LDĀDESIGN

Castle Road Battery Energy Storage System (BESS)

Landscape and Visual Impact Assessment (LVIA)

21st February 2025

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Contents

Figures

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This document has been prepared and checked in accordance with ISO 9001:2015.

1.0 Introduction

1.1. Background

1. LDA Design Consulting Limited ('LDA Design') was commissioned by REWE 7 Ltd in July 2024 to carry out a Landscape and Visual Impact Assessment (LVIA) for a proposed Battery Energy Storage System (BESS) with a capacity of up to 440MW on the land north of Castle Road, Burton, Rhoose within the Vale of Glamorgan Council (VoGC) administrative area.

2. The LVIA defines the existing landscape and visual baseline environments; assesses their sensitivity to change; describes the key landscape and visual related aspects of the Proposed Development; describes the nature of the anticipated change upon both the landscape and visual environments; assesses the effects during construction; the period following completion prior to the maturing of mitigation planting (medium-term) and once the mitigation planting has established (long-term); as well as the decommissioning phase.

3. As part of our role, we inputted to the accompanying Landscape Plan (LDA Design dwg. 8919_100), the Landscape and Ecological Management Plan (LEMP) and Green Infrastructure Statement. As such, the LVIA was undertaken as an iterative process with the siting and layout informed by the findings and recommendations of the assessment.

4. This LVIA forms part of a suite of documents accompanying the planning application for this development proposal.

1.1.1. Competence

5. LDA Design has extensive experience in undertaking LVIAs for similar proposals. This LVIA was carried out by a Chartered Member of the Landscape

Institute (CMLI) and associates with extensive experience of undertaking LVIAs for similar proposals.

1.2. Report Structure

6. The structure of the LVIA is as follows:

- **Section 1.0** Introduction
- **Section 2.0** Methodology
- **Section 3.0** Planning Policy
- **Section 4.0** Baseline Study
- **Section 5.0** The Proposed Development
- **Section 6.0** Landscape and Visual Effects
- **Section 7.0** Summary

7. Supporting appendices have been prepared that supplement the sections regarding methodology, planning policy and baseline; and include the LVIA's supporting figures. The appendices are important to the assessment and should be read alongside this report. They are as follows:

- **Appendix 1.0** Glossary
- **Appendix 2.0** References
- **Appendix 3.0** Supporting Information to the Assessment Methodology
- **Appendix 4.0** Methodology for Zone of Theoretical Visibility (ZTV) Studies
- **Appendix 5.0** National Planning Policy
- **Appendix 6.0** Extracts from published Landscape Character Assessments
- **Appendix 7.0** Consultations with Vale of Glamorgan Council (VoGC) Officers regarding the scope of the LVIA and representative viewpoints
- **Appendix 8.0** Figures

(1) Figure 1, Site Location

(2) Figure 2, Access and Recreation

(3) Figure 3, Landscape Designations

(4) Figure 4, Landscape Character Areas

(5) Figure 5, Topography

(6) Figure 6.i-v LANDMAP Geological (i), Habitats (ii), Visual and Sensory (iii), Historic (iv) and Cultural Aspects (v)

(7) Figure 7, Zone of Theoretical Visibility (ZTV) and Viewpoint Locations

(8) Figure 8, Zone of Visual Influence (ZVI) and Visual Receptor Groups (VRG's)

(9) Figure 9.1 - 9.8, Representative Viewpoints 1–8

(10) Figure 10, Illustrative Viewpoint A

1.3. Site Context

8. **Figure 1** places the Site within its local context. The Site comprises 10.5ha of agricultural land between the B4265 highway to the north, Castle Road to the south and Fontygrary Road to the west. In the local context, Cardiff Airport is approximately 1.8km to the east, Aberthaw Cement Works 0.12km to the west, Aberthaw Power Station 1.5km to the south-west, and the existing West Hall Solar Farm (5.56MW) is approximately 1km to the west.

9. The Site is currently used for agricultural purposes and is accessed from existing field gates in the hedgerow boundary on Fontygary Road to the west, Castle Road to the south, and an unnamed track to the east. An existing public footpath (PRoW P4/5/1) crosses through the Site from the north-west to south-east.

10. No statutory landscape designations have been identified within the extent of the Site or the 3km study area. The Site falls within a non-statutory Special Landscape Area (SLA) as identified within the Adopted Vale of Glamorgan Local Development Plan (2017).

11. The Site comprises two agricultural fields – a large rectilinear arable field to the south and a smaller pastoral field to the north. The southern field is gently sloping with a high point towards the centre of the southern edge and contains a 132kV steel lattice pylon and overhead transmission lines. The southern field is bounded by a short-clipped hedgerow along the southern edge, with Castle Road just beyond, which bordered by an outgrown hedgerow and treebelt to the north of Aberthaw Quarry. To the north west of the southern field, a timber fence delineates the boundary with Burton Cottage, while a short, gappy hedgerow with occasional hedgerow trees gives way to a stock-proof fence

along the northern edge of the southern field. The eastern edge of the southern field is enclosed by a narrow bank with a mature unmanaged hedgerow beyond which lies the quarry road.

12. The northern field has a steeper northerly aspect and is bounded by stock-proof fencing on all sides with a mature hedgerow and woodland to the north-east beyond which lies the B4265. The western edge of the northern field is delineated by a mature hedgerow providing separation from Burton Cottage to the west. The north-west corner of the northern field is partly enclosed by a hedgerow and small area of woodland which provides separation from the B4265.

1.4. Consultation

13. LDA Design consulted with VoGC Council via an emailed letter with enclosures on 23/07/2024 and 20/08/2024 to agree the broad scope and approach of the LVIA and the selection representative viewpoints. No response was received from VoCG with regards to the LVIA consultation. Copies of the correspondence with the LPA and relevant stakeholders are submitted in **Appendix 7.0**.

14. Consultation with key stakeholders will be undertaken as a requirement of the planning process. The feedback received throughout this consultation will be considered in subsequent updates to this LVIA.

1.5. Study Area and Viewpoints

15. It is accepted practice for LVIAs that the extent of the study area for a development proposal is broadly defined by the Site's visual envelope and the

anticipated extent of visibility arising from the Proposed Development based upon the Zone of Theoretical Visibility ('ZTV') study.

16. For the purposes of this LVIA, a study area of 3km was proposed in the consultation letter to VoGC on 23/07/2024 and 20/08/2024. The 3km study area is considered appropriate to cover all the relevant landscape and visual impacts to inform the decision making process. Further detail on the ZTV study used to inform this LVIA is set out in **Section 4.3**.

17. The consultation letter to VoGC on 23/07/2024 and 20/08/2024 proposed 8 no. representative viewpoints to assess the effects on visual receptors. No response was received from VoGC regarding the consultation on the proposed locations for these representative viewpoints.

18. In addition 'illustrative viewpoints' may be identified to *"demonstrate a particular effect or specific issues, which might, for example, be the restricted visibility at certain locations"* (GLVIA, 3rd edition, para 6.19); and 'specific viewpoints' where there are key promoted viewpoints within the study area.

19. For the purpose of this LVIA, 1 no. illustrative viewpoint (A) has been identified to aid the description of particular effects or issues. No specific viewpoints have been identified within the study area for this LVIA.

2.0 Methodology

2.1. Overview

20. Paragraph 1.1 of the Guidelines for Landscape and Visual Impact Assessment (3rd Edition, LI and IEMA, 2013) ('GLVIA3') states:

"Landscape and Visual Impact Assessment is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and people's views and visual amenity."

21. Paragraphs 2.20 to 2.22 of the same guidance indicate that the two components (the assessment of landscape effects and the assessment of visual effects) are *"related but very different considerations".*

22. This section describes the methodology used for the LVIA, reflecting the approach and terminology used in the following published guidance and accepted good practice:

- Guidelines for Landscape and Visual Impact Assessment (3rd Ed, 2013) – Landscape Institute / Institute of Environmental Management and Assessment (GLVIA3).
- Draft Technical Guidance Note 05/23, Notes and Clarifications on aspects of the Guidelines on Landscape and Visual Impact Assessment (3rd Ed) – Landscape Institute.
- Technical Guidance Note 06/19, Visual Representation of development proposals (2019) – Landscape Institute.
- Technical Guidance Note 02/19, Residential Visual Amenity Assessment (RVAA) – Landscape Institute.

- Technical Information Note 05/17, Townscape Character Assessment (Rev April 2018) – Landscape Institute.
- Technical Guidance Notes 02-21: Assessing Landscape Value outside National Designations – Landscape Institute.
- NRW Guidance Note 017: Landscape Sensitivity Assessment guidance for Wales – Natural Resources Wales.
- NRW Guidance Note 46 Using LANDMAP in Landscape and Visual Impact Assessments.
- Designing for Renewables Energy in Wales (Nov 2023) prepared by the Design Commission for Wales.

23. **Appendix 3.0** Supporting Information to Assessment Methodology contains further information concerning the LVIA methodology; supplementing the information provided in this section.

24. **Appendix 4.0** Methodology for Zone of Theoretical Visibility Studies sets out the approach to the production of ZTV studies.

2.2. Assessment Terminology and Judgements

25. The key terms used within this assessment are:

- **Susceptibility and Value** – which contribute to the Sensitivity of the receptor;
- **Scale, Duration and Extent** – which contribute to the Magnitude of effect; and
- **Significance**.

26. These terms are described in more detail below and a full glossary of assessment terms is provided in **Appendix 1.0**.

2.2.1. Sensitivity of the Receptor

27. **Susceptibility** indicates the ability of a landscape or visual receptor to accommodate the type of development proposed *"without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies."* (GLVIA3, para. 5.40).

Table 1: Landscape Susceptibility

High	Changes to the baseline situation are likely to arise from the type of development proposed.
Medium	Changes to the baseline situation may arise from the type of development proposed.
Low	Changes to the baseline situation are unlikely to arise from the type of development proposed.

28. The susceptibility of landscape character areas is influenced by the ability of the overall character; quality/condition; elements and/or features; or particular aesthetic and perceptual aspects, to accommodate change. Reference is made to published landscape character assessments and/or sensitivity and capacity studies where relevant (where susceptibility can sometimes be documented as sensitivity).

29. The susceptibility of designated or defined landscapes is influenced by the nature of the natural beauty, special qualities and purposes of designation/definition and/or the valued elements, qualities or characteristics.

30. **Landscape Value** is *"the relative value that is attached to different landscapes by society"* (GLVIA3, page 157).

Table 2: Landscape Value

National/International	Designated landscapes which are nationally or internationally designated for their landscape value.
Local / District	Locally designated landscapes; areas which documentary evidence and/or site observation indicate as being more valued than the surrounding area.
Community	'Ordinary' landscape which is appreciated by the local community but has little or no wider recognition of its value.
Limited	Despoiled or degraded landscape with little or no evidence of being valued by the community.

31. **Landscape sensitivity** is assessed by combining the considerations of susceptibility and value described above.

Table 3: Landscape Sensitivity

Landscape Sensitivity		Susceptibility		
		High	**Medium**	**Low**
Value	**National/ International**	High	High-Medium	Medium
	Local/District	High-Medium	Medium	Medium-Low
	Community	Medium	Medium-Low	Low
	Limited	Low	Low-Negligible	Negligible

32. For visual receptors, susceptibility and value are closely linked - the most valued views are also likely to be those where viewer's expectations will be highest. Susceptibility of visual receptors is primarily a function of the expectations and occupation or activity of the receptors (GLVIA3, para 6.32). The value attributed relates to the value of the view, e.g. a National Trail is nationally valued for access, not necessarily for the available views. Consequently, separate criteria for susceptibility and value are not provided and instead typical examples of visual receptor sensitivity are indicated in **Table 4** below. These typical examples may be varied based on specific factors relevant to the type of development proposed or the Site and its context.

Table 4: Visual Receptor Sensitivity

Visual Receptor Sensitivity		Susceptibility		
		High	**Medium**	**Low**
Value	**National/ International**	High (1)	High-Medium (4)	Medium (8)
	Local/District	High-Medium (2)	High-Medium (5)	Medium (8)
	Community	High-Medium (3)	Medium (6)	Medium-Low (9)
	Limited	Medium	Medium-Low (7)	Low (10)

Typical Examples:

(1) Visitors to valued viewpoints or routes, which people might visit purely to experience the view, e.g. promoted or well-known viewpoints, routes from which views that form part of the special

qualities of a designated landscape can be well appreciated; key designed views; panoramic viewpoints marked on maps.

(2) People in locations where they are likely to pause to appreciate the view, such as from local waypoints such as benches; or at key views to/from local landmarks. Visitors to local attractions, heritage assets or public parks where views are an important contributor to the experience, or key views into/out of Conservation Areas.

(3) People in the streets around their home, or using public rights of way, navigable waterways or accessible open space (public parks, open access land).

(4) Users of promoted scenic rail routes.

(5) Users of promoted scenic local road routes.

(6) Users of cycle routes, local roads and railways.

(7) Outdoor workers.

(8) Users of A-roads which are nationally or locally promoted scenic routes.

(9) Users of sports facilities such as cricket grounds and golf courses.

(10) Users of Motorways and A-roads; shoppers at retail parks, people at their (indoor) places of work.

2.2.2. Magnitude of Effect

33. The magnitude of effect is informed by combining the scale, duration and extent of an effect. The criteria for the assessment of magnitude are set out below.

34. **Scale** of effect is assessed for all landscape and visual receptors and identifies the degree of change which would arise from the development.

Table 5: Scale

Large	Total or major alteration to key elements, features, qualities or characteristics, such that post development the baseline will be fundamentally changed.
Medium	Partial alteration to key elements, features, qualities or characteristics, such that post development the baseline will be noticeably changed.
Small	Minor alteration to key elements, features, qualities or characteristics, such that post development the baseline will be largely unchanged despite discernible differences.
Negligible	Very minor alteration to key elements, features, qualities or characteristics, such that post development the baseline will be fundamentally unchanged with barely perceptible differences.

35. **Duration** of effect is assessed for all landscape and visual receptors and identifies the time period over which the change to the receptor as a result of the development would arise.

Table 6: Duration

Long-term	The change is expected to be in place for more than 25 years.
Medium to Long-term	The change is expected to be in place for 10 – 25 years.
Medium-term	The change is expected to be in place for 5 – 10 years.
Short-term	The change is expected to be in place for 0 – 5 years.

36. Effects arising from most types of development and associated infrastructure and mitigation would typically be Long-term and reversible following the decommissioning stage.

37. Medium or Short-term effects may be identified where mitigation planting is proposed, or local factors will result in a reduced duration of effect where, for example, new woodland planting would screen views of the Proposed Development once fully established.

38. The effects arising from the construction of the Proposed Development will usually be Short-term, unless a longer duration construction period is anticipated.

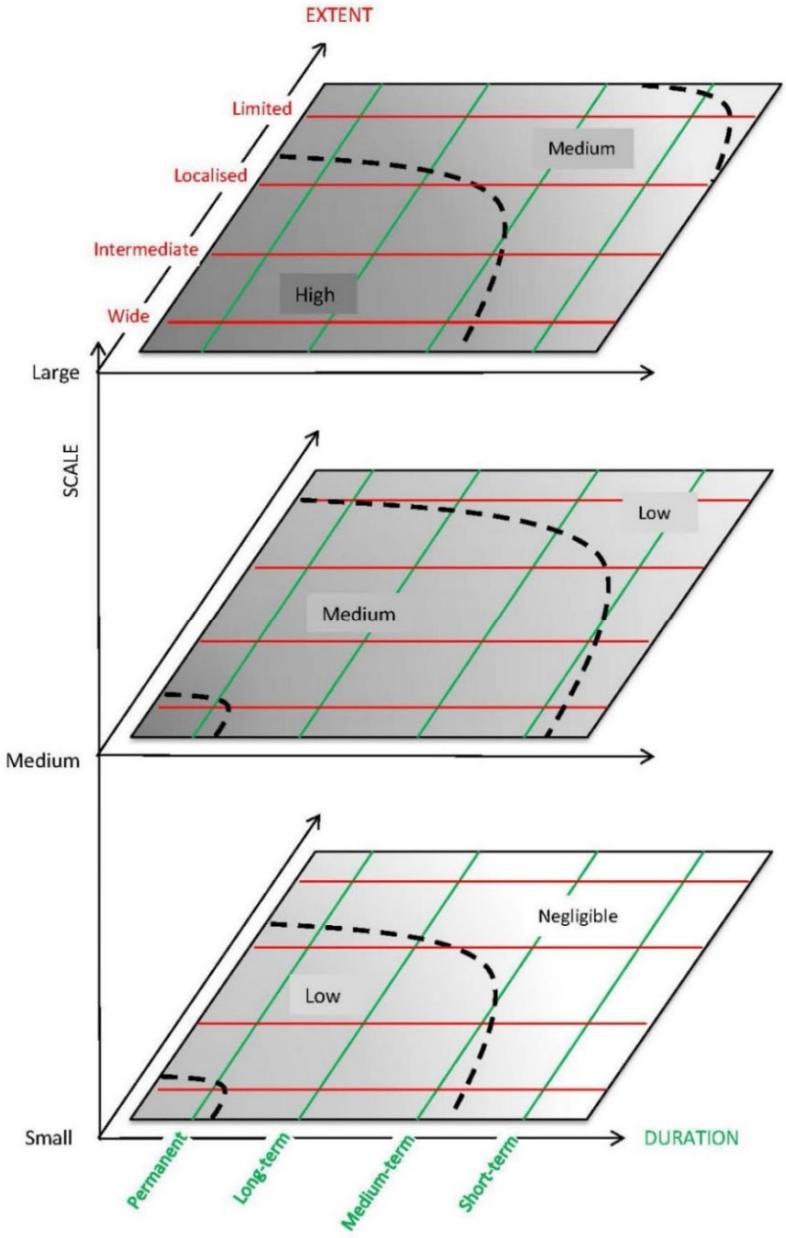
39. **Extent** of effects is assessed for all receptors and indicates the geographic area over which the effects will be felt.

Table 7: Extent

Wide	More than half of a receptor area; linear route as it passes through the study area; or of the field of view from a specific viewpoint.
Intermediate	Up to approximately half of a receptor area; linear route as it passes through the study area; or of the field of view from a specific viewpoint.
Localised	Up to approximately a quarter of a receptor area; linear route as it passes through the study area; or of the field of view from a specific viewpoint.
Limited	Site, or part of Site, or up to approximately a tenth of a receptor area; linear route as it passes through the study area; or of the field of view from a specific viewpoint.

40. The Magnitude of effect is informed by combining the scale, duration and extent of effect. **Diagram 1** below illustrates the judgement process:

Diagram 1: Magnitude of Effect



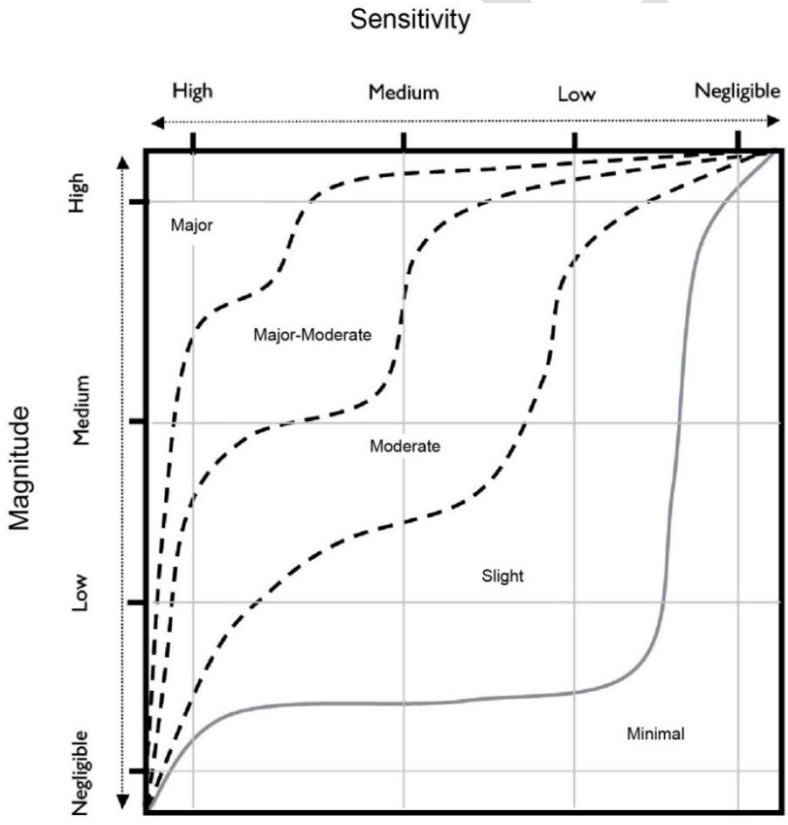
41. As can be seen from the illustration above, scale (shown as the layers of the diagram) is the primary factor in determining magnitude; most of each layer indicates that magnitude will typically be judged to be the same as scale but may be higher if the effect is particularly widespread and long lasting, or lower if it is constrained in geographic extent or timescale. Where the scale of effect

is judged to be Negligible the magnitude is also assumed to be Negligible, and no further judgement is required.

2.2.3. Significance

42. Significance indicates the importance or gravity of the effect. The process of forming a judgement as to the degree of significance of the effect is based upon the assessments of magnitude of effects and sensitivity of the receptor to come to a professional judgement of how important this effect is. This judgement is illustrated by **Diagram 2** below:

Diagram 2: Significance



43. The significance ratings indicate a 'sliding scale' of the relative importance of the effect, with Major being the most important and Minimal being the least. Effects that are Major or Major-Moderate are considered *"likely to influence*

the eventual decision", whilst those that are Moderate or below are *"of lesser concern"* (GLVIA3, para 3.35).

44. Where intermediate ratings are given, e.g. "Moderate-Slight", this indicates an effect that is both less than Moderate and more than Slight, rather than one which varies across the range. In such cases, the higher rating will always be given first; this does not mean that the impact is closer to that higher rating but is done to facilitate the identification of the more significant effects within tables. Intermediate judgements may also be used for judgements of Magnitude.

2.2.4. Beneficial / Neutral / Adverse

45. Effects are defined as Beneficial, Neutral or Adverse. Neutral effects are those which overall are neither Adverse nor Beneficial but may incorporate a combination of both.

46. The decision regarding the significance of effect and the decision regarding whether an effect is beneficial or adverse are entirely separate. For example, a rating of Major and Beneficial would indicate an effect that was of great significance and on balance positive, but not necessarily that the proposals would be extremely beneficial.

47. Whether an effect is Beneficial, Neutral or Adverse is identified based on professional judgement. GLVIA 3rd edition indicates at paragraph 2.15 that this is a *"particularly challenging"* aspect of assessment, particularly in the context of a changing landscape.

2.3. Residential Visual Amenity Assessment

48. The Landscape Institute's Technical Guidance Note 02/19 (TGN 02/19) (para. 1.2) defines Residential Visual Amenity as: *"the overall quality, experience and nature of views and outlook available to occupants of residential properties, including views from gardens and domestic curtilage."*

49. Residential Visual Amenity Assessment (RVAA) is a separate assessment to LVIA, as stated within GLVIA3 para. 6.17, and focuses solely on private views and visual amenity. It requires assessors to determine whether the effects of the Proposed Development reach the 'Residential Visual Amenity Threshold', described as the point at which a Proposed Development would be of *"…such nature and/or magnitude that it potentially affects 'living conditions' or Residential Amenity"* (TGN 02/19, para. 2.1).

50. The guidance note further indicates that:

"It is not uncommon for significant adverse effects on views and visual amenity to be experienced by people at their place of residence as a result of introducing a new development into the landscape. In itself this does not necessarily cause particular planning concern. However, there are situations where the effect on the outlook / visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before."

51. This LVIA does not include a separate RVAA. It is considered that the effects resulting from the Proposed Development would fall below the Residential Visual Amenity Threshold referred to in LI TGN 02/19.

2.4. Night-time Assessment

52. Night-time assessment assesses the potential landscape and visual effects arising from lighting during the construction and operation of a Proposed Development. Lower level light periods, when lighting may be required, have the potential to arise in the early morning, dusk and evening, as well as at night.

53. Night-time assessment of lighting on landscape and visual receptors is an emerging area, and there is no specific guidance on which to base the assessment. However, where a night-time assessment is required, night-time effects are assessed for the same receptors as identified for the main LVIA, with details of the methodology followed provided as part of the assessment.

54. For this LVIA, the Site is located in close proximity to the B4265 highway to the north, Aberthaw Quarry to south, the Cement Works and Power Station to the west, which provides existing artificial light sources in the immediate context. The Proposed Development would include inward and downward facing motion-detection lighting with directional cowls surrounding the proposed BESS and high voltage substation compounds within southern field.

55. It is anticipated that any additional lighting produced, and subsequently experienced by potential receptors, would not be dissimilar to the amount of lighting presently experienced within the Site's general vicinity. Overall, it is judged the any potential night-time effects to landscape character and visual amenity would be temporal in nature as motion detection lighting and not significantly exceed existing illumination levels in the baseline condition. The night-time impacts through artificial lighting are therefore not further considered within this LVIA.

2.5. Distances

56. Where distances are given in the assessment, these are approximate distances between the nearest part of the Site and the nearest part of the receptor in question, unless explicitly stated otherwise.

2.6. Assumptions and Limitations

2.6.1. Desk-study

57. The baseline conditions of the Site and its surrounding landscape are described in the subsequent sections. They have been informed by a desk-based study that has reviewed known and published policy and guidance documents available at the time of this assessment (Feb 2025).

58. The desk-based study was informed by a ZTV study modelled on the Proposed Development's maximum height and extent of buildings. This ZTV took into account the screening effect of existing intervening vegetation and built development - recorded in the digital surface datasets available at the time of assessment - in the Site's surrounding landscape.

59. Further details of the ZTV used to inform the LVIA are provided in **Section 4.3**.

2.6.2. Fieldwork

60. Fieldwork was undertaken in November 2024, with viewpoint photography captured at the same time. The viewpoint photography captures the 'winter' conditions of the landscape without full leaf coverage, when there would be the greatest degree of visibility .

61. Consideration has also been given to 'summer' conditions when vegetation would be in-leaf, and a greater degree of screening would likely occur. Where

relevant to this assessment, this has been considered and set out in this report and its supporting figures.

2.6.3. Visualisations

62. Photomontages will be provided in support of the planning application for submission as further changes are likely to arise through the consultation stage. The intention is to provide up to 4 no. wireline visualisations from 2 no. viewpoints to illustrate the effects of the proposed BESS and high voltage substation compounds including the proposed landscape mitigation measures at year 1 post construction and year 15 of operation. The visualisations would be produced in accordance with the Landscape Institute's Technical Guidance Note 06/19, *Visual Representation of Development Proposals* Type 3 standards.

2.7. Consideration of Climate Change

63. The landscape is sensitive to gradual changes in climate and to more abrupt changes caused by extreme weather events. This could affect the resilience of existing landscape / habitat features within the Site, in particular tree health which may be impacted by water stress, temperature change, pathogens and viruses.

64. While climate change has the potential to alter the landscape in the longer term, overall, it is considered that such changes would not influence the baseline landscape to such a degree that it would alter the judgements made in the LVIA. The design of the Landscape Plan (LDA Design dwg. 8919_100), the Landscape and Ecological Management Plan (LEMP) and Green

Infrastructure Statement has further considered the resilience of the Proposed Development to climate change impacts.

3.0 Planning Policy

3.1. National Planning Policy

65. Relevant national planning policies from Future Wales: The National Plan 2040 and Planning Policy Wales (PPW, Edition 12, Feb 2024) are summarised in **Appendix 5.0**.

3.2. Local Planning Policy

66. The Site is not located within a statutory protected landscape such as a National Park or National Landscape (AONB). The Site is located within a non-statutory Special Landscape Area (SLA) known as Nant Llancarfan which extends to the north-east. The Upper and Lower Thaw Valley SLA is also located to the north-west. Whilst the Site is located within a local plan SLA, it is separated from the wider geographical area of the SLA by the B4265 highway to the north. The Proposed Development has been sited within the southern field in the visual context of the Aberthaw Cement Works and Power Station to the west.

67. Polices concerning heritage, ecology, public rights of way and/or green infrastructure are referred to only where they are relevant to the understanding of landscape and visual context; and/or they have informed the iterative design process and response.

Vale of Glamorgan Local Development Plan 2011-2026

68. The Vale of Glamorgan Local Development Plan 2011-2026 (Adopted June 2017) provides the following planning policies of relevance to the LVIA:

69. **Policy SP10, Built and Natural Environment** (page 52) states that:

"Development proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including:

1. The architectural and / or historic qualities of buildings or conservation areas, including locally listed buildings;

2. Historic landscapes, parks and gardens;

3. Special landscape areas;

4. The Glamorgan Heritage Coast;

5. Sites designated for their local, national and European nature conservation importance; and

6. Important archaeological and geological features."

70. Explanatory text within paragraph 5.97 of the policy states that *"Policy SP10 emphasises the need to protect the Vale of Glamorgan's natural and built environmental assets and reinforces that sensitive design and choice of location of new development can have a positive effect on the Vale of Glamorgan's built and natural heritage. Similarly, new development will be required to minimise its impact on natural systems, landscapes, species and habitats and, where appropriate, provide opportunities for the creation of new habitats or the sensitive enhancement of existing habitats."*

71. **Policy MG17, Special Landscape Areas** (page 84) states that:

"The following areas are designated as special landscape areas:

1. Castle Upon Alun

2. Upper & Lower Thaw Valley

3. Ely Valley & ridge slopes

4. Nant Llancarfan

5. Dyffryn basin & ridge slopes

6. Cwrt-yr-Ala basin

Within the special landscape areas identified above, development proposals will be permitted where it is demonstrated they would cause no unacceptable harm to the important landscape character of the area."

72. Explanatory text within paragraph 6.119 notes that *"the designation of SLAs is not intended to prevent development but to ensure that where development is acceptable careful consideration is given to the design elements of the proposal such as the siting, orientation, layout and landscaping, to ensure that the special qualities and characteristics for which the SLAs have been designated are protected."*

73. Paragraph 6.120 goes on to note that *"development proposals within SLAs will be required to fully consider the impact of the proposal on the SLA through the submission of a Landscape and Visual Impact Assessment (LVIA). A LVIA will be required for any development that is likely to have a significant impact upon landscape character, or have a significant visual effect within the wider landscape (by virtue of its size or prominence or degree of impact on the locality) and will be prepared in accordance with the latest Landscape Institute and the Institute of Environmental Management and Assessment guidelines. Where applicable, this should form a key element of a planning application's design and access statement and should demonstrate that the proposal has been designed to remove or reduce any unacceptable impacts on the qualities*

for which the SLA has been designated. Any cumulative impacts that the proposal may have in relation to existing or planned proposals in the locality should also be considered. This is particularly the case for wind turbines or large structures and large-scale proposals such as solar farms. The level of detail required in each landscape impact assessment should be commensurate with the scale of the proposal."

74. **Policy MD1, Location of New Development** (page 99) provides guidance on development sites which are not allocated in the Local Plan, stating that:

"New development on unallocated sites should:

1. Have no unacceptable impact on the countryside;

2. Reinforce the role and function of the key settlement of Barry, the service centre settlements, primary settlements or minor rural settlements as key providers of commercial, community and healthcare facilities;

3. Where appropriate promote new enterprises, tourism, leisure and community facilities in the Vale of Glamorgan;

4. In the case of residential development, support the delivery of affordable housing in areas of identified need;

5. Have access to or promote the use of sustainable modes of transport;

6. Benefit from existing infrastructure provision or where necessary make provision for new infrastructure without any unacceptable effect on the natural or built environment;

7. Where possible promote sustainable construction and make beneficial use of previously developed land and buildings;

8. Provide a positive context for the management of the water environment by avoiding areas of flood risk in accordance with the sequential approach set out in national policy and safeguard water resources; and

9. Have no unacceptable impact on the best and most versatile agricultural land."

75. **Policy MD2, Design of New Development** (page 100) provides guidance on design stating that:

"In order to create high quality, healthy, sustainable and locally distinct places development proposals should:

1. Be of a high standard of design that positively contributes to the context and character of the surrounding natural and built environment and protects existing features of townscape or landscape interest;

2. Respond appropriately to the local context and character of neighbouring buildings and uses in terms of use, type, form, scale, mix, and density;

3. Where appropriate, provide new or enhanced areas of public realm particularly in key locations such as town centres, major routes and junctions;

4. Promote the creation of healthy and active environments and reduce the opportunity for crime and anti-social behaviour. In the case of retail centres, developments should provide active street frontages to create attractive and safe urban environments;

5. Provide a safe and accessible environment for all users, giving priority to pedestrians, cyclists and public transport users;

6. Have no unacceptable impact on highway safety nor cause or exacerbate existing traffic congestion to an unacceptable degree;

7. Where appropriate, conserve and enhance the quality of, and access to, existing open spaces and community facilities;

8. Safeguard existing public and residential amenity, particularly with regard to privacy, overlooking, security, noise and disturbance;

9. Provide public open space, private amenity space and car parking in accordance with the council's standards;

10. Incorporate sensitive landscaping, including the retention and enhancement where appropriate of existing landscape features and biodiversity interests;

11. Provide adequate facilities and space for the collection, composting and recycling of waste materials and explore opportunities to incorporate re-used or recyclable materials or products into new buildings or structures; and

12. Mitigate the causes of climate change by minimising carbon and other greenhouse gas emissions associated with their design, construction, use and eventual demolition, and include features that provide effective adaptation to, and resilience against, the current and predicted future effects of climate change."

3.3. Local Guidance

76. In addition to the policy documents identified above, there are several local guidance documents, which form part of the documented baseline. They are reviewed in **Section 4.2 Local Guidance**, with accompanying commentary on the implications for the development siting and design and the assessment methodology, as appropriate.

77. There are also a number of studies that document the existing landscape character within the extent of the study. Relevant baseline studies are considered in **Section 4.4 Landscape Character**.

4.0 Baseline Study

4.1. Introduction

78. An overview of the baseline study is provided in this section, presenting a review of the key local guidance documents and all of the landscape and visual receptors identified within the extent of the study area.

79. This section has undertaken an initial assessment of all the identified receptors and sets out which receptors merit further detailed consideration in **Section 6.0 Landscape and Visual Effects**; and which receptors are not taken forward for further assessment, as effects *"have been judged unlikely to occur or so insignificant that it is not essential to consider them further"* (GLVIA3, para. 3.19).

80. Both this baseline study section and **Section 6.0** describe landscape character and visual receptors before considering designated landscapes. It is common for designations to encompass both character and visual considerations within their special qualities or purposes of designation. It therefore makes a more natural reading sequence to draw together those aspects of character and views which relate to the designation if they have been described earlier in the report.

4.2. Local Guidance

81. The following VoGC Supplementary Planning Guidance (SPG's) documents of relevance to this LVIA includes:

- Design in the Landscape (1996 – 2011)
- Landscapes Working for the Vale of Glamorgan

- Trees, Woodlands, Hedgerows and Development SPG (July 2018/Updated January 2025)

4.2.1. Vale of Glamorgan Design in the Landscape SPG

82. This guidance sets out the key issues which should be considered when designing, to ensure that any new development is integrated to the landscape. This SPG was written in 2006 as part of the Vale of Glamorgan's Unitary Development Plan (1996-2011).

83. The relevant design principles in Section DG5 – Mitigation of Large Scale Visual Detractors includes:

- *"Retain site features such as watercourses, woodland, mature trees and hedgerows and ensure they form the basis for landscape infrastructure.*
- *Locate buildings and infrastructure in the location with the least visual, ecological and archaeological impact.*
- *Consider the impact of related infrastructure [e.g. pylons] and minimise its impact.*
- *Orientate building to ensure servicing is hidden from the most sensitive and viewed locations.*
- *Colour building matt neutral light grey or buff to minimise their reflectiveness.*
- *Ensure landform and planting screening is of sufficient scale and quality to be effective with sufficient land purchased to provide mitigation for landscape and ecological impacts.*
- *Screening landform and planting should reflect the pattern of the surrounding landscape where possible.*

- *Carry out ecologically sensitive planting on adjacent land where possible to strengthen the surrounding landscape infrastructure e,g. woodland, hedgerows and trees.*
- *Use native species planting with appropriate nurse and quick effect species to be removed over time.*
- *The continuity of all new planting associated with developments should be ensured."*

84. The relevant design principles in Section DG8 – Industrial and Commercial Sites includes:

- *"Retain site features such as woodlands, hedgerows, mature trees, watercourses and distinctive historical remains. Where possible use these as a basis for landscape infrastructure and distinctive design for site.*
- *Locate buildings and infrastructure in location with the least visual, ecological and archaeological impact.*
- *Orientate buildings to ensure servicing is hidden from most sensitive and viewed locations.*
- *Colour co-ordinate buildings to complement each other and location – e.g. matt neutral light grey and buff.*
- *Establish substantial woodland screen buffers and ensure their continuity, 10 - 30m wide using the local landform to increase their effectiveness especially where there are sensitive views in. Consider the use of Tree Preservation Orders in maintaining planted stock. Elsewhere gaps in high planting can allow views to signs and building fascias.*

- *Maintain grain of the landscape with landscape infrastructure echoing adjacent landscape.*
- *Manage surface water on site with ponds, watercourses and swales to maximise water absorption on site and minimise run off to sewers."*

85. The relevant design principles outlined in Section DG16 – Woodlands and Hedgerows includes:

- *"Encouragement should be given to production and use of trees and shrubs of local provenance that are appropriate to the local ecology.*
- *Encourage the use of natural regeneration of mainly native species in the management of woods and hedges.*
- *Non-native species may be appropriate in exposed conditions, near settlements and developments. This includes Sycamore, Holm Oak, Horse Chestnut and Scots Pine.*
- *Encouragement should be given to development of small or medium scale new woodlands in situations such as where they serve as shelter or screen developments, on small brownfield sites, on old woodland sites or when they link isolated woodlands together.*
- *Efforts should be made to conserve certain hedges that may not be protected by the Hedgerow Regulations. This may include roadside hedges, visually significant or prominent hedges and recent planting.*

- *Hedges should be managed to be stock proof, visually interesting, and good for wildlife. This should involve the traditional management of hedge laying and coppicing.*
- *Develop new enclosure and planting patterns where these have been depleted or disrupted to reflect current requirements in relation to scale, screening, agricultural and forestry practise, recreational use etc. This is most likely to be appropriate on restored quarries, around the urban fringes, in the vicinity of large-scale development, where there has been considerable hedge and tree loss due to agriculture.*
- *New hedges and "gapping up" should reflect those local and adjacent hedges. This includes species mix, number of standard trees within the hedge, width and density, banks, walls, ditches and alignment.*
- *New hedgerow and woodland planting to link existing woodland and hedgerow networks should be encouraged.*
- *Planted features that contribute to landscape character should be conserved, such as limited areas of coniferous plantation, orchards, parkland and estate plantings, avenues, and unusual and exotic species.*
- *The contribution that prominent single trees make to the landscape should not be overlooked, including on skylines, corners in roads and prominent windpruned trees."*

86. The relevant design principles outlined in Section DG17 – Design and Management for Nature Conservation includes:

- *"Retain and enhance existing semi natural habitats.*
- *Create new habitats, including semi-natural grasslands, broadleaved woodlands, wetlands and ponds.*
- *Avoid fragmentation of habitats. Increase linkage of habitats through 'green corridors', linear habitat features etc.*
- *Provide "buffers" of less intensively managed land around key habitat features.*
- *Create new semi-natural grasslands through restoration and appropriate management. Where sowing is necessary, native wild flower mixes of local provenance and appropriate to the local ecology should be used.*
- *Avoid tree planting on grasslands and marshlands of interest. Create new woodlands of varied age-class and structure. Stock by natural regeneration or planting with native species of local provenance.*
- *Use new woodland plantings to link existing woodlands. Limit recreational access to selected areas.*
- *Create new ponds with gently sloping bank profiles and encourage colonisation by native flora and fauna e.g. great crested newts."*

4.2.2. VoGC Trees, Woodlands, Hedgerows and Development SPG

87. This guidance further considers existing trees and hedgerows within development proposals. Section 8.1.2 of the guidance states that:

"*Where the site survey identifies individual or groups of trees as well as hedgerows the Council shall expect the layout of new development to sensitively incorporate these features so that they provide additional visual amenity value to the development as well as opportunities for nature conservation. Additionally, where a neighbouring site contains existing natural*

features, the development should also consider how these can be linked to new "green features" in the proposed development."

VoGC Designation of Special Landscape Areas – Background Paper

88. This background paper provides further information on the designation of Special Landscape Areas (SLA). **Figure 3, Landscape Designations** shows the Site is located within the non-statutory Nant Llancarfan Special Landscape Area (SLA) which extends to the north east. The Upper and Lower Thaw Valley SLA is also located to the north-west. Whilst the Site is located within a local plan SLA, it is separated from the wider designation by the B4265 highway and is within the visual context of the Aberthaw Cement Works and Power Station to the west.

89. The background paper identifies the following primary landscape qualities and features of **Nant Llancarfan SLA 4** as follows:

"*The majority of the area is rolling lowland, dissected by the Nant Llancarfan valley. It is a steep sided, narrow lowland valley, which contains a tranquil and historic landscape of streams, semi-natural broadleaf woodlands, planted coniferous woodland and small farms. It has a strong, small scale, pastoral pattern and traditional settlement form including villages with Conservation Area designation. It is of high scenic quality with a strong sense of place. There is a diverse range of habitats of local and international importance, including lagoons of international value, 4 BAPs and Nant Whitton Woodlands SSSI. Agricultural improvement (grazing, drainage and chemicals) threatens neutral grasslands and rush pastures have suffered substantial and rapid decline. The ancient settlement of Llancarfan village stands within a Registered Landscape of Outstanding Historic Interest and contains a Conservation Area. It is evaluated as Outstanding as one of the best surviving and most complete typical parts of the Vale of Glamorgan within the setting*

of the large church within the nucleated village. A tranquil atmosphere prevails despite the main roads. The scattered rural/farm landscape is of outstanding value as being picturesque, for the preservation of historic communities and the richness of historic past."

90. Key policies and management issues for **Nant Llancarfan SLA 4** are to:

- *"Improve rural roads and restrict development to ensure rural detailing and character.*
- *Retain and enhance intrinsic character through woodland and hedgerow management and development restriction.*
- *Improve hedgerow cover and woodland blocks.*
- *Buffer stream and river corridors with low input farming and woodland using agri-environment schemes.*
- *Use LBAP to maintain, enlarge and expand unimproved meadows to the east."*

91. The background paper identifies the following primary landscape qualities and features of **Upper and Lower Thaw Valley SLA 2** as follows:

"*The valley to the south is a confined, sinuous lowland valley with steep wooded sides and hedgerowed field valley floor with streams and wet ditches contributing to biodiversity. The strong valley, semi-natural and planted broadleaf woodland, and juxtaposition with valley settlements is very attractive and one of the best examples of this landscape in the Vale.*

Woodland is fragmented in places and linkages should be created by pursuing the Forestry Commission's Woodland Grant Scheme and Native Woodland Plans."

92. Key policies and management issues for **Upper & Lower Thaw Valley SLA 2** are to:

- *"Maintain hedgerow and tree cover.*
- *Incorporate agri-environment schemes.*

- *Improve development to ensure rural detailing and character.*
- *Restrict development in widely visible areas and introduce blocks of broadleaf woodland to integrate settlement/Ford related development.*
- *Encourage woodland management for continuous cover and pursue Forestry Commission Woodland Grant Schemes and Native Woodland Plans."*

4.3. Zone of Theoretical Visibility Study

93. A Zone of Theoretical Visibility (ZTV) study was generated based on the design and has been used as a tool to inform the professional judgements made in this LVIA during the iterative masterplan process. The ZTV is shown on **Figure 7, Zone of Theoretical Visibility and Viewpoint Locations** and indicates areas of potential visibility within the study area. The analysis was carried out using a topographic model including settlements and woodlands (with heights derived from LiDAR terrain data with a $1m^2$ resolution) as visual barriers in order to provide a more realistic indication of potential visibility. The ZTV study was used to determine which landscape and visual receptors are likely to be affected and merit detailed consideration in the assessment of effects, and those which are unlikely to have visibility.

94. The Proposed Development is modelled on the maximum development parameters of 2.9m height for the battery containers and 12m height for the high voltage substation based on the following information:

- FONMON BESS DESIGN - 320-350MW SOLBANK 3.0 (DWG No. WIN_BES-08-DR-03-03-01)

95. The ZTV study was used to determine which landscape and visual receptors are likely to be affected in visual terms and merit detailed consideration in the assessment of effects, and those which are unlikely to have visibility.

96. It should be borne in mind that the ZTV represents a theoretical model of the potential visibility of the Proposed Development within the Site. In reality, landscape features and/or buildings found on the ground, but not accounted for within the LiDAR terrain data, are likely to combine to screen the Proposed Development to a greater degree. As a result, the extent of actual visibility experienced on the ground will be less than illustrated by the ZTV mapping.

