

Proposed Wind Turbine on Land East of Blackpool Pit at Burngullow Common, St Austell, Cornwall

Landscape and Visual Impact Assessment (LVIA)

Prepared by Amalgam Landscape Limited
On behalf of CleanEarth

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1. Introduction

Purpose of this Report

- 1.1 Amalgam Landscape, a Registered Practice of the Landscape Institute, has produced this Landscape and Visual Impact Assessment (LVIA) on behalf of CleanEarth for a proposed single wind turbine (the proposed development) on Land East of Blackpool Pit at Burngullow Common, St Austell, Cornwall.
- 1.2 The proposed development is located within Cornwall Council (CC).
- 1.3 This LVIA is produced as supplementary information to inform the planning application.
- 1.4 The purpose of the LVIA is to identify and outline the existing landscape character and visual amenity receptors within the study area, including their sensitivity to change and to assess the potential magnitude of impact and level of effect on these receptors as a result of the proposed development. Mitigation measures are proposed, including during the initial design phase, to reduce the impacts and effects of the proposed development. Impacts and effects are assessed at significant stages in the life of the proposed development, including construction, operation, and decommissioning.
- 1.5 The LVIA also considers the cumulative effects of the proposed development when perceived with other wind energy schemes that are under construction, consented and ‘in planning’¹ within the study area. Operational wind energy schemes are considered as part of the baseline assessment.
- 1.6 Therefore, the LVIA will assist decision-makers, members of the public and other interested parties by providing a clear and common understanding of the predicted landscape and visual impacts and effects of the proposed development in an impartial and professional way.

The Proposed Development

- 1.7 The location of the proposed development is illustrated in **Figure 1**.
- 1.8 The proposed development will consist of:
- A single, three-bladed wind turbine with a 77m tower and 57.5m blades. The proposed wind turbine will however have a maximum overall tip height of 135m;
 - The proposed wind turbine will be a semi-matt mid grey colour (RAL:7035) in order to blend in with the colour of the sky which represents the background to the proposed wind turbine in most views;
 - Temporary crane hard-standing area for erecting cranes at the proposed wind turbine location;

¹ ‘In planning’ – wind energy schemes that have been submitted for a planning application decision. This does not include wind energy schemes in screening or scoping or those that have been refused planning permission.

- Entrance via an existing access off the permissive quarry road to the north of the site, including the use of existing access tracks leading from the permissive quarry road to the base of the proposed wind turbine;
- One on-site small cabinet control housing unit. This is a single storey unit (approximately 4m x 4m x 3m), of simple design containing the equipment housing and coloured agricultural or moss green (RAL: 6005); and
- An on-site network of underground cables linking the proposed wind turbine to the on-site small cabinet control house.

1.9 The proposed development will involve the following distinct phases:

- Construction phase – approximately 3-4 months, with the cranes present for a maximum of 3 days (subject to weather conditions);
- Operation phase – 35 years; and
- Decommissioning phase – approximately 4-6 weeks, with the cranes present for a maximum of 3 days (subject to weather conditions).

Scope of the LVIA

1.10 The LVIA:

- Identifies the methodology, including defining the extent of the study area and the detailed technical approach. The 'main' study area is a **10km radius** measured from the location of the proposed development. An additional 'broad' study area of **30km radius** measured from the location of the proposed development is used to assess the wider extent of potential visibility of the proposed development;
- Describes the existing landscape character and visual amenity receptors and their views;
- Identifies operational, under construction, consented and 'in planning' wind energy schemes within a **10km radius** study area measured from the location of the proposed development. Operational wind energy schemes form part of the existing conditions assessment;
- Proposes mitigation measures which aim to avoid, reduce or compensate for any effects. Mitigation through siting and design during the earliest stages were critical in reducing the potential landscape and visual effects of the proposed development;
- Describes the magnitude of impact and the level of effect on the existing landscape character and visual amenity receptors and their views as a result of the proposed development. Computer-generated zones of theoretical visibility (ZTVs), calculated to the maximum potential hub height and blade tip heights, help to identify the locations in the study area where the proposed wind turbine could be visible, based on landform only. Photographs, wireframe views and photomontages are also used to illustrate the potential impacts and effects from publicly accessible viewpoints;
- Assesses the additional cumulative effects of the proposed development in combination with other under construction, consented and in planning wind energy schemes. Operational wind energy schemes are considered as part of the baseline assessment; and
- Provide conclusions on the overall landscape and visual effects of the proposed development.

2. Methodology

2.1 The LVIA is carried out by experienced chartered landscape architects. They apply professional judgements in a structured and consistent way, following the guidelines produced by the relevant professional bodies concerned with landscape and visual impact assessment and the assessment of wind energy scheme related developments.

2.2 These guidelines are identified in **Appendix A**.

The Study Area

2.3 The 'main' study area is a 10km radius measured from the location of the proposed development.

2.4 Zones of Theoretical Visibility (ZTVs), calculated to the maximum potential hub height and blade tip heights, which assess the potential visibility of the proposed development, have also been completed for 10km and 30km radius study areas.

Existing Conditions Assessment Methodology

2.5 The description of the existing conditions establishes the baseline situation against which the effects of the proposed development are assessed.

2.6 The description of the existing conditions includes:

- **Landscape character** - which is the description of the physical characteristics of the landscape and their sensitivity to change. The landscape is divided into discrete areas of similar characteristics called 'landscape character areas.' Reference is made to previously published landscape character assessments at a national and local scale. Landscape relevant designations, which include areas recognised for their landscape value, at a national, regional and local scale, are also identified to help determine sensitivity;
- **Visual amenity receptors** – which is the identification of people and a description of their views. Views from settlements (towns, villages and hamlets), individual and small clusters of residential properties and farms, places of interest, national trails, recreational routes, national cycle routes, local public rights of way, bridleways and cycleways, open access areas, major and minor roads and railway lines are assessed. The sensitivity of the visual amenity receptors is also described; and
- **Cumulative information** – which includes information on wind energy schemes that are under construction, consented and in planning. Operational wind energy schemes form part of the existing conditions assessment.

2.7 Information is collected through a combination of desk studies, site surveys and consultation.

Desk Study

2.8 An initial desk study was undertaken to review existing map and written data, relevant to the study area. Details of sources of information are found in **Appendix A**.

2.9 A summary of the desk study is outlined below:

- Internