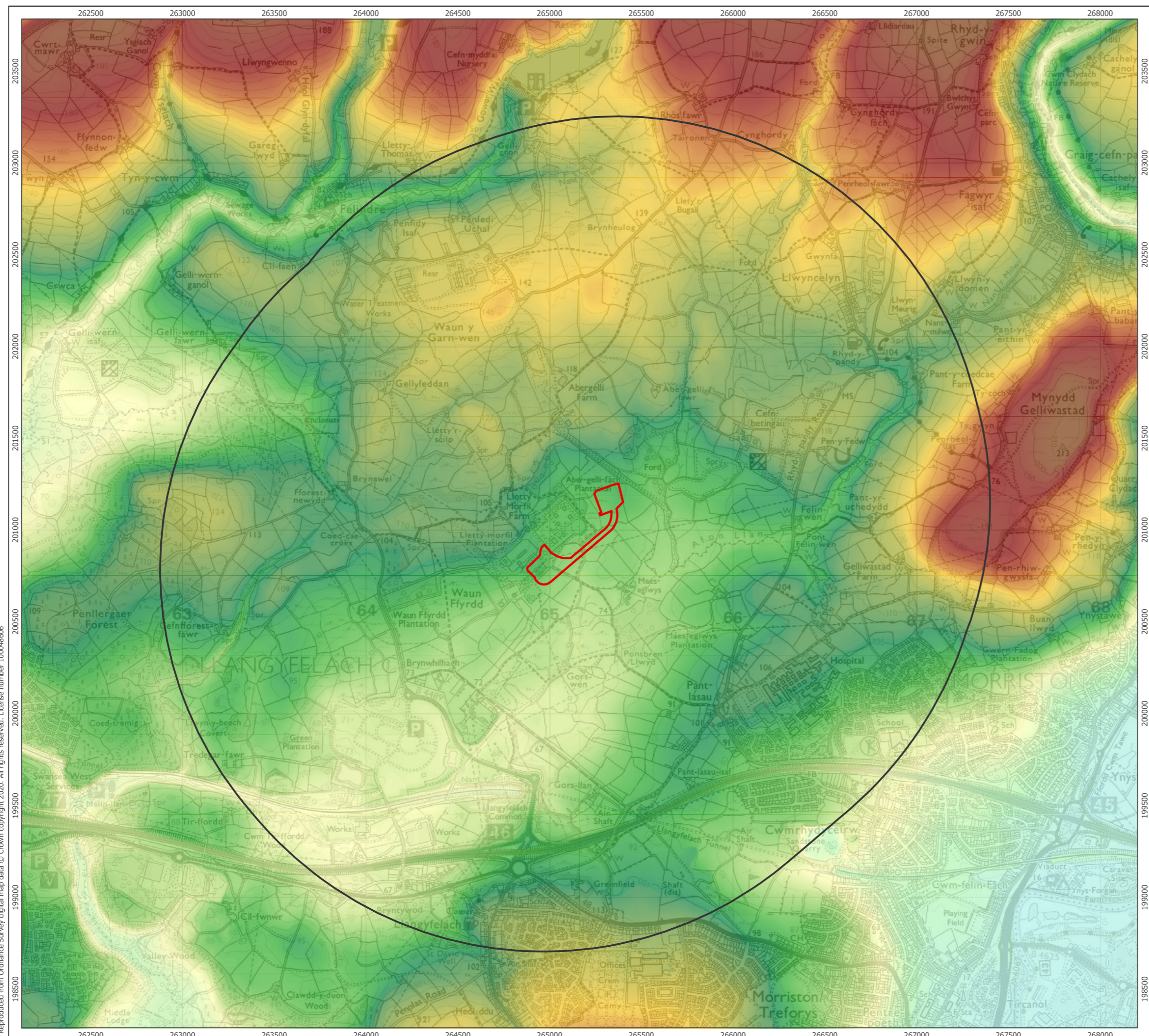
- Site Boundary
- 2 km Study Area
- OS Terrain 5 Digital Model
- 257.36 AOD
- 5.28 AOD