4.3.1. ZTV and Zone of Visual Influence (ZVI)

97. The ZTV study shown on **Figure 7, Zone of Theoretical Visibility and Viewpoint Locations** indicates that the theoretical visibility of the Proposed Development extends across several areas within the study area:

- To the north, theoretical visibility extends across the higher grounds and gently undulating landform between the river Kenson valley, Llancadle and Llanbethery;
- To the east, theoretical visibility extends towards Fonmon, the incised valley of the Flwl-y-mwn stream within extensive woodland, the grounds of Fonmon Castle and fields to the west of Cardiff Airport;
- To the south, theoretical visibility is generally restricted to Aberthaw Quarry and the tip to the west of East Aberthaw; and
- To the west, theoretical visibility is restricted by treecover covering the Aberthaw Cement Works although covers the elevated fields to the east of St Athan.

98. The anticipated main area of visibility, hereafter referred to as the Zone of Visual Influence (ZVI) is described below and is shown on **Figure 8, Zone of Visual Influence (ZVI) and Visual Receptor Groups (VRG)**. Field surveys have confirmed that landform and treecover in the wider landscape would reduce the extent of visibility of the Proposed Development from that illustrated by the ZTV.

99. The anticipated main area of visibility, based on site observations, is annotated on the ZTV study as the Zone of Visual Influence (ZVI). Across the study area vegetation cover is much more extensive than indicated by the ZTV, field boundaries are typically formed from mature hedgerows with frequent hedgerow trees and there is extensive treecover occupying the narrow river valleys of the River Kenson to the north and Flwl-y-mwn stream to the east as well the boundaries of Aberthaw Quarry to the south and the Aberthaw Cement Works to the west.

100. The Proposed Development would be partially visible at closer proximity beyond intervening hedgerows and treecover from the B4265 highway to the north, the quarry haul road to the east, Castle Road to the south and Fontygary Road to the west. In more distant views, the Proposed Development would be partially visible beyond intervening treecover from more elevated fields between St Athan, Llancadle, Llanbydderi and Fonmon to the north, north-east and north-west of the Site. However, these more distant views would be glimpsed and heavily filtered by intervening vegetation and seen in the context of the existing industrial land uses of the Aberthaw Cement Works and Power Station.

101. Based on fieldwork observations, it is judged that effects on landscape or visual receptors outside the ZVI described above would experience Negligible change and are not assessed in further detail in this LVIA. This does not mean that there would be no potential visibility outside the ZVI indicated, but rather that any visibility beyond the ZVI would be minimal or at such a distance that visibility of the Proposed Development would not affect views.

4.4. Landscape Character

102. Paragraphs 5.13-5.15 of GLVIA3 indicates that landscape character studies at the national or regional level are best used to *"set the scene"* and understand the landscape context. It indicates that LPA or Natural Resources Wales LANDMAP assessments provide more detail and that these should be used to form the basis of the assessment of effects on landscape character – with (appropriately justified) adaptation, refinement and interpretation where required. The location of the Landscape Character Areas can be seen on **Figure 4, Landscape Character Areas** while the LANDMAP aspect areas can be seen on **Figures 6i–6v: LANDMAP Geological, Habitats, Visual and Sensory, Historic and Cultural aspects**.

103. Relevant assessments include:

- **Natural Resources Wales National Landscape Character Areas** (NLCA) (2014) provides a broad context at a national level, highlighting the distinctive features of the region. The Site is situated within NLCA 36, the Vale of Glamorgan which encompasses a large region from Pen-y-Bont to Barry along the south coast of Wales. Key characteristics of NLCA 36 represented within the Site and study area are described in **Section 4.4.1**.
- **Vale of Glamorgan Council Designation of Landscape Character Areas – Background Paper** (2008) describes the Landscape Character Areas

(LCA) within the authority area. This background paper is integral to the understanding of the LCAs affected by the Proposed Development within the ZVI. **Section 4.4.2** records information on the potentially affected LCAs within the baseline study and supports the detailed assessments on landscape character in **Section 6.2**. Comprehensive extracts for each LCT within the LVIA study area are available in **Appendix 6.0**.

- **Natural Resources Wales LANDMAP aspects** comprising five datasets of geographical areas known as geological, habitats, visual and sensory, historic and cultural aspects. For any given location, all five aspects are recorded and evaluated allowing for the inter-relationship between them to inform the assessments of landscape character. Relevant information is included in **Section 4.4.3.**
- Copies of relevant maps and character assessment descriptions of areas taken forward for assessment in **Section 6.2** are included in **Appendix 6.2**.

4.4.1. National Landscape Character Areas

104. The Site is located within **NLCA 36 Vale of Glamorgan** as identified in the NRW National Landscape Character Areas (2014). The NLCA is described as:

"A distinctive, gentle lowland landscape, largely comprising a rolling limestone plateau. Glacial till contributes to its undulating topography. A variety of rural land uses characterise the area, reinforced by thick hedgerows, frequent small woodlands and trees, which create a sense of enclosure and intimacy. This is despite the proximity to large towns such as greater Cardiff, Barry and Bridgend, and a number of large built features within the Vale…

…In the centre of the Vale, compact and historic settlements reinforce the area's distinctive sense of place, but with limited modern development…

…The registered landscape of Llancarfan is astoundingly beautiful as well as being a relatively unspoiled gem of historical evolution."

105. Key characteristics are:

- *"Small woodlands – mainly to the east. Few large woods.*
- *Mixed agricultural land uses - with predominantly rural character.*
- *Mixed field patterns and sizes - with hedgerows and hedgebanks, frequent hedgerow trees.*
- *Norman castles and medieval villages centred on churches.*
- *Predominantly still rural - with strong senses of enclosure by historic field boundaries.*
- *A number of large built developments – including Cardiff International Airport and Aberthaw Power Station. Some areas with traffic noise, e.g. in the M4 corridor.*
- *Commuter settlement - modern suburban* housing extending but *contrasting with historic settlement character."*

106. The NLCA's provide context to the assessment but given the scale and the presence of more detailed character areas at a local level, effects on this NLCA are not assessed in further detail.

4.4.2. Local Landscape Character

107. **The Vale of Glamorgan Designation of Landscape Character Areas Background Paper** (2008) is the primary landscape character assessment used to inform this LVIA. **Figure 4, Landscape Character Areas** illustrates the geographical location and extent of the VoGC LCA's within the study area. This assessment identifies 27 no. LCA's across the County, based upon the NRW LANDMAP aspects (Geological, Habitats, Visual and Sensory, Historic and Cultural) and provides a description for each area, in addition to management issues.

LCA 4 Thaw Estuary

108. The Site is located within LCA 4 Thaw Estuary, which encompasses the estuary and its convergence with the River Kenson extending from the location of the Site south towards the Bristol Channel. Viewpoints 1 and 2 (**Figure 9.1 and 9.2**) are located within LCA 4.

109. Relevant extracts from the overall description for LCA 4 includes:

"*Area of wave cut platform and estuarine deposits associated with the River Thaw which drains the central Vale landscape and is associated with the Thaw and Waycock lowland river systems. Characterised by the locally iconic features of Aberthaw Power Station and quarry.*"

110. Policies and management issues for LCA 4 includes:

- "*Ensure any extensions or developments to industrial areas respect landscape character and quality.*
- *Thaw estuary would benefit from reclamation of fringes such as river/other wet areas to improve visual quality and diversity.*"

111. Fieldwork has confirmed that the descriptions in this published document accurately reflect the landscape character of the Site and its context. The Aberthaw Quarry, Cement Works, Power Station and other industrial land uses influences the character of the locality.

Plate 1: Typical view from within LCA 4 Thaw Estuary

112. The Site is currently agricultural in character with the southern field used as arable farmland and the northern field used as pasture. The Site is located between the B4265 highway to the north, Aberthaw Quarry to the south, and the Aberthaw Cement Works to the west therefore is considered to be of Low Susceptibility to the Proposed Development. The Site and LCA is also located within the non-statutory Nant Llancarfan SLA, therefore is considered to be of Local / District Value. Considering susceptibility and value together, LCA 4 in the context of the Site is judged to be of **Medium-Low Sensitivity**.

LCA 8 Lias Plateau

113. LCA 8 Lias Plateau lies to the north west of the Site covering the higher ground between the Thaw Valley and St Athan. Viewpoint 7 (**Figure 9.7**) is located within LCA 8.

114. Relevant extracts from the overall description of LCA 8 includes:

"*The inland section of the west Vale plateau (see LCA 7) a broad, low dissected plateau which exhibits little visual, sensory or physical evidence of proximity to the coast. Rising up to some 90m AOD, it is bounded to the north by the Northern Vale Lias Slopes (LCA 2) and to the east by the Thaw Valley and the developed areas of St Athan and Llantwit Major.*"

115. Policies and management issues for LCA 8 are listed as:

- *"Longer management of the agricultural landscape features to retain the integrity of the area's character, introducing cover and interest.*

- *Management of historic landscape areas and woodlands."*

Plate 2: Typical view from within LCA 8 Lias Plateau

116. LCA 8 Lias Plateau is characterised by large scale arable fields with limited settlement or industrial influences and is considered to be of Medium Susceptibility to the Proposed Development. The LCA within the study area is also located within the Upper and Lower Thaw Valley SLA, therefore of Local/District Value. Considering susceptibility and value together, LCA 8 is judged to be of **Medium Sensitivity**.

LCA 19 Lower Thaw Valley

117. LCA 19 Lower Thaw Valley lies adjacent to the Site, to the north-west and broadly follows the river valley. Viewpoint 6 (**Figure 9.6**) is located within LCA 19.

118. Relevant extracts from the overall description of LCA 19 includes:

"*A relatively broad, steep sided valley running southwards from Cowbridge to Aberthaw (see LCA 4). The valley sides are formed by the exposed deposits of the dissected plateau, and the steeper slopes are often covered in woodland. The valley suffers from the presence of overhead power lines running northwards from Aberthaw Power Station.*"

119. Relevant policies and management issues are listed as:

- *"Management of field boundaries and ditches to retain the integrity of the agricultural landscape.*
- *Longer term management of valley side woodlands.*
- *Implications of any future developments at Aberthaw on the valley landscape."*

120. LCA 19 Lower Thaw Valley covers the lower river valleys, floodplain, dismantled railway and wooded sides with less industrial influences and is considered to be of Medium Susceptibility to the Proposed Development. LCA 19 within the study area is mostly within the Upper and Lower Thaw Valley SLA and of Local/District Value. Considering susceptibility and value together, LCA 19 is judged to be of **Medium Sensitivity**.

LCA 20 Lower Waycock Valley

121. The Site is located adjacent to LCA 20 Lower Waycock Valley which lies to the north and extends along the river valleys to Penmark to the west and Llancarfan to the north west. Viewpoint 3 (**Figure 9.3**) is located within LCA 20.

122. Relevant extracts from the overall description of LCA 20 includes:

"*Enclosed lowland valley, part of a wider valley system that runs into the adjacent Thaw valley. Characterised by extensive areas of woodland interspersed with scattered houses and farmsteads. It includes the settlement of Llancarfan, which with its hinterland is one of the best surviving and most complete examples of the historic landscape of the Vale as a whole, reflecting the Anglo-Norman influence on settlement patterns and land management.*"

123. Relevant policies and management issues are listed as:

- *"Longer term management of valley side woodlands.*
- *Impact of development upon settlement form and character."*

124. LCA 20 Lower Waycock Valley predominately covers the incised river valleys and wooded sides with less industrial and settlement influences and is considered to be of Medium Susceptibility. The majority of the LCA within the study area is within the non-statutory Nant Llancarfan SLA therefore of Local/District Value. Considering the susceptibility and value together, LCA 20 is judged to be of **Medium Sensitivity**.

LCA 22 Central Vale Ridges and Slopes

125. LCA 22 Central Vale Ridges and Slopes lies to the north of the Site covering the higher ground between Llancadle and Llanbydderi. Viewpoint 8 (**Figure 9.8**) is located within LCA 22.

126. Relevant extracts from the overall description of LCA 22 includes:

"*A large area of undulating hilly terrain that runs east west from Cowbridge, around the top of the Upper Waycock Valley towards the unitary authority boundary at Culverhouse Cross and including the Wenvoe area, and down to the confluence of the Thaw and Waycock at Llancadle. It forms an important ridgeline across the central Vale landscape, largely agricultural in land use. It affords long distance views across the wider Vale landscape.*"

127. Relevant policies and management issues are listed as:

- *"Retention of the integrity of the agricultural landscape character through management of its principal elements."*

Plate 3: Typical view from within LCA 22 Central Vale Ridges

128. LCA 22 Central Vale Ridges is characterised by large scale arable fields with limited settlement or industrial influences and is considered to be of Medium Susceptibility to the Proposed Development. The LCA within the study area is partly within the Nant Llancarfan and Upper & Lower Thaw Valley SLA's and of Local/District Value. Considering susceptibility and value together, LCA 22 is judged to be of **Medium Sensitivity**.

LCA 26 Rhoose–Porthkerry Hinterland

129. LCA 26 Rhoose – Porthkerry Hinterland lies to the east and south east of the Site comprising agricultural land surrounding the Rhoose and East Aberthaw settlements along the coastline. Viewpoint 4 (**Figure 9.4**) is located within LCA 26.

130. Relevant extracts from the overall description of LCA 26 includes:

"*A small area of coastal plateau between Aberthaw and Barry, bounded on the north by the Waycock Valley (LCA 20) and Cardiff International Airport (LCA 18) and on the south by the Fontygary – Porthkerry intertidal landscape zone*

(LCA 5). Generally an open landscape, excludes the settlements of Fontygary and Rhoose."

131. Relevant policies and management issues are listed as:

- *"Maintenance of agricultural landscape elements."*

132. LCA 26 Rhoose – Porthkerry Hinterland is heavily influenced by coastal settlement, East Aberthaw and Cardiff and considered to be Low Susceptibility to the Proposed Development. The LCA is not within a designated landscape and is of Community Value. Considering susceptibility and value together, LCA 26 Rhoose – Porthkerry Hinterland is judged to be of **Low Sensitivity**.

133. The other VoGC LCA's within the study area including LCA 3 Heritage Coast Intertidal Zone; LCA 5 Fontygary Bary – Porthkerry Intertidal Zone; LCA 7 Heritage Coast Hinterland; LCA 18 Cardiff International Airport; and LCA 27 St Athan sit outside the ZVI and are therefore excluded from this LVIA.

4.4.3. LANDMAP

134. The Natural Resources Wales LANDMAP database provides a consistent approach and baseline for landscape character assessment across Wales. LANDMAP comprises five datasets or geographical areas known as geological, habitats, visual and sensory, historic and cultural aspects. For any given location, all five aspects are recorded and evaluated allowing for the inter-relationship between them to inform the assessments of landscape character.

135. NRW Advice Note GN007a advises that *"evaluations can be used to contribute to an assessment of the relative value or importance attached to different landscapes, in Landscape and Visual Impact Assessments and when assessing landscape sensitivity."* The LANDMAP overall evaluations have informed

judgements of landscape value although they do not directly translate to landscape sensitivity within this LVIA.