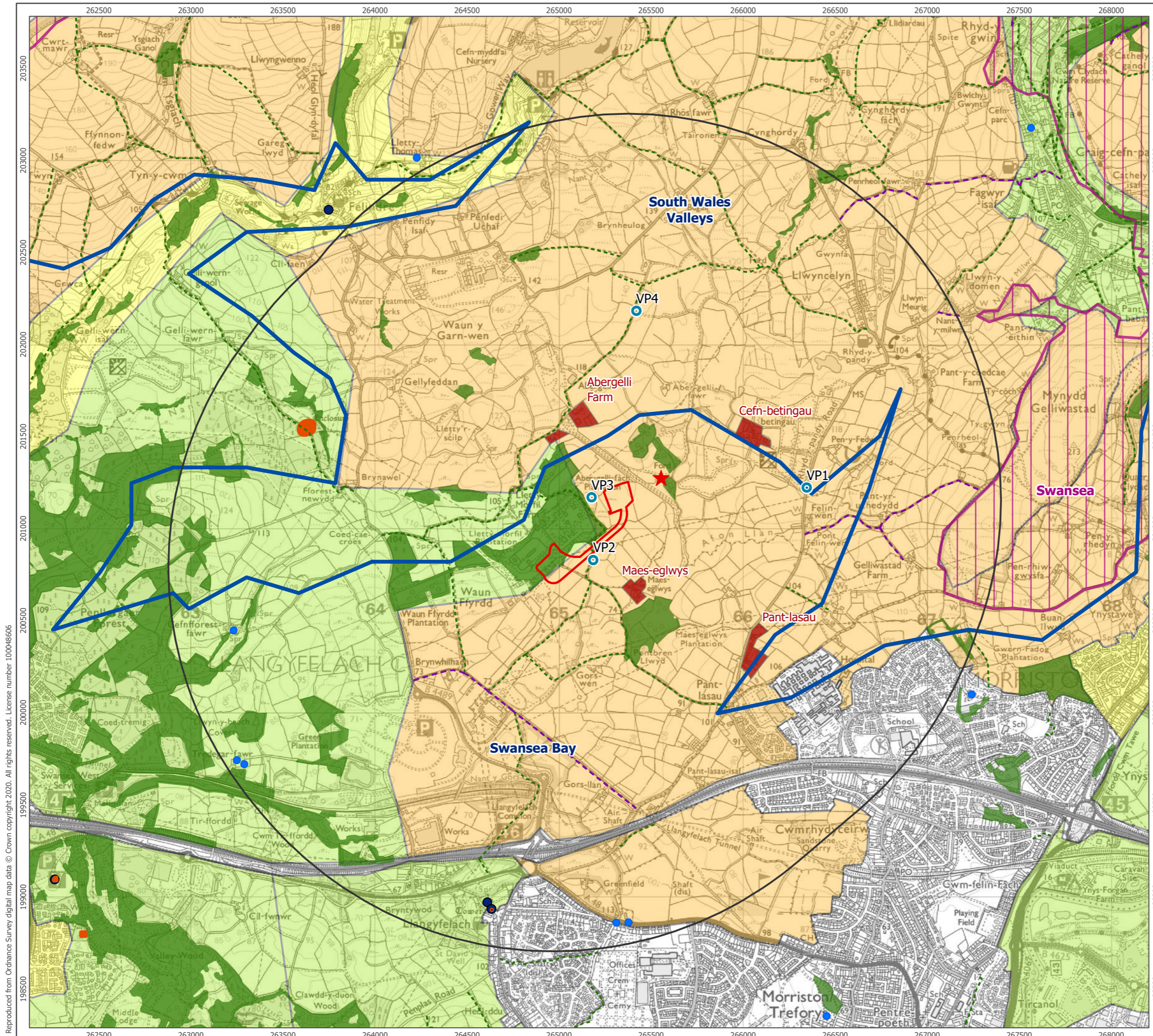
Produced By: KM	Ref: 3421-REP-005
Checked By: GW	Date: 16/06/2020

Topography
Figure 3

**Swansea North
Energy Management Facility
Landscape and Visual Appraisal**



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- Site Boundary
- Viewpoints
- 2 km Study Area
- Listed Buildings
 - I
 - II
 - II*
- Public Rights of Way
 - Footpath
 - Bridleway
- Scheduled Monuments
- Special Landscape Area
- National Landscape Character Area Boundary
- Ancient Woodlands
- Visual and Sensory Landscape Characters
 - High
 - Low
 - Moderate
- ★ Abergelli Power Substation Location
- Residential Areas