136. A consistent methodology has been applied by NRW to assess and evaluate each aspect resulting in a structured and consistent set of LANDMAP survey records for the study area (**Figures 6-4.i to 6.4.v**). The following LANDMAP aspects and overall evaluations within **Table 8** below are of relevance. For all aspects other than Visual and Sensory, only the areas within the Site boundary are assessed. For the Visual and Sensory aspects, all areas within the ZVI are assessed.

Table 8: LANDMAP Aspects taken forward for assessment

ID / Name	Overall Evaluation / Justification
Geological Aspects *see Figure 6(i)*	
VLFGLGL962 Barry-Rhoose	**High** – *Area includes key inland exposures of Lower Jurassic, Blue Lias Formation with scientific and educational potential and therefore including possible candidate RIGS sites.*
Habitats Aspects *see Figure 6(ii)*	
VLFGLLH839 Aberthaw	**Moderate** – *The aspect area defines a largely modified landscape of agriculturally improved ground and urbanisation although remnant semi-natural and derelict brown field habitats provide localised interest.*
Visual and Sensory Aspects *see Figure 6(iii)*	
VLFGLVS641 Rhoose Hinterland (*covering Site*)	**Moderate** – *All criteria are moderate*.
VLFGLVS742	**Low** – *2 lows and 2 moderates = low because the area is essentially a major detractor.*

Aberthaw Quarry	
VLFGLVS453 Llancarfan and Waycock Valleys	**High** – *All criteria are high.*
VLFGLVS723 Cardiff Wales Airport	**Low** – *The area has two low evaluations, one high and one moderate. Because the area is essentially a degraded landscape with detractors the overall evaluation is low.*
VLFGLVS146 Central Vale Ridges and Slopes	**Moderate** – *All criteria are moderate leading to an overall moderate evaluation.*
VLFGLVS110 Lower Thaw valley sides	**High** – *3 highs and one moderate = high evaluation.*
VLFGLVS890 Heritage Coast Hinterland	**Outstanding** – *Two outstanding and two high mean the area is outstanding.*
VLFGLVS805 Lias Plateau	**Moderate** – *All moderate criteria = moderate evaluation.*
Historic Aspects *see Figure 6iv*	
VLFGLHL030 Porthkerry Rural	**Moderate** – *Although the Porthkerry Rural Area has been encroached upon by modern development, in the form of Aberthaw, Rhoose and Cardiff International Airport, a significant proportion of the regular fieldscape contained within the Aspect Area as shown on historic.*
Cultural Aspects *see Figure 6(v)*	
VLFGLCLS040 Rhoose Hinterland	**Moderate** – *Mosaic of: Moderate, High or outstanding, Low*

4.5. Visual Receptors

137. Visual receptors are *"the different groups of people who may experience views of the development"* (GLVIA, 3rd edition, para 6.3). In order to identify those

groups who may be significantly affected, the ZTV study, baseline desk study and site visits have been used.

138. The different types of groups assessed within this report encompass local residents; people using key longer distance routes such as roads, cycle ways, recreational routes and navigable waterways; people within accessible or recreational landscapes; people using PRoW; or people visiting key viewpoints. In assessing areas of settlement, PRoW and local roads, receptors are grouped into areas where effects might be expected to be broadly similar, or areas which share particular factors in common. Longer distance routes and specific viewpoints are not included within these groupings, to allow the sequential experience of travelling along the routes or the key elements that make up a specific view to be considered in a coherent way.

139. 8 no. representative viewpoints have been selected to assess the effects on visual receptors. There is also 1 no. illustrative viewpoint (A) to *"demonstrate a particular effect or specific issues, which might, for example, be the restricted visibility at certain locations"* (GLVIA, 3rd edition, para 6.19).

4.5.1. Visual Environment of Existing Site

140. The visual environment of the Site is influenced by the local characteristics including its position on northerly slope to the south of a small tract of woodland adjacent to the B4265 highway and Castle Roads. Outward views from within the northern and southern fields are permitted from the public footpath (PRoW P4/5/1) which extends from the north-west to the south-east of the Site. A small area of woodland to the west of the Site provides a degree of physical and visual separation between the Site and the properties along Fontygary Road. The Site is within the visual influence of existing industrial

land uses within the quarry to the south and Aberthaw Cement Works and Power Station to the west.

4.5.2. Visual Receptor Groups

141. Visual effects, other than those experienced from longer distance routes and specific viewpoints, are assessed for groups of visual receptors within close proximity of each other and that are judged to experience similar visual effects arising from the Proposed Development. These are referred to as Visual Receptor Groups (VRG's) and include motorists on local roads, users of rights of way and local residents or visitors to settlements considered to be of **High-Medium Sensitivity**.

142. **Table 9** below describes the visual receptor groups that are taken forward for detailed assessment in **Section 6.3.2**, as the ZTV and fieldwork indicates that there is the potential for views of the Proposed Development from within each of these VRG's.

143. It is judged that for the remaining VRG's, there would be very limited to no visibility of the Proposed Development such that effects would be Negligible at most, and these are not further assessed in detail.

Table 9: Visual Receptor Groups taken forward for assessment

Visual Receptor Group		Location / Description	Viewpoint Reference
(1)	Land in the immediate context of the Site	Receptors include users of public footpath P4/5/1 through the Site, and road users of the B4265 to the north, the quarry haul road to the east, Castle Road to the south, and Fontygary Road including properties to the west.	Viewpoint 1

(2)	Land to east of Site and west of Fonmon	Receptors include users of public footpath P4/4/1 within fields west of Fonmon, works within Aberthaw Quarry, and users of local roads.	Viewpoint 2
(3)	Land to north-east of Site between B4265 highway and Fonmon Castle	Receptors include visitors to Fonmon Castle (Registered Park & Garden), walkers using public footpath P4/6/2, motorists on the B4265 to north.	Viewpoint 3
(4)	Land to east of Site between Nurston, the Highwayman Inn and Cardiff Airport	Receptors include workers within the western area of Cardiff Airport, visitors to the Highwayman Inn, users of public footpaths P4/15/1 and P4/9/1.	Viewpoint 4
(5)	Land to north of Site between Llancadle and Llanbydderi	Receptors include residents in the villages of Llancadle and Llanbydderi, local road users which pass through the villages, users of public footpaths L5/15/1, L5/16/1, L5/13/2 and L5/11/1 within fields.	Viewpoint 5 Viewpoint 8
(6)	Land to west of Site and east of St Athan	Receptors include residents of the village of St Athan, walkers using public footpaths S/2/7/1 and S/2/10/1.	Viewpoint 6
(7)	Land to north-west of Site and north east of St Athan	Receptors include residents of the village of St Athan, users of St Athan Golf Club, walkers using public footpath S2/6/4.	Viewpoint 7
(8)	Land to south of Site at Aberthaw Quarry tip.	Receptors include quarry workers (not publicly accessible)	No public access

4.5.3. Roads and Rail

144. **Figure 2, Access and Recreation** shows the following key roads and rail routes in the study area and ZVI:

- The B4265 highway – 0.01 km north at its closest point; and
- Vale of Glamorgan Railway Line – 0.3km south west.

145. The B4265 highway is judged to be of **Medium-Low Sensitivity** (Low susceptibility and Community Value). The Vale of Glamorgan Railway Line is judged to be of **Medium Sensitivity** (Low Susceptibility and Local/District Value).

146. The ZVI (see **Figure 8**) indicates that there would be very restricted or no visibility from the Vale of Glamorgan Railway line and this receptor is not further assessed. The Proposed Development would be partially visible from limited sections of the B4265 highway on passing the Site to the north with a decreasing degree of visibility when travelling in the eastbound and westbound directions away from the Site's boundary.

4.5.4. Long Distance Walking Routes

147. **Figure 2, Access and Recreation** shows the following long distance walking routes in the study area and ZVI:

- Valeways Millennium Heritage Trail – 0.9km east and 1.9km north

148. Walkers using the Valeways Millennium Heritage Trail between Fontygary, Fonmon Castle, Penmark and Llanbydderi are considered to be of **High-Medium Sensitivity** (Medium Susceptibility and Local/District Value).

4.5.5. National, Regional and Local Cycles Routes

149. **Figure 2, Access and Recreation** shows that there is one National Cycle Route (NCR) and one Regional Cycle Route (RCR) in the study area and ZVI:

- National Cycle Route 88 – 1.5km north east
- Great Glamorgan Way RCR – 2.1km north east

150. Cyclists using NCR 88 and the Great Glamorgan Way RCR are considered to be of **Medium Sensitivity** (Medium Susceptibility and Community Value).

4.5.6. Accessible and Recreational Landscapes

151. **Figure 2, Access and Recreation Plan** shows that there is one accessible and recreational landscape within the study area and ZVI:

- Fonmon Castle Registered Historic Park and Garden – 0.4km, north east

152. Visitors to Fonmon Castle Registered Historic Park and Gardens are considered to be of **High Sensitivity** (High Susceptibility and National value). The ZVI indicates that there would be visibility within Fonmon Castle Registered Historic Park and Gardens. This area of overlaps with other publicly accessible routes within VRG 3.

4.6. Designated Landscapes

4.6.1. Special Landscape Areas

153. **Figure 3, Landscape Designations** identifies the following within the study area and ZVI:

- Nant Llancarfan SLA – covering Site and extending north-east
- Upper and Lower Thaw Valley SLA – 0.23km north-west

154. The Site is not located within a statutory protected landscape such as a National Park or National Landscape (AONB). The Site is located within the non-statutory Nant Llancarfan SLA which extends to the north east.

155. **Section 6.4** provides further details of the 'special qualities' for these non-statutory SLA's for further assessment. Viewpoints 1, 2, 3 and 5 (**Figures 9.1-9.3** and **9.5**) are located within or near the boundary of the Nant Llancarfan SLA. Viewpoints 6, 7 and 8 (**Figures 9.6** to **9.8**) are located in the Upper and Lower Thaw Valley SLA. In general terms, the SLA's in the context of the Site are influenced by industrial land uses and are considered to be of **Medium Sensitivity** (Medium Susceptibility and Local/District Value). A supporting assessment of the SLA's primary landscape qualities and features is set out in **Section 6.4**.

4.7. Receptors Taken Forward for Detailed Assessment

156. **Table 10** summarises the landscape character areas, visual receptors and landscape designations/definitions taken forward to detailed assessment in **Section 6.0** along with their sensitivity, as described in the preceding sections.

Table 10 Sensitivity of Landscape and Visual Receptors

Receptor	Sensitivity
Landscape Character Areas	
LCA 4 Thaw Estuary	**Medium-Low Sensitivity** (Low Susceptibility + Local/District Value)
LCA 8 Lias Plateau	**Medium Sensitivity** (Medium Susceptibility + Local/District Value)
LCA 19 Lower Thaw Valley	**Medium Sensitivity** (Medium Susceptibility + Local/District Value)

LCA 20 Lower Waycock Valley	**Medium Sensitivity** (Medium Susceptibility + Local/District Value)
LCA 22 Central Vale Ridges and Slopes	**Medium Sensitivity** (Medium Susceptibility + Local/District Value)
LCA 26 Rhoose – Porthkerry Hinterland	**Low Sensitivity** (Low Susceptibility + Community Value)
NRW LANDMAP Aspects	
Geological Aspect - VLFGLGL962 Barry-Rhoose	**Medium Sensitivity** (Medium Susceptibility + Local/District Value)
Habitats Aspect - VLFGLLH839 Aberthaw	**Medium-low Sensitivity** (Medium Susceptibility + Community Value)
Visual and Sensory Aspects - VLFGLVS641 Rhoose Hinterland, VLFGLVS742 Aberthaw Quarry, VLFGLVS453 Llancarfan and Waycock Valleys, VLFGLVS723 Cardiff Wales Airport, VLFGLVS146 Central Vale Ridges and Slopes, VLFGLVS110 Lower Thaw valley sides, VLFGLVS890 Heritage Coast Hinterland and VLFGLVS805 Lias Plateau	**Medium Sensitivity** (Medium Susceptibility + Local/District Value)
Historic Aspect - VLFGLHL030 Porthkerry Rural	**Medium-low Sensitivity** (Medium Susceptibility + Community Value)

Cultural Aspect – Cultural - VLFGLCLS040 Rhoose Hinterland	**Medium-low Sensitivity** (Medium Susceptibility + Community Value)
Visual Receptors	
B4265 highway	**Medium-Low Sensitivity** (Low Susceptibility + Community Value)
Vale of Glamorgan Railway Line	**Medium Sensitivity** (Low Susceptibility + Local/District Value)
Valeways Millennium Heritage Trail	**High-Medium Sensitivity** (Medium Susceptibility + Local/District Value)
National Cycle Route 88	**Medium Sensitivity** (Medium Susceptibility + Community Value)
Great Glamorgan Way Regional Cycle Route	**Medium Sensitivity** (Medium Susceptibility + Community Value)
Fonmon Castle Registered Historic Park and Garden	**High Sensitivity** (High Susceptibility + National Value)
Designated Landscapes	
Nant Llancarfan Special Landscape Area (SLA)	**Medium Sensitivity** (Medium Susceptibility + Local/District Value)
Upper and Lower Thaw Valley Special Landscape Area (SLA)	**Medium Sensitivity** (Medium Susceptibility + Local/District Value)

5.0 The Proposed Development

5.1. The Proposal

157. The Proposed Development will comprise the following:

(11) 168 single stack battery containers, associated inverter and transformer units;

(1) A substation compound housing a 33kV to 400kV transformer with associated harmonic filters, surge arrestor, disconnector, high level busbars, earth switch and cable sealing end;

(2) Three switchgear containers located within the substation area;

(3) Access track;

(4) Security fencing, CCTV and motion sensor lighting; and

(5) Embedded landscape and ecological mitigation.

The cable route to connect the Proposed Development to the National Grid would be provided through permitted development rights and is not part of this application.

5.2. Site Fabric

158. A number of landscape features, comprising parts of the Site's physical fabric, would be modified or removed, as follows:

- A small section of hedgerow removal at the existing field gate access of approximately 5 linear metres in the north-western corner of the Site would be removed to provide the access track;
- Removal of the arable land use within the southern field and replacement with the proposed BESS and high voltage substation compounds and cabling;

- Removal of the pastoral land use in the northern field and replacement with a new access track for construction and maintenance traffic; and
- Provision of landscape and visual mitigation measures including native broadleaf woodland, hedgerows, scrub mosaic, neutral grassland, ponds and marginal planting.

5.3. Design approach in respect of landscape and visual matters

159. Landscape and visual matters have been considered from the outset of the design. Following an initial design iteration, it was suggested that development would be unsuitable in the northern field, as the existing levels required significant ground engineering.

160. Following further investigations as part of the ground remodelling proposals, the siting of the BESS and high voltage substation was moved to the southern field, which is much flatter. The southern field is also more closely aligned with the quarry to the south and the Aberthaw Cement Works and Power Station to the west to limit the effects on the Nant Llancarfan SLA.