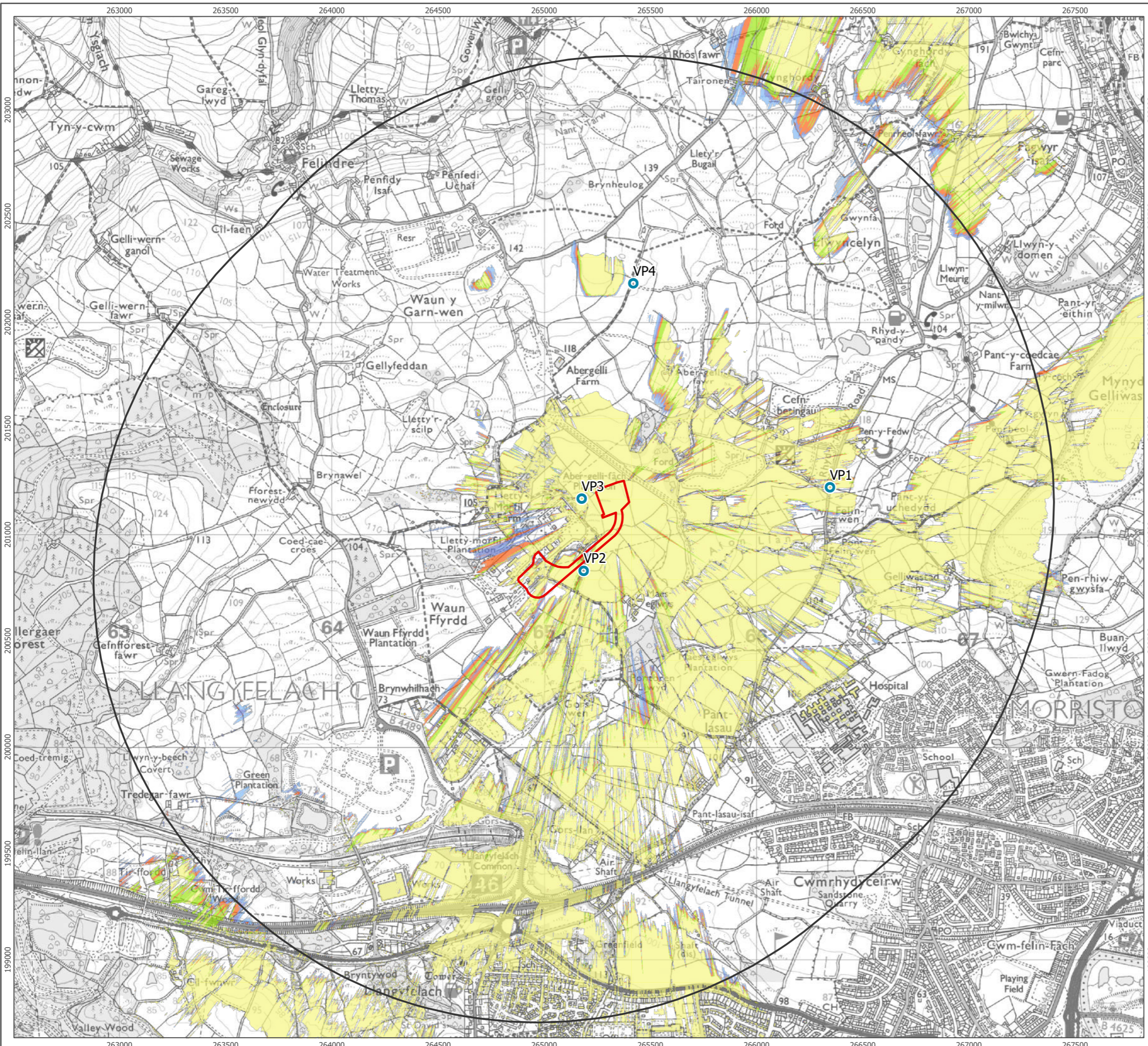
Produced By: KM	Ref: 3421-REP-006
Checked By: GW	Date: 16/06/2020

Landscape and Visual Baseline
Figure 4

**Swansea North
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Landscape and Visual Appraisal**

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- Site Boundary
- Viewpoints
- 2 km Study Area
- Zone of Theoretical Visibility
- 1-20% Proposed Development may be visible
- 21-40% Proposed Development may be visible
- 41-60% Proposed Development may be visible
- 61-80% Proposed Development may be visible
- 81-100% Proposed Development may be visible



1:17,500 Scale @ A3

Produced By: KM	Ref: 3421.-REP-007
Checked By: GW	Date: 16/06/2020

Zone of Theoretical Visibility
Figure 5

**Swansea North
Energy Management Facility
Landscape and Visual Appraisal**



Photomontage Showing Proposed Development - Year 5

Note: the Abergelli Power station access road (approved) is not shown on the montage



Viewpoint Location: 265186mE 200830mN
 View Direction: 18 degrees
 Viewpoint Elevation: 75m AOD
 Distance to Development: 300m
 Horizontal Field of View: 90 degrees



Figure: 07
 Viewpoint 2: Public Footpath LC117, Looking North
Swansea North Energy Management Facility
Landscape and Visual Appraisal



Photomontage Showing Proposed Development - Year 5

Solar Farm

Extent of Proposed Development



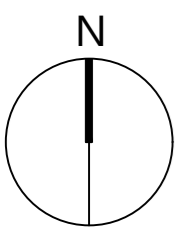
Viewpoint Location: 265420mE 202182mN
 View Direction: 185 degrees
 Viewpoint Elevation: 128m AOD
 Distance to Development: 1100m
 Horizontal Field of View: 90 degrees



Figure: 08
 Viewpoint 4: Public Footpath LC35B, Looking South
Swansea North Energy Management Facility
Landscape and Visual Appraisal

APPENDIX 2 - DRAWINGS

Drawing 3421_DR_LAN_101 Landscape and Biodiversity Mitigation Plan
Drawing 3421 – DR-P-0001B Proposed Site Layout - Block Plan



PLANTING NOTES

The handling of plants to be in accordance with National Plant Specification 'Handling and Establishing Landscape Plants'. All plants and planting operations are to comply with the requirements and recommendations of all current relevant British Standard specification including but not limited to:

- BS 8545: Trees: From Nursery to Independence in the Landscape
- BS 3936-1:1992: Nursery stock: Specification for trees and shrubs
- BS 3882:2015: Specification for topsoil
- BS 4428:1989: Code of practice for general landscape operations (excluding hard surfaces) (AMD 6784)
- BS 5837: 2012: Trees in relation to design, demolition and construction. Recommendations

All planting to be carried out during appropriate climatic conditions from mid-November to mid-March. Existing topsoil and/or imported, clean/inert horticultural ameliorants from sustainable sources. Contractor to satisfy himself of measurements on site and the full extent of works before pricing.

Clearance
Cut back all grass and perennial vegetation including brambles, suckering and epicormic growth to a height of 25-50mm across site. All rubbish, debris and existing redundant infrastructure to be removed. Stone picking of all stones and debris over 25mm to be undertaken. All trees and shrubs to be retained to be protected during works in line with BS5837:2012.

Topsoil
Existing topsoil must be cultivated in accordance with BS 3882:2015 outside RPAs of existing trees. No cultivation should take place in wet/fogged conditions and within the RPAs of existing trees.

Trees

The hedgerow trees will be planted as whips (100-125 cm), pit planted to accommodate all the roots and provided with a supporting stake and 1.2m high tree shelter to ensure they are noticed when mechanical trimming commences.

Native Species Woodland and Shrub Mix
Plants shall be randomly mixed throughout the beds in groups of 3 or 5. Planting shall be at the specified density.

Native Species Hedgerow Mix
Hedges to comprise a double staggered row of plants 450mm apart within each row, overall 5 plants per linear metre. Species mixed throughout the hedge line in random groups of 3/5. 500mm wide trench excavated to take plants and topsoil cultivated to 450mm depth prior to application of fertiliser. All native planting shall be of local provenance.

Mulch

Hedge planting to receive 75mm depth pulverised bark mulch.

Plant position

Final position of trees and shrubs subject to confirmation of service location and approval of statutory undertakers. Allow for location of service information prior to work commencing on site.

Grass Seeding

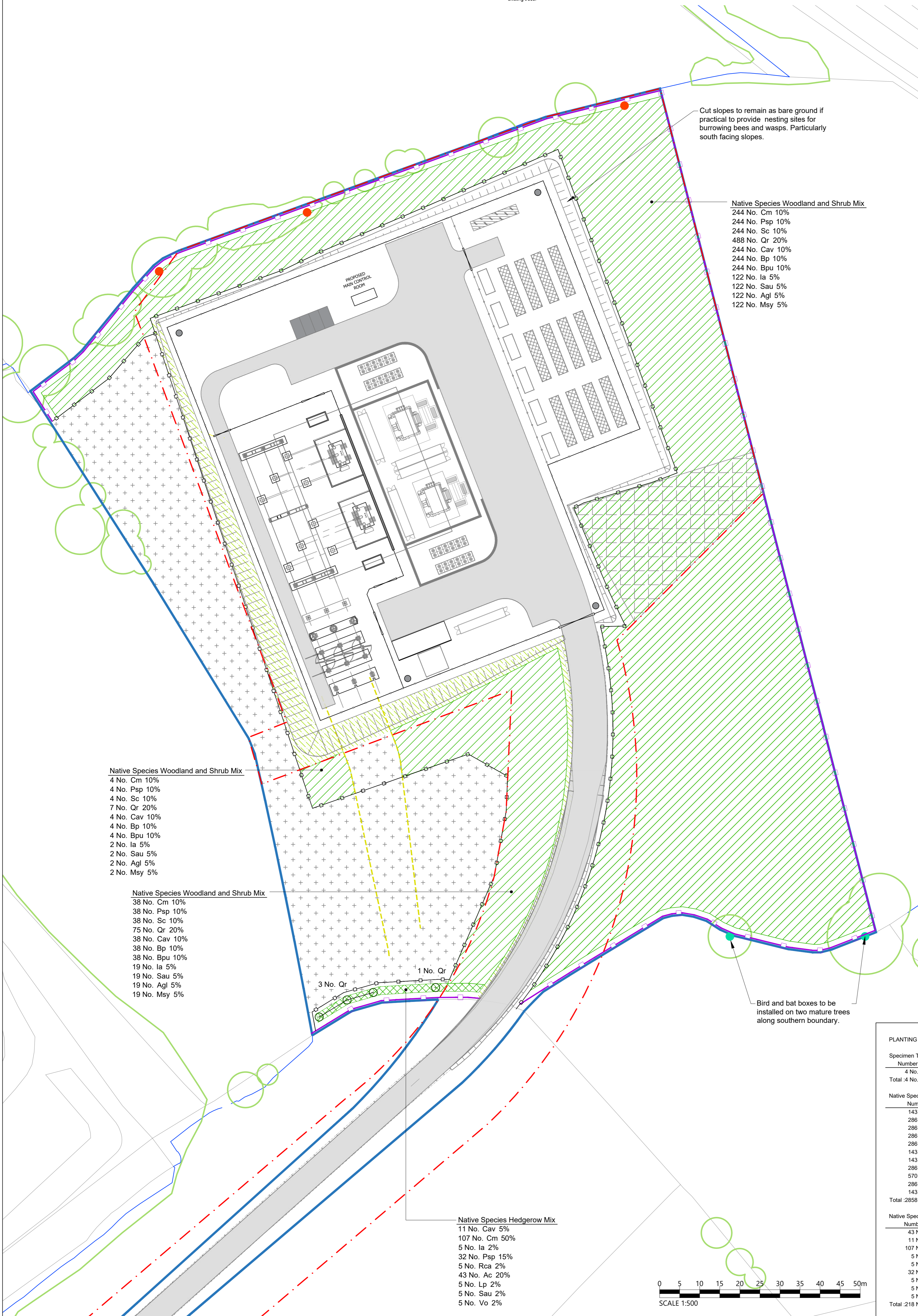
All seeding areas to be hydro-seeded with proposed grass and wildflower mix.