161. The Proposed Development comprises a number of embedded mitigation measures which have been informed by this LVIA and integrated into the landscape plan prepared by LDA Design and BSG Ecology (see dwg. 8919_100). The design strategy and embedded mitigation measures include:

- Locating the BESS and the high voltage substation compounds within the southern flatter part of the Site to reduce the requirement for ground engineering and landform remodelling;
- Positioning the proposed BESS and the high voltage substation compounds within the southern area of the Site at closer proximity to Castle Road within the visual context of the existing industrial land uses

within the Aberthaw Cement Works to the west and Aberthaw Quarry to the south;

- Retention of boundary hedgerows and woodland as far as possible to enhance visual screening particularly from the B4265 highway to the north, the quarry haul road to the east, Castle Road to the south, and Fontygary Road to the west;
- Provision of woodland to the west of the southern field to provide visual screening to residential properties located along Fontygary Road to the west;
- Reinstatement of the partly defunct hedgerow between the northern and southern field to enhance the perceived sense of separation and compartmentalisation;
- Retention and partial diversion of public right of way (PRoW P4/5/1) crossing diagonally through the Site from the north-west to south-east between Fontygary Road and Castle Road;
- Retention of boundary hedgerows and woodland as far as possible to enhance visual screening;
- Provision of new habitats including native broadleaf woodland, hedgerows, scrub mosaic, neutral grassland, ponds and marginal planting;
- Creation of new habitat corridors and 'ecotones' between the BESS and the high voltage substation compounds to consist of a gradation of native woodland, tree belts, open scrub mosaic, neutral grassland, ponds and marginal planting;
- Provision of treebelts and hedgerow reinforcements to provide additional visual screening along the B4265 to the north, the quarry haul road to the east, Castle Road to the south, and Fontygary Road to the west;
- Provision of scrub mosaic vegetation beneath the pylons and overhead lines within internal areas to replicate habitats and vegetation

communities within restored areas of the Aberthaw Quarry tip to the south to enhance biodiversity;

- Provision of hibernacula (log piles) at key locations within the Site to enhance biodiversity for birds, mammals, reptiles, etc;
- Provision of bird, bat and dormouse boxes at key locations within the existing hedgerows and woodlands;
- Allowance of a permissive footpath within the proposed scrub mosaic and neutral grassland area within the northern field to link into public footpath (PRoW P4/5/1) to enhance recreational value;
- Replacement and/or making good of the footpath stiles to the north-west and south-east of the Site along public footpath (PRoW P4/5/1); and
- Locating the cable route (to be delivered via permitted development rights) within a narrow trench within the highway verge to avoid the rooting areas of existing trees and hedgerows.

162. This LVIA has been undertaken as part of iterative design and assessment process to ensure the Proposed Development has been guided by local character and distinctiveness as far as possible. Further detailed regarding the design strategy and detail of the embedded mitigation is provided within the accompanying Landscape and Ecological Management Plan (LEMP) and Green Infrastructure Strategy.

6.0 Landscape and Visual Effects

6.1. Introduction

163. This section sets out the effects that the Proposed Development would have on both landscape and visual receptors.

6.1.1. Construction Phase

164. The total anticipated construction period will be approximately 12 months. No demolition works would be required at the Site in advance of construction activities taking place; however alteration to the access will be required. It is not anticipated that any of the construction works will require road closures, though temporary measures would be introduced as required for the construction period. PRoW P4/5/1 is proposed to be permanently diverted around the edge of the southern field where it would join Castle Road. All necessary consents will be obtained for this diversion.

165. Potential impacts during the construction phase might include the visual effect of construction vehicles and traffic, moving in the Site and in its surrounding areas; alongside other components typical of construction activities, including workers' accommodation, stockpiles of materials, lighting of specific areas, such as construction compounds; and the gradual modification of landscape character as part of a phased programme of works.

166. Effects during construction would be temporary and Short-term and would be of notably lower magnitude than those on completion, although more likely to be perceived as adverse. Therefore, construction stage effects are not assessed in detail as they would not present the worst-case effects for receptors.

6.1.2. Operational Phase

167. The Proposed Development includes a Landscape Plan (LDA Design dwg. 8919_100) and LEMP which shows retained and enhanced planting within the Site along with new green infrastructure. The maturity of the proposed planting would generally be beneficial in the longer-term – helping integrate the development into the landscape and providing additional screening – and it is assumed that all existing and proposed landscape features within the Site will be subject to appropriate management such that the amenity and/or screening benefits of the vegetation is maintained in perpetuity.

168. Medium-term effects are therefore assessed during the period following completion, when construction is complete but before the proposed planting has fully established, when the scale of effects are likely to be at their greatest. Long-term effects are assessed once the vegetation has established.

6.2. Effects on Landscape Character

169. **Section 4.4 Landscape Character** sets out the LVIA's initial assessment of all the LCAs and LANDMAP aspects identified within the LVIA's study area; with those identified as meriting further detailed consideration assessed in this section.

170. The sensitivity for the relevant LCA's and LANDMAP is set out in **Table 10 Sensitivity of Landscape and Visual Receptors**, in **Section 4.7**.

171. The principal effects on the landscape character would occur within the Site, while the indirect effects would be contained within the extent of the ZVI, as depicted in **Figure 8**. In general, the scale of effect on landscape character would vary from Large within the Site itself to Negligible in the outer regions of the ZVI, as outlined below:

- Large-scale effects would occur within the Site and its immediate context where there would be a visible change from two medium-sized agricultural fields to a proposed BESS and high voltage substation compounds, associated infrastructure and landscaping.
- Medium scale effects would occur in the surrounding landscape (beyond the Site's immediate context and within the ZVI) along the B4265 highway to the north, the quarry haul road to the east, Castle Road to the south, and Fontygary Road near Burton to the west. Here, a degree of intervisibility would influence landscape character.
- Beyond the Site and it's immediate context (as described above) visibility of the Proposed Development would have a limited impact on landscape character. Where visibility is possible, it has been assessed that the Proposed Development would not significantly affect any of the surrounding LCA's key visual characteristics, as the area is partly characterised by existing industrial land uses within the Aberthaw Cement Works and quarry. As such, the intrinsic and prevailing characteristics of the surrounding LCAs would remain. The scale of effects would be Small-Negligible at most within the outlying areas of the ZVI and the wider landscape.

172. The assessment of effects on landscape character considers the Long-Term residual impacts arising from the Proposed Development on the relevant LCA's below once the embedded mitigation has fully established. **Section 4.4.2 Local Landscape Character** above records the key characteristics of relevant LCA's.

LCA 4 Thaw Estuary

173. The Site is located within LCA 4, Thaw Estuary between the B4265 to the north, fields to the east, the quarry to the south, and the Aberthaw Cement Works to the west. The Site appears separate from the Thaw estuary and river valleys to the west of the Site within LCA 4.

174. As set out above, Large scale effects will arise within the Site itself and its immediate context. To the west and south, the effects on LCA 4 would be restricted by hedgerows and woodland to the south of Castle Road and surrounding the Aberthaw Cement Works to the west. Beyond these locations within LCA 4 and the ZVI, the effects would reduce to a Small/Negligible scale.

175. Within the Site and immediate context, the effects would be Large scale and Intermediate in extent resulting in a **High magnitude, Major-Moderate significance and Adverse** effects within LCA 4. However, the Proposed Development would appear consistent with the industrial land uses directly to the south and west of the Site. Beyond the immediate context, the Proposed Development would result in Small scale and Localised effects resulting in a **Low magnitude, Slight significance and Adverse** effects within wider context of LCA 4 and the ZVI.

LCA 8 Lias Plateau

176. LCA 8 Lias Plateau lies to the north west of the Site covering the higher ground between the Thaw Valley and St Athan village. At this distance to the north west, the Proposed Development would be Small scale and Localised in extent resulting in a **Low magnitude, Slight significance and Adverse** effects within LCA 8 and the ZVI.

LCA 19 Lower Thaw Valley

177. LCA 19 Lower Thaw Valley lies to the north-west of the Site and broadly follows the river valley and wooded sides. Due to the more enclosed characteristics of LCA 19, the Proposed Development would be Negligible scale and Limited in extent resulting in a **Negligible magnitude, Minimal significance and Neutral** effects within LCA 19 and the ZVI.

LCA 20 Lower Waycock Valley

178. LCA 20 Lower Waycock Valley lies to the north of the Site and extends along the river valleys between Penmark and Llancarfan. The Proposed Development would be visible to varying degrees beyond the B4265 highway resulting in localised effects on the LCA. The Proposed Development would be Medium scale and Localised in extent resulting in a **Medium magnitude, Moderate significance and Adverse** effects within LCA 20 and the ZVI.

LCA 22 Central Vale Ridges and Slopes

179. LCA 22 Central Vale Ridges and Slopes lies to the north of the Site covering the higher ground between Llancadle and Llanbydderi. At this distance from the Site, the Proposed Development would be Small scale and Localised in

extent resulting in a **Low magnitude, Slight significance and Adverse** effects within LCA 22 and the ZVI.

LCA 26 Rhoose–Porthkerry Hinterland

180. LCA 26 Rhoose–Porthkerry Hinterland lies to the east and south east of the Site comprising of agricultural land surrounding the Rhoose and East Aberthaw settlements. The Proposed Development would only be partially visible from isolated sections of LCA 26 to the west of Cardiff Airport generally in the context of existing infrastructure. The Proposed Development would be Small scale and Limited in extent resulting in a **Low magnitude, Minimal significance and Neutral** effects.

6.2.1. Natural Resources Wales LANDMAP

181. Full descriptions of the relevant LANDMAP geological, habitats, visual and sensory, historic, cultural aspects are provided in **Table 8**. The Proposed Development is likely to affect all LANDMAP aspects within the Site itself as well as the Visual and Sensory aspects within the ZVI to varying degrees. The geographical distribution of the relevant LANDMAP aspects within the study area are shown on **Figures 6.i-v** and assessed as follows:

Geological Aspects

182. Geological aspect VLFGLGL962 Barry-Rhoose covers the Site. The Proposed Development would result in limited effects to the underlying geology through ground engineering and remodelling, construction of roads and compounds. Overall, the Proposed Development would be Small scale and Limited in extent resulting in a **Low magnitude, Slight significance and Adverse** effects.

Habitats Aspects

183. Habitats aspect VLFGLLH839 Aberthaw covers the Site. The Proposed Development would result in the removal of habitats within the development footprint. The Proposed Development would include the provision of new habitats including native broadleaf woodland, hedgerows, scrub mosaic, neutral grassland, ponds and marginal planting. Overall, the Proposed Development would be Medium scale and Limited in extent resulting in a **Medium magnitude, Moderate significance and Beneficial** effects.

Visual and Sensory Aspects

184. The Visual and Sensory aspects located within the Site and ZVI includes VLFGLVS641 Rhoose Hinterland (covering the Site); VLFGLVS742 Aberthaw Quarry; VLFGLVS453 Llancarfan and Waycock Valleys; VLFGLVS723 Cardiff Wales Airport; VLFGLVS146 Central Vale Ridges and Slopes; VLFGLVS110, Lower Thaw Valley Sides, VLFGLVS890 Heritage Coast Hinterland and VLFGLVS805 Lias Plateau.

185. Within the Site, the Proposed Development would be Large scale and Intermediate in extent resulting in a **High magnitude, Major-Moderate significance and Adverse** effects within VLFGLVS641 Rhoose Hinterland covering the Site. However, the Proposed Development would appear consistent with the industrial land uses directly to the south and west. Beyond the immediate context of the Site, the Proposed Development would result be Small scale and Localised in extent resulting in a **Low magnitude, Slight significance and Adverse** effects within the Visual and Sensory aspects and ZVI.

Historic Aspects

186. Historic aspect VLFGLHL030 Porthkerry Rural covers the Site. The Proposed Development would change the agricultural land uses within the northern and southern fields during the operational stage although the enclosure pattern would be retained. The Proposed Development would be Medium scale and Limited in extent resulting in a **Medium Magnitude**, **Moderate Significance** and **Adverse** effects.

Cultural Aspects

187. Cultural aspect VLFGLCLS040 Rhoose Hinterland covers the Site. The Proposed Development would change the cultural land use from pastoral grazing in the northern field and arable farmland in the southern field. However, the character of the BESS and high voltage substation would appear consistent with the surrounding industrial land uses. The Proposed Development would be Medium scale and Limited in extent resulting in a **Medium Magnitude, Moderate Significance and Adverse** effects.

6.3. Effects on Visual Receptors

6.3.1. Visual Aids

188. Annotated photographs are shown on figures supporting this LVIA. The method of presentation for each viewpoint has been informed by Landscape Institute's Technical Guidance Note 06/19, *Visual Representation of development proposals* (2019). The viewpoint description, description of effects and scale of effect for each viewpoint (see **Figure 7** for locations) is set out on the relevant photopanel. The scale of effect at each viewpoint is summarised in **Table 11** below:

Table 11: Representative Viewpoints

Viewpoint Reference & Location	Distance, direction	Scale of effect	
		Beneficial / Neutral / Adverse	
		Medium- term	Long-term
Viewpoint 1 Intersection of Burton Hill and public footpath P4/5/1 on north-western edge of Site	Site North West	Large Adverse	Medium Adverse
Viewpoint 2 Castle Road, close to eastern edge of Site	0.05km South East	Large Adverse	Medium Adverse
Viewpoint 3 Public footpath P4/6/2 within grounds of Fonmon Castle, north-east of Site	0.7km North East	Medium-Small Adverse	Small Adverse
Viewpoint 4 Public footpath P4/15/1 and the Valeways Millennium Heritage Trail (Long Distance Path) next to Cardiff Airport to east of Site	1.4km East	Negligible Neutral	Negligible Neutral
Viewpoint 5 Unnamed road south of Pancross Farm to north east of Site	1.8km North East	Small Adverse	Small-Negligible Neutral
Viewpoint 6 Intersection of public footpath S2/7/1 and unnamed road, east of	1.3km West	Small Adverse	Small-Negligible Neutral

Viewpoint Reference & Location	Distance, direction	Scale of effect	
		Beneficial / Neutral / Adverse	
		Medium- term	Long-term
St Athan Primary School, to the west of the Site			
Viewpoint 7 Public footpath S2/6/4 to north of Castleton, St Athan, to north-west of Site	1.5km, West	Small Adverse	Small-Negligible Neutral
Viewpoint 8 Public footpath L5/14/1 north of Llancadle, to the north of Site	0.7km, North East	Small Adverse	Small-Negligible Neutral

189. Each of the viewpoints is a 'sample' of the potential effects, representing a wide range of receptors – including not only those actually at the viewpoint, but also those nearby, at a similar distance and/or direction.

190. From these viewpoints it can be seen that:

- The extent of Large scale visual effects, where the Proposed Development would form a major alteration to key elements, features, qualities and characteristics of the view such that the baseline will be fundamentally changed, would generally be limited to locations within or immediately adjacent to the Site, where the proposals appear above or through intervening vegetation.
- Beyond the immediate Site context within approximately 1km, the extent of Medium scale effects is limited due to the undulating landform, woodland and hedgerows located throughout the landscape, in addition to within and in close proximity to the Site.

- Beyond approximately 1.5km from the Site boundary, the scale of effects reduces to Small-Negligible particularly once the mitigation planting has matured, filtering and screening views of the Proposed Development.

191. Outside these areas within the wider ZVI, the Proposed Development would either be screened from visual receptors by vegetation within the landscape, would form a very limited change in views, being seen in the context of the existing infrastructure of the Aberthaw Cement Works and Power Station in addition to the pylons and overhead lines.