Planting Season

Bare-root shrubs to be planted between mid-November and mid-March dependent upon the planting season.

KEY

- Site Boundary
- Land Under Control of The Applicant
- Existing Tree/vegetation to be Retained
- Existing Ditch
- Existing Fence
- PROPOSED FEATURES**
 - Proposed Native Species Woodland and Shrub Mix
Approx. Total Area: 1.06ha, 0.25/m²
 - Proposed Native Species Hedgerow Mix
Approx. Total Length: 42.6m, 5/lin
 - Proposed Hedgerow Tree
 - Existing Grazing Grass to be managed to increase species richness and Tussocky Grassland for Marsh Fritillary butterfly
 - Proposed Fescue/Bent Mix with Wildflowers
Approx. Total Area: 0.11ha
 - Proposed Battery Storage
 - Proposed Inverter
 - Proposed Switchgear Container
 - Proposed E-House
 - Proposed E-House Enclosed in Building
 - Proposed Cooler
 - Proposed Diesel Generator
 - Proposed Transformer with 7.0m High Connecting Bus Bars
 - Proposed Track
 - Proposed Fire Stop Wall
 - Proposed 2.4m Security Fencing
 - Proposed Indicative Stock Fencing
 - Proposed Gate
 - Proposed Drainage
 - Proposed Underground 400 kV Cable
 - Proposed Underground 400 kV Cable 4m Buffer
 - Proposed Log and Brush Piles Location
 - Proposed Bird and Bat Boxes Location
 - Proposed Temporary Laydown Area



Cut slopes to remain as bare ground if practical to provide nesting sites for burrowing bees and wasps. Particularly south facing slopes.

- Native Species Woodland and Shrub Mix**
- 244 No. Cm 10%
 - 244 No. Psp 10%
 - 244 No. Sc 10%
 - 488 No. Qr 20%
 - 244 No. Cav 10%
 - 244 No. Bp 10%
 - 244 No. Bpu 10%
 - 122 No. Ia 5%
 - 122 No. Sau 5%
 - 122 No. Agl 5%
 - 122 No. Msy 5%

- Native Species Woodland and Shrub Mix**
- 4 No. Cm 10%
 - 4 No. Psp 10%
 - 4 No. Sc 10%
 - 7 No. Qr 20%
 - 4 No. Cav 10%
 - 4 No. Bp 10%
 - 4 No. Bpu 10%
 - 2 No. Ia 5%
 - 2 No. Sau 5%
 - 2 No. Agl 5%
 - 2 No. Msy 5%

- Native Species Woodland and Shrub Mix**
- 38 No. Cm 10%
 - 38 No. Psp 10%
 - 38 No. Sc 10%
 - 75 No. Qr 20%
 - 38 No. Cav 10%
 - 38 No. Bp 10%
 - 38 No. Bpu 10%
 - 19 No. Ia 5%
 - 19 No. Sau 5%
 - 19 No. Agl 5%
 - 19 No. Msy 5%

- Native Species Hedgerow Mix**
- 11 No. Cav 5%
 - 107 No. Cm 50%
 - 5 No. Ia 2%
 - 32 No. Psp 15%
 - 5 No. Rca 2%
 - 43 No. Ac 20%
 - 5 No. Lp 2%
 - 5 No. Sau 2%
 - 5 No. Vo 2%

Bird and bat boxes to be installed on two mature trees along southern boundary.

PLANTING SCHEDULE

Specimen Tree Planting					
Number	Abbreviation	Species	Height	Girth	Specification
4 No.	Qr	Quercus robur	100-125cm		Whip
Total :4 No.					
Native Species Woodland and Shrub Mix					
Number	Abbreviation	Species	Height	Specification	Spacing
143 No.	Agl	Alnus glutinosa	60-80cm	1+1 :BR :Transplant	0.25m ²
286 No.	Bp	Betula pendula	60-80cm	1+1 :BR :Transplant	0.25m ²
286 No.	Bpu	Betula pubescens	60-80cm	1+1 :BR :Transplant	0.25m ²
286 No.	Cav	Corylus avellana	60-80cm	1+1 :BR :Transplant	0.25m ²
286 No.	Cm	Crataegus monogyna	60-80cm	1+1 :BR :Transplant	0.25m ²
143 No.	Ia	Ilex aquifolium	60-80cm	1+1 :BR :Transplant	0.25m ²
143 No.	Msy	Malus sylvestris	60-80cm	1+1 :BR :Transplant	0.25m ²
286 No.	Psp	Prunus spinosa	60-80cm	1+1 :BR :Transplant	0.25m ²
570 No.	Qr	Quercus robur	60-80cm	1+1 :BR :Transplant	0.25m ²
286 No.	Sc	Salix cinerea	60-80cm	1+1 :BR :Transplant	0.25m ²
143 No.	Sau	Sorbus aucuparia	60-80cm	1+1 :BR :Transplant	0.25m ²
Total :2858 No.					
Native Species Hedgerow Mix					
Number	Abbreviation	Species	Height	Specification	Spacing
43 No.	Ac	Acer campestre	60-80cm	1+1 :BR :Transplant	5m
11 No.	Cav	Corylus avellana	60-80cm	1+1 :BR :Transplant	5m
107 No.	Cm	Crataegus monogyna	60-80cm	1+1 :BR :Transplant	5m
5 No.	Ia	Ilex aquifolium	60-80cm	1+1 :BR :Transplant	5m
5 No.	Lp	Lonicera periclymenum	60-80cm	1+1 :BR :Transplant	5m
32 No.	Psp	Prunus spinosa	60-80cm	1+1 :BR :Transplant	5m
5 No.	Rca	Rosa canina	60-80cm	1+1 :BR :Transplant	5m
5 No.	Sau	Sorbus aucuparia	60-80cm	1+1 :BR :Transplant	5m
5 No.	Vo	Viburnum opulus	60-80cm	1+1 :BR :Transplant	5m
Total :218 No.					

- Notes:**
1. Log and brush piles located in partial shade along northern boundary.
 2. Woodland, shrub and hedgerow planting to limit views from properties to the east, south and north and provide additional habitat.
 3. No planting undertaken over underground cable area.
 4. Batters (except southern slopes) seeded with fescue/bent species mix and to include suitable wildflower spp. to attract wall butterfly.
 5. Planting to be planted 2m offset from existing/proposed drainage/ditch.

REVISION SCHEDULE

Rev	Date	Description
A	26.05.2020	Revised matching the latest planning layout plan (WH)
B	24.06.2020	Revised matching the latest planning layout plan (LH)