192. The sensitivity of each of the following visual receptors is set out in **Table 10 Sensitivity of Landscape and Visual Receptors**, in **Section 4.7**.

6.3.2. Visual Receptor Groups

193. This part of the assessment of visual effects focuses on effects on groups of visual receptors, incorporating effects on views from public spaces and streets within settlements (or around the houses in areas with isolated dwellings), and the local routes and accessible landscapes in the surrounding countryside.

194. The assessment of effects on settlements focuses on the visual amenity of publicly accessible spaces although views from groups of dwellings will also be noted in the descriptions. Effects on private residential amenity are a separate matter and only require assessment when a development is likely to have effects over the Residential Visual Amenity Threshold referred to in LI TGN 02/2019 as set out within **Section 2.4** and which is not the case in respect of this development.

Visual Receptor Group 1, Land in the immediate context of the Site

195. VRG 1 includes walkers using public footpath P4/5/1 through the Site, motorists using the B4265 to the north, the quarry haul road to the east, Castle Road to

the south and Fontygary Road including properties to the west represented by Viewpoint 1 (**Figure 9.1**).

196. VRG 1 would generally experience close proximity views of the Proposed Development to varying degrees. The view would change from agricultural land to a proposed BESS and high voltage substation compounds and green infrastructure. Whilst this would represent a change and alteration to these close proximity views within VRG 1, the Proposed Development would be seen in the context of the existing 132kV pylons and overhead line, the Aberthaw Cement Works and Power Station.

197. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Large scale and Intermediate in extent resulting in a **High Magnitude**, **Major Significance and Adverse** effect. In the Long-Term, following the establishment of the embedded mitigation, the Proposed Development would be Medium scale and Intermediate in extent resulting in a **Medium Magnitude**, **Moderate Significance and Adverse** effect on VRG 1.

Visual Receptor Group 2, Land to east of Site and west of Fonmon

198. VRG 2 is located to the east of the Site. Receptors include users of the open, sloping fields west of Fonmon and Aberthaw Quarry, road users of local roads and public footpath P4/4/1. Effects on VRG 2 are represented by Viewpoint 2 (**Figure 9.2**) although this viewpoint represents part of VRG 2 which will experience the most change. From the southern part of VRG 2, only the taller elements of the proposed BESS and high voltage substation compound would be visible although these would gradually reduce as embedded mitigation reaches maturity. Views from the north of VRG 2 would include the proposed

BESS and high voltage substation, although these would be within the context of the Aberthaw Cement Works and Power Station in the distance.

199. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Medium scale and Intermediate in extent resulting in a **Medium Magnitude**, **Moderate Significance and Adverse** effect. In the Long-Term, following the establishment of the embedded mitigation, the Proposed Development would be Small scale and Intermediate in extent resulting in a **Low Magnitude**, **Slight Significance and Adverse** effect on VRG 2.

Visual Receptor Group 3, Land to north-east of Site between B4265 highway and Fonmon Castle

200. VRG 3 is located to the north-east of the Site. Receptors include visitors to Fonmon Castle Registered Park and Gardens, walkers using public footpath P4/6/2 and motorists using the B4265. Effects on VRG 3 are represented by Viewpoint 3 (**Figure 9.3**). There will be intermittent views towards the Proposed Development with partial screening provided by existing vegetation. Views towards the Proposed Development would be in the context of the existing 132kV pylons and overhead lines, the Aberthaw Cement Works and Power Station.

201. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Medium scale and Intermediate in extent resulting in a **Medium Magnitude**, **Moderate Significance and Adverse** effect. In the Long-Term, following the establishment of the embedded mitigation, the Proposed Development would be Small scale and Intermediate

in extent resulting in a **Low Magnitude**, **Slight Significance and Adverse** effect on VRG 3.

Visual Receptor Group 4, Land to east of Site between Nurston, the Highwayman Inn and Cardiff Airport

202. VRG 4 is located to the east of the Site. Receptors include workers within Cardiff Airport, visitors to the Highwayman Inn, walkers using public footpath P4/15/1 and P4/9/1. Effects on VRG 4 are represented by Viewpoint 4 (**Figure 9.4**). The Proposed Development would be partially visible in the distance beyond intervening hedgerows and in the context of the Aberthaw Cement Works and Power Station.

203. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Small scale and Intermediate in extent resulting in a **Low Magnitude**, **Slight Significance and Adverse** effect. In the Long-Term, following the establishment of the embedded mitigation, the Proposed Development would result in a **Low/Negligible Magnitude**, **Minimal Significance and Neutral** effect on VRG 4.

Visual Receptor Group 5, Land to north of Site between Llancadle and Llanbydderi

204. VRG 5 is located to the north of the Site. Receptors include the villages of Llancadle and Llanbydderi, motorists on local roads and walkers using public footpaths L5/15/1, L5/16/1, L5/13/2 and L5/11/1. Effects on VRG 5 are represented by Viewpoints 5 and 8 (**Figure 9.5** and **Figure 9.8**). Views of the Proposed Development will be distantly perceptible and intermittent due to intervening landform and vegetation.

205. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Small scale and Localised in extent

resulting in a **Low/Negligible Magnitude**, **Minimal Significance and Neutral** effect. In the Long-Term, following the establishment of the embedded mitigation, the effects would the same on VRG 5.

Visual Receptor Group 6, Land to west of Site and east of St Athan

206. VRG 6 is located to the west of the Site. Receptors include residents of the village of St Athan and walkers using public footpaths S/2/7/1 and S/2/10/1. Effects on VRG 6 are represented by Viewpoint 6 (**Figure 9.6**). Views towards the Proposed Development will be intermittent and filtered due to the varying landform and wooded sides of the Thaw valley.

207. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Small scale and Localised in extent resulting in a **Low Magnitude**, **Slight Significance and Adverse** effect. In the Long-Term following the establishment of the embedded mitigation, the Proposed Development would result in a **Negligible Magnitude**, **Minimal Significance and Neutral** effect on VRG 6.

Visual Receptor Group 7, Land to north-west of the Site and north east of St Athan

208. VRG 7 is located to the north west of the Site. Receptors include residents of St Athan, golfers at St Athan Golf Club and walkers using public footpath S2/6/4. Effects on VRG 7 are represented by Viewpoint 7 (**Figure 9.7**). Views will be intermittent due to the varying topography and existing vegetation and would be within the context of the Aberthaw Cement Works.

209. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Small scale and Localised in extent resulting in a **Low Magnitude**, **Slight Significance and Adverse** effect. In the

Long-Term following the establishment of the embedded mitigation, the Proposed Development would result in a **Negligible Magnitude**, **Minimal Significance and Neutral** effect on VRG 7.

Visual Receptor Group 8, Land to south of Site at Aberthaw Quarry tip

210. VRG 8 is located to the south-west of the Site. Receptors include quarry workers and is not publicly accessible. In this case, VRG 8 is considered to be of **Low Sensitivity** (Limited Value and Low Susceptibility). Views of the Proposed Development would be perceptible to the varying degrees within the context of the quarry, Aberthaw Cement Works and Power Station at close proximity.

211. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Medium scale and Intermediate in extent resulting in a **Medium Magnitude, Slight Significance and Adverse** effect. In the Long-Term following the establishment of the embedded mitigation, the Proposed Development would result in a **Low Magnitude, Minimal Significance and Neutral** effect on VRG 8.

6.3.3. Roads

B4265

212. The B4265 is the main highway connection between the settlements of Barry, Llantwit Major and Bridgend over approximately 25.6km distance. Views of the Proposed Development would be perceptible to varying degrees when travelling in the eastbound and westbound directions over approximately 1.2km of the route passing the Site. Views towards the Proposed Development would be partially screened or filtered by the intervening treebelt and woodland although peripheral and intermittent views would be visible through gaps in the

vegetation during the winter months. Views in the eastbound and westbound directions would be in the context of the Aberthaw Cement Works.

213. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Medium scale and Localised in extent resulting in a **Medium Magnitude, Moderate Significance and Adverse** effect. In the Long-Term following the establishment of the embedded mitigation, the Proposed Development would result in a **Low Magnitude, Slight Significance and Adverse** effect on a limited stretch of the B4265 near the Aberthaw Cement Works.

6.3.4. Long Distance Walking Routes

Valeways Millennium Heritage Trail

214. The Valeways Millennium Heritage Trail is located approximately 0.9km to the east and 1.9km to the north of the Site. Viewpoint 4 (**Figure 9.4**) and Illustrative Viewpoint A (**Figure 10**) are representative of this route within the study area. The Valeways Millennium Heritage Trail is a circular route of approximately 101km through the County.

215. Visibility of the Proposed Development would be limited to several isolated sections of the walking trail. From the edge of Cardiff Airport there will be glimpsed views of the taller components of the proposed BESS and high voltage substation. The ZVI indicates that there would be more distant views from the Heritage Trail from Pen Onn and to the south of Aberogwrn Farm.

216. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Small scale and Limited in extent resulting in a **Low/Negligible Magnitude, Slight Significance and Adverse** effect. In the Long-Term following the establishment of the embedded

mitigation, the Proposed Development would result in a **Negligible Magnitude, Minimal Significance and Neutral** effect on the Heritage Trail.

6.3.5. National, Regional and Local Cycle Routes

National Cycle Route 88

217. National Cycle Route (NCR) 88 is located 1.5km to the north-east of the Site and forms part of a 49km cycle route which connects Barry to Bridgend. Viewpoint 5 (**Figures 9.5**) and Illustrative Viewpoint A (**Figure 10**) represent views from the NCR 88 route. The ZTV has indicated that the Site is visible from isolated sections of NCR 88. Viewpoint 5 (**Figure 9.5**) shows that the Proposed Development would be visible, but existing vegetation and topography will screen the majority of this view. Illustrative Viewpoint A (**Figure 10**) indicates that although the higher elements of the scheme might be glimpsed, it is at such a distance that these effects will not be clearly perceptible within the intermittent and transient views from the NCR.

218. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Small scale and Limited in extent resulting in a **Negligible Magnitude, Minimal Significance and Neutral** effect. In the Long-Term following the establishment of the embedded mitigation, the significance of effects would remain the same.

Great Glamorgan Way Regional Cycle Route

219. The Great Glamorgan Way Regional Cycle Route (RCR) forms a 28km-long cycle route between the villages of Aberthin to the Downs on the edge of Cardiff. This cycle route passes through a small section of the study area, following the alignment of the NCR 88 near Pancross Farm before passing through Llancarfan. Illustrative Viewpoint A (**Figure 10**) represents views

towards the Site from this cycle route. The only section of the RCR with views towards the Site as indicated by the ZVI is the section of road near Aberogwrn Farm. Illustrative Viewpoint A indicates that although the higher elements of the scheme may be barely perceptible in the distance.

220. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Small scale and Limited in extent resulting in a **Negligible Magnitude, Minimal Significance and Neutral** effect. In the Long-Term following the establishment of the embedded mitigation, the significance of effects would remain the same.

6.3.6. Accessible and Recreational Landscapes

Fonmon Castle Registered Historic Park and Garden

221. Fonmon Castle Registered Park and Gardens is located approximately 0.9km to the north-east of the Site. Viewpoint 3 (**Figure 9.3**) illustrates the views from the outlying grounds to the north-west of the main house and walled gardens. Views towards the Site from within the walled gardens and from the curtilage of the house are screened by mature trees and woodland.

222. In the Medium-Term prior to the establishment of the embedded mitigation, the Proposed Development would be Small scale and Localised in extent resulting in a **Low Magnitude, Slight Significance and Adverse** effect. In the Long-Term following the establishment of the embedded mitigation, the Proposed Development would result in a **Negligible Magnitude, Minimal Significance and Neutral** effect on views from the registered park and gardens.

6.4. Effects on Designated Landscapes

223. **Figure 3, Landscape Designations** shows that the Site is located within the non-statutory Nant Llancarfan SLA. The Upper and Lower Thaw Valley SLA is also located to the north-west of the Site. Policy MG17 of the Adopted VoGC Local Plan notes that development is not precluded within the non-statutory SLA's provided that the developments further consider the special qualities and characteristics of the SLA designation.

Nant Llancarfan SLA

224. The ZTV in **Figure 7** shows that beyond the immediate Site context, only a relatively small number of isolated areas of the Nant Llancarfan SLA would be affected by the Proposed Development. The Site is located on the southern boundary and extremity of the SLA within the visual influence of the quarry, Aberthaw Cement Works and Power Station. The Proposed Development would appear severed from the wider SLA designation by the B4265 highway to the north.

225. The primary landscape qualities and features of the Nant Llancarfan SLA are described as:

"The majority of the area is rolling lowland, dissected by the Nant Llancarfan valley. This central area is highly enclosed by the adjacent plateau landscape. It is a steep sided, narrow lowland valley, which contains a tranquil and historic landscape of streams, semi-natural broadleaf woodlands, planted coniferous woodland and small farms. It has a strong, small scale, pastoral pattern and traditional settlement form including villages with Conservation Area designation. It is of high scenic quality with a strong sense of place. There is a diverse range of habitats of local and international importance, including

lagoons of international value, 4 BAPs and Nant Whitton Woodlands SSSI. Agricultural improvement (grazing, drainage and chemicals) threatens neutral grasslands and rush pastures have suffered substantial and rapid decline. The ancient settlement of Llancarfan village stands within a Registered Landscape of Outstanding Historic Interest and contains a Conservation Area. It is evaluated as Outstanding as one of the best surviving and most complete typical parts of the Vale of Glamorgan with the setting of the large church within the nucleated village.

A tranquil atmosphere prevails despite the main roads. The scattered rural/farm landscape is of outstanding value as being picturesque, for the preservation of historic communities and the richness of historic past. To the north the prominent ridge crest features, along with the A48 and associated linear development. The A48 follows the course of the Cardiff to Neath Roman road on an east-west alignment, dividing the Vale in two.

At the south, on the coastal plateau, there are detractive views to Cardiff Airport hangar and Aberthaw Power Station, and road detailing becomes suburban. Possible development of Aberthaw Cement Works poses a threat. There is planted broadleaf woodland and improved grassland, but the majority of this area is managed intensively for agriculture, with hedgerows in decline, and the feel is generally exposed and open. This area is boundary to the steeper valley slopes and wooded edges of Waycock Valley, Penmark being a particularly picturesque village. Grade 1 Fonmon Castle is surrounded by a registered park and garden and is one of the few medieval castles in Wales still lived in as a home."

226. The Proposed Development would have limited effects on the special qualities of the Nant Llancarfan SLA identified as "*strong, small scale, pastoral pattern and traditional settlement form*" [and the] *"steep sided, narrow lowland valley, which contains a tranquil and historic landscape of streams, semi-natural broadleaf woodlands, planted coniferous woodland and small farms."*

227. The Landscape Plan (LDA dwg 8919_100), LEMP and Green Infrastructure Statement proposes beneficial effects in terms of the *"a diverse range of habitats"* special quality. The location of the Site on the southern edge of the SLA on the opposite side of the B4265 reduces the perceived impacts on the Nant Llancarfan SLA. The Proposed Development has been sited to the south of the Site to appear more closely aligned with existing industrial land uses. Overall the Long-Term effects on the special qualities of the Nant Llancarfan SLA would be Small scale, Localised in extent resulting in a **Low magnitude, Slight significance and Adverse** effect.