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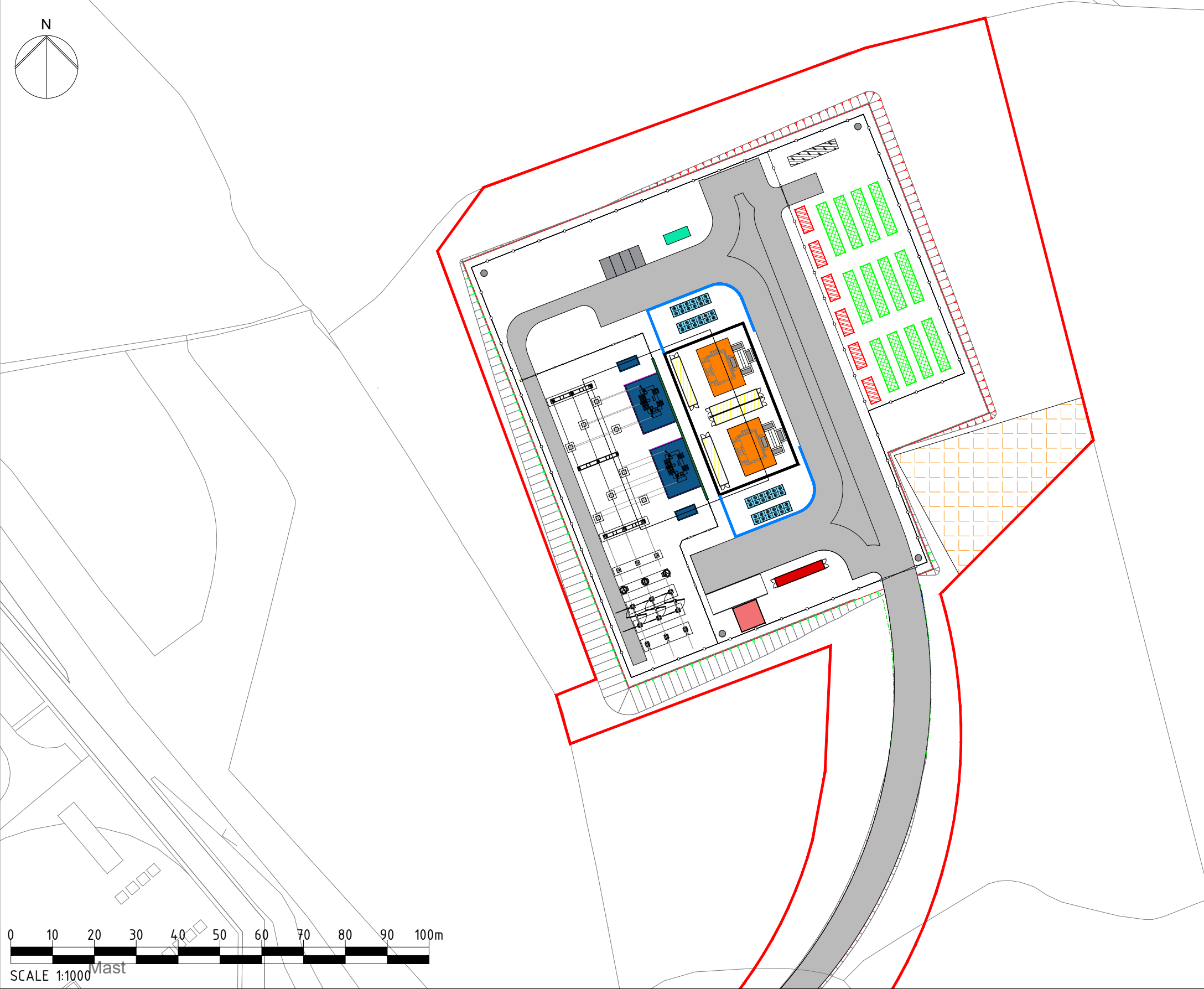
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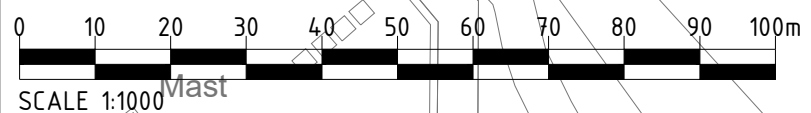
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PROJECT: Swansea North Energy Management Facility
TITLE: Landscape and Biodiversity Mitigation Plan
CLIENT: Statkraft UK
DATE: 07.05.20 **SCALE:** 1:500@A1
DRAWN: WM **DRAWING NO.:** 3421-DR-LAN-101
CHECKED: GW **REVISION:** B