Upper and Lower Thaw Valley SLA

228. The Upper and Lower Thaw Valley SLA is located 0.23km north-west of the Site. The primary landscape qualities and features of the Upper and Lower Thaw SLA are described as:

"The SLA is dissected by the Thaw River valley. To the north, the area is sparsely settled with small villages and several farms. The generally open landscape has high intervisibility and overlooks Bridgend, bordering the M4, and colouring the perception of the area. Mynydd Maendy Wind Farm to the north also has a visual impact on the sense of place. There are a number of pleasant views to well-managed fields and wooded areas, but these are affected in places by gappy hedgerows and housing development. Trees and hedgerows are

declining in the area but introducing blocks of broadleaf woodland would help to integrate settlement, whilst future development should be restricted in widely visible areas.

The dramatic valley form has distinctive steep wooded slopes and a strong sense of place and is relatively uncommon. It is enclosed by a plateau landscape and has a strong relationship with Cowbridge. The SLA boundary excludes Cowbridge, the suburbs of which are eroding the rural character. The town centre areas of historic and aesthetic value are protected by Conservation Area status.

The valley to the south is a confined, sinuous lowland valley with steep wooded sides and hedgerowed field valley floor with streams and wet ditches contributing to biodiversity. The strong valley, semi-natural and planted broadleaf woodland, and juxtaposition with valley settlements is very attractive and one of the best examples of this landscape in the Vale. Woodland is fragmented in places and linkages should be created by pursuing the Forestry Commission's Woodland Grant Scheme and Native Woodland Plans. Elsewhere the landscape is rolling lowland with some view out to the coast."

229. The Proposed Development is not located within the Upper and Lower Thaw Valley SLA. The ZVI (**Figure 7**) indicates that several areas to the south of the SLA would be visually affected by the Proposed Development to varying including the elevated plateau and fields between the villages of St Athan, Llancadle and Llanbydderi. These visual effects would generally coincide with views towards the Aberthaw Cement Works and Power Station as existing industrial influences within the SLA.

230. The Proposed Development would result in limited visual effects on the "*pleasant views to well-managed fields and wooded areas"* and the "*strong valley, semi-natural and planted broadleaf woodland, and juxtaposition with valley settlements"* special qualities. Overall the Long-Term effects on the special qualities of the Upper and Lower Thaw Valley SLA would be Small scale and Localised in extent resulting in a **Low/Negligible magnitude, Minimal significance and Adverse** effect.

6.5. Decommissioning Effects

231. At the end of the proposed operational period of 40 years, the Proposed Development would be decommissioned, dismantled and removed from the Site. The landscape and visual effects during the decommissioning phase are likely to be Short-Term within a 5 year timeframe. The decommissioning effects are likely to be of the same significance as for the construction stages as outlined in **Section 6.1.1**.

232. The Site would be reinstated to its previous condition and land use to the satisfaction of VoGC. The operational stage effects would be partly reversible on decommissioning with the removal of the proposed BESS and high voltage substation compounds although the access tracks are likely to remain in place. Subject to landowner agreement, the embedded mitigation measures would remain *in-situ* as a positive environmental legacy following the decommissioning phase.

6.6. Summary of Landscape and Visual Effects

233. Effects on the receptors assessed above are summarised within **Table 12** on the following pages. For landscape receptors including the LCA's and

LANDMAP aspects the residual effects in the Long-Term are summarised. For visual receptors the effects are summarised for the period following completion prior to the maturing of mitigation planting (Medium-Term) and once the mitigation planting has established (Long-Term). For receptors where the significance of effects varies, the distribution of effects is summarised.

Table 12: Summary of Landscape and Visual Effects

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
Landscape Character						
LCA 4 Thaw Estuary	Effects within Site and immediate context.	Site within LCA 4	Medium-Low	High	Major-Moderate	Adverse
	Effects beyond immediate context within ZVI.			Low	Slight	Adverse
LCA 8 Lias Plateau	Effects to north of the Site covering the higher ground between the Thaw valley and St Athan village within ZVI.	0.9km, North	Medium	Low	Slight	Adverse
LCA 19 Lower Thaw Valley	Effects to north-west of Site within river valley and ZVI.	0.3km, West	Medium	Negligible	Minimal	Neutral

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
LCA 20 Lower Waycock Valley	Effects to the north of the Site and the B4265 covering the river valleys between Penmark and Llancarfan within ZVI.	0.04km, North	Medium	Medium	Moderate	Adverse
LCA 22 Central Vale Ridges and Slopes	Effects to north of the Site covering the higher ground between Llancadle and Llanbydderi within ZVI.	0.4km, North	Medium	Low	Slight	Adverse
LCA 26 Rhoose – Porthkerry Hinterland	Effects to east and south east of site near Rhoose and East Aberthaw.	0.7km, South	Low	Low	Minimal	Neutral
LANDMAP Aspects						
Geological VLFGLGL962 Barry-Rhoose	Effects limited to within Site.	Site	Medium	Low	Slight	Adverse

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
Habitats - VLFGLLH839 Aberthaw	Effects limited to within Site.	Site	Medium-Low	Medium	Moderate	Beneficial
Visual and Sensory - VLFGLVS641 Rhoose Hinterland; VLFGLVS742 Aberthaw Quarry; VLFGLVS453 Llancarfan and Waycock Valleys; VLFGLVS723 Cardiff Wales Airport; VLFGLVS146 Central Vale Ridges and Slopes; VLFGLVS110 Lower Thaw valley sides; VLFGLVS890 Heritage Coast Hinterland;VLFGLVS805 Lias Plateau	Overall effects on Visual and Sensory aspects within ZTV.	Site and within ZTV	Medium	High	Major-Moderate	Adverse
				Low	Slight	Adverse

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
Historic - VLFGLHL030 Porthkerry Rural	Effects within Site.	Site	Medium-Low	Medium	Moderate	Adverse
Cultural - VLFGLCLS040 Rhoose Hinterland	Effects within Site.	Site	Medium-Low	Medium	Moderate	Adverse
Visual Receptor Groups						
VRG 1 - Land in the immediate context of the Site	Receptors includes walkers using public footpath P4/5/1 through the Site, and road users of the B4265 to the north, the quarry haul road to the east, Castle Road to the south, and Fontygary Road including properties to the west.	Site	High-Medium	*Medium-Term* High	*Medium-Term* Major	Adverse
				Long-Term Medium	*Long-Term* Moderate	Adverse

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
VRG2 - Land to east of Site and west of Fonmon	Receptors include users of public footpath P4/4/1 within fields west of Fonmon, works within Aberthaw Quarry, and users of local roads.	East of Site	High-Medium	*Medium-Term* Medium	*Medium-Term* Moderate	Adverse
				Long-Term Low	*Long-Term* Slight	Adverse
VRG3 - Land to north-east of Site between B4265 highway and Fonmon Castle	Receptors include visitors to Fonmon Castle (Registered Park & Garden), users of footpath P4/6/2, road users of the B4265 and users of fields to north.	North East of Site	High-Medium	*Medium-Term* Medium	*Medium-Term* Moderate	Adverse
				Long-Term Low	*Long-Term* Slight	Adverse
VRG 4 - Land to east of Site between Nurston, the	Receptors include workers within the western area of Cardiff	East of Site	High-Medium	*Medium-Term* Low	*Medium-Term* Slight	Adverse

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
Highwayman Inn and Cardiff Airport	Airport, visitors to the Highwayman Inn, users of public footpaths P4/15/1 and P4/9/1.			*Long-Term* Low/Negligible	*Long-Term* Minimal	Neutral
VRG 5 - Land to north of Site between Llancadle and Llanbydderi	Receptors include residents in the villages of Llancadle and Llanbydderi, local road users which pass through the villages, users of public footpaths L5/15/1, L5/16/1, L5/13/2 and L5/11/1 within fields.	North of Site	High-Medium	*Medium-Term* Low/Negligible	*Medium-Term* Minimal	Neutral
				Long-Term Negligible	*Long-Term* Minimal	Neutral
VRG 6 - Land to west of Site and east of St Athan	Receptors include residents of the village of St Athan, walkers using public footpaths S/2/7/1 and S/2/10/1.	West of Site	High-Medium	*Medium-Term* Low	*Medium-Term* Slight	Adverse
				Long-Term Negligible	*Long-Term* Minimal	Neutral

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
VRG 7 - Land to north-west of Site and north east of St Athan	Receptors include residents of the village of St Athan, users of St Athan Golf Club, walkers using public footpath S2/6/4.	North West of Site	High-Medium	*Medium-Term* Low	*Medium-Term* Slight	Adverse
				Long-Term Negligible	*Long-Term* Minimal	Neutral
VRG8 - Land to south of Site at Aberthaw Quarry tip	Receptors include quarry workers (not publicly accessible)	South of Site	Low	*Medium-Term* Medium	*Medium-Term* Slight	Adverse
				Long-Term Low	*Long-Term* Minimal	Neutral
Road and Rail						
B4265 highway	Main highway between Barry, Llantwit Major and Bridgend over approx 25.6km distance.	North of Site	Medium-Low	*Medium-Term* Medium	*Medium-Term* Moderate	Adverse
				Long-Term Low	*Long-Term* Slight	Adverse
Long Distance Walking Route						

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
Valeways Millennium Heritage Trail	Heritage Trail located approx 0.9km to the east and 1.9km to the north of the Site.	0.9km, East and 1.9km, North	High-Medium	*Medium-Term* Low/Negligible	*Medium-Term* Slight	Adverse
				Long-Term Negligible	*Long-Term* Minimal	Neutral
National and Regional Cycle Routes						
National Cycle Route 88	NCR 88 located 1.5km to the north-east of the Site and forms part of a 49km cycle route which connects Barry to Bridgend.	1.5km, North East	Medium	*Medium-Term* Negligible	*Medium-Term* Minimal	Neutral
				Long-Term Negligible	*Long-Term* Minimal	Neutral
Great Glamorgan Way Regional Cycle Route	RCR between Aberthin and the Downs forming part of 28km linear route.	2.1km, North East	Medium	*Medium-Term* Negligible	*Medium-Term* Minimal	Neutral
				Long-Term Negligible	*Long-Term* Minimal	Neutral
Accessible and Recreational Landscapes						
Fonmon Castle Registered Historic Park and Gardens	Registered Park and Gardens located 0.9km	0.9km, North East	High	*Medium-Term* Low	*Medium-Term* Slight	Adverse

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Beneficial / Neutral / Adverse
	to the north-east of Site.			*Long-Term* Negligible	*Long-Term* Minimal	Neutral
Designated Landscapes						
Nant Llancarfan Special Landscape Area (SLA)	Covering Site	Site	Medium	Low	Slight	Adverse
Upper and Lower Thaw Valley Special Landscape Area (SLA)	North-west of Site	0.23km, North West	Medium	Low/Negligible	Minimal	Adverse

7.0 Summary

234. The LVIA describes the existing landscape character and views; considers their sensitivity to change; identifies the changes likely to arise from the Proposed Development; and provides judgements of the importance of effects on landscape and visual receptors that would arise.

235. The Site comprises 10.5ha of agricultural land between the B4265, Castle Road and Fontygary Road in Fonmon, Vale of Glamorgan. The proposed BESS and high voltage substation compound are located within the context of existing infrastructure including the B4265 highway to the north, the 132kV pylons and overhead lines crossing the Site, a quarry to the south and the Aberthaw Cement Works and Power Station to the west.

236. Effects on landscape character would be greatest within the Site itself, with a **Major-Moderate Adverse** effect due to the physical and visual change at close proximity from agricultural farmland to a series of battery storage units, invertors, transformers, switchgears, control buildings, HV compound, security fencing and green infrastructure. However, these effects on landscape character at close proximity within the Site would be reduced in the long term through the embedded mitigation which would mature over time.

237. Beyond the Site boundaries, the effects on landscape character would diminish with distance due to the intervening landform, hedges and woodland and intervisibility with the Aberthaw Cement Works and Power Station. The effects on landscape character would generally reduce to **Moderate Adverse** within the immediate context and to **Slight Adverse** beyond 1km distance. In general, the effects on landscape character beyond approximately 1.5km distance from the Site would be **Minimal and Neutral**. The effects on landscape character

would be contained by the existing landscape framework including the incised wooded valleys of the River Kenson to the north and the Thaw Valley to the west combined with woodland areas surrounding the quarry to the south and Aberthaw Cement Works to the west.

238. Effects on visual amenity would be greatest on the users of the Public Rights of Way (PRoW) within the Site itself including public footpath (PRoW P4/5/1), Castle Road to the south and Fontygary Road to the west. The key components of the proposed BESS and high voltage substation would be visible at close proximity from these receptors resulting in a **Major-Moderate Adverse** effect (post construction) within the immediate context of the Site. These visual effects would gradually reduce to a **Moderate Adverse** over time due to embedded mitigation including new broadleaf woodland, hedgerows and scrub mosaic which will enclose the BESS and high voltage substation compounds in the long-term.

239. Beyond the Site boundaries, the Proposed Development would be partially visible from the higher plateau and open farmland between Llancadle and Llanbydderi to the north and receptors near St Athan village to the north-west, from the outlying grounds of the Fonmon Castle registered park and gardens to the north-east, the fields near Cardiff Airport to the east, and the Aberthaw quarry tip to the south. Where visible, the Proposed Development would be seen in the industrial context of the Aberthaw Cement Works and Power Station resulting in **Slight Adverse** effects during the medium term (post construction) reducing to **Minimal Neutral** effects during the operation stage in the long term once the embedded mitigation measures have established.

240. The Site is located within the non-statutory Nant Llancarfan SLA and 0.23km to the south-east of the Upper and Lower Thaw Valley SLA. Policy MG17 of the Adopted VoGC Local Plan notes that development is not precluded within the non-statutory SLA's provided that the developments further consider the special qualities and characteristics of the local plan designation.

241. The Site is located on the southern boundary of the Nant Llancarfan SLA within the visual influence of the quarry, Aberthaw Cement Works and Power Station which is considered to reduce the susceptibility of the Site. Overall, the Proposed Development is considered to result in a **Slight Adverse** effect on the special qualities of the Nant Llancarfan SLA. The Proposed Development is not located within the Upper and Lower Thaw Valley SLA although areas to the south of the SLA would be visually affected including the elevated plateau and fields between the villages of St Athan, Llancadle and Llanbydderi. These visual effects would generally coincide with views towards the Aberthaw Cement Works. For these reasons, the Proposed Development would result in **Minimal Adverse** effects on the special qualities of the Upper and Lower Thaw Valley SLA.

242. This LVIA has been undertaken as part of an iterative design and assessment approach alongside other technical disciplines. The analysis has informed the siting and design of the proposed BESS and the high voltage substation including the location of the compounds within the southern flatter part of the Site to reduce the requirement for landform remodelling and to appear more closely aligned with existing industrial influences. The proposed green infrastructure includes the provision of new native broadleaf woodland,

hedgerows, scrub mosaic, neutral grassland, ponds and marginal planting as positive environmental outcome and legacy arising from the development.