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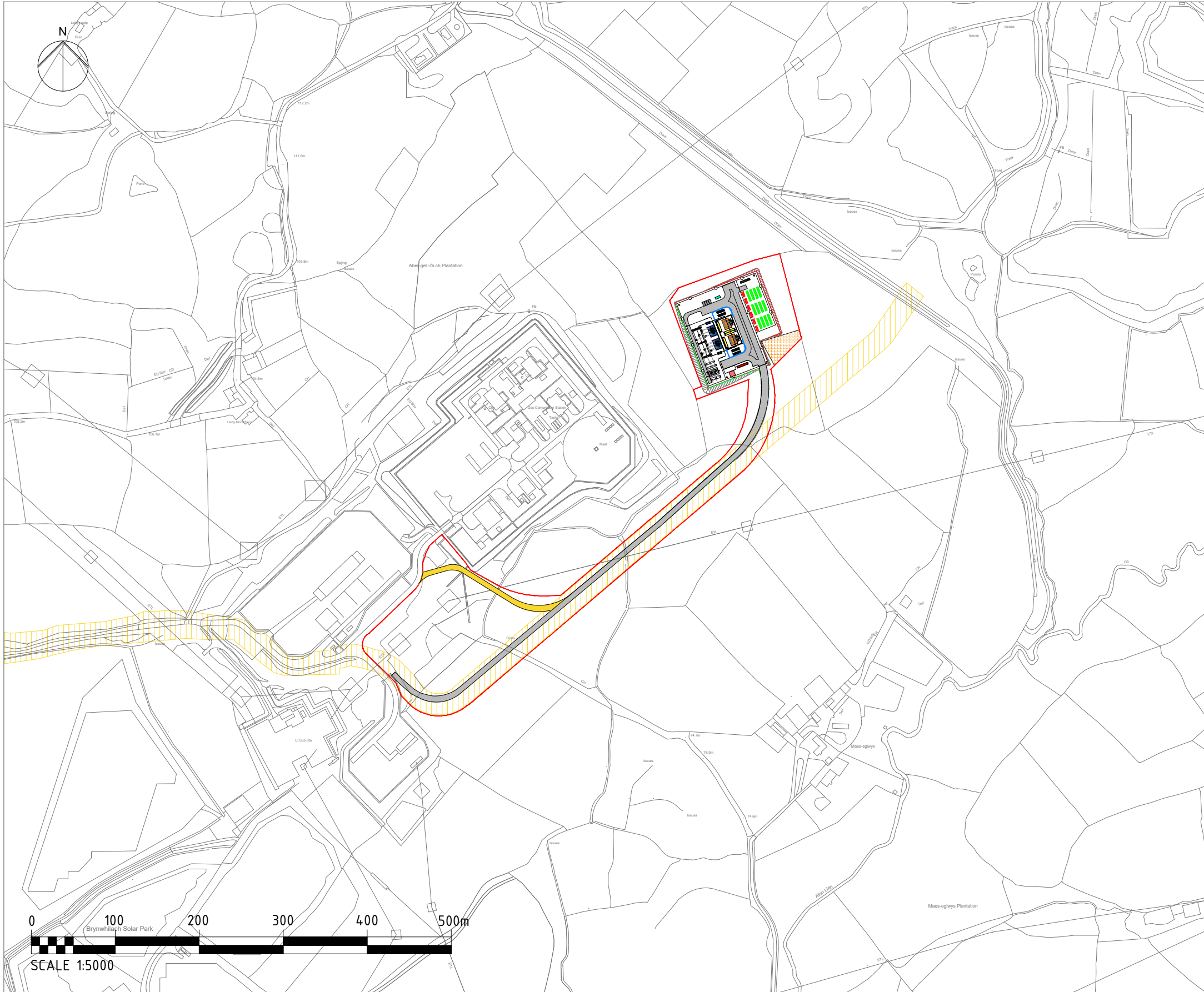
- KEY:**
- SITE BOUNDARY (5.53 Hectares)
 - 2.40m HIGH WELDMESH FENCING
 - BATTERY (12.9m x 2.44 x 2.59m)
 - INVERTER (6.1m x 2.44m x 2.59m)
 - TRANSFORMER
 - LV SWITCH HOUSE (12.9m x 2.44m x 3.0m)
 - E-HOUSE (ENCLOSED IN BUILDING 20.7m x 36.7m x 10.0m TO ROOF PITCH)
 - COOLER (9.6m x 2.4m x 2.5m)
 - PROPOSED TRACK AREAS
 - MAIN CONTROL ROOM (6.1m x 2.44m x 3.0m)
 - ENERGY MANAGEMENT SYSTEM (ENCLOSED IN BUILDING 20.7m x 38.6m x 10.0m TO ROOF PITCH)
 - EMERGENCY DIESEL GENERATOR (6.0m x 6.0m)
 - BUILDING (20.7m x 38.6m x 10.0m TO ROOF PITCH)
 - SWITCHGEAR CONTAINER (12.2m x 2.44m x 3.0m)
 - TEMPORARY LAYDOWN
 - FIRE STOP WALL (36.2m X 0.4m x 10.0m)
 - ABERGELLI CORRIDOR
 - 6m SECURITY COLUMN
 - 4m HIGH WALL



Plot Date : 23 June 2020 11:37:33
File Name P:\PROJECTS\3421 SWANSEA NORTH\CAD\01-WORKING\01_01-DRAWINGS\PLANNING FIGURES\3421-DR-P-0001B-P9

Project Title SWANSEA NORTH ENERGY MANAGEMENT FACILITY	Drawing Title PLANNING DRAWING 003A PROPOSED SITE LAYOUT MAIN COMPOUND	Purpose of issue PLANNING	THIS DOCUMENT HAS BEEN PREPARED IN ACCORDANCE WITH THE SCOPE OF ARCUS' APPOINTMENT WITH ITS CLIENT AND IS SUBJECT TO THE TERMS OF THAT APPOINTMENT. ARCUS ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS CLIENT AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED	Arcus Consultancy Services 7th Floor 144 West George Street Glasgow, G2 2HG Tel: +44 (0)141 221 9997 Fax: +44 (0)141 221 5610 www.arcusconsulting.co.uk												
Client 	Arcus Internal Project No. 3421	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Designed</td> <td>Drawn</td> <td>Checked</td> <td>Approved</td> </tr> <tr> <td>-</td> <td>KB</td> <td>DB</td> <td>AM</td> </tr> </table>	Designed	Drawn	Checked	Approved	-	KB	DB	AM	Date 15/04/20	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Drawing Number</td> <td>Rev</td> </tr> <tr> <td>3421-DR-P-0001A</td> <td>8</td> </tr> </table>	Drawing Number	Rev	3421-DR-P-0001A	8
Designed	Drawn	Checked	Approved													
-	KB	DB	AM													
Drawing Number	Rev															
3421-DR-P-0001A	8															





- KEY:**
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 - ACCESS OPTION 2
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Project Title	SWANSEA NORTH ENERGY MANAGEMENT FACILITY
Client	Statkraft

Drawing Title	PLANNING DRAWING 003B PROPOSED SITE LAYOUT BLOCK PLAN
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Purpose of issue			
PLANNING			
Designed	Drawn	Checked	Approved
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Arcus Internal Project No. 3421		Date	
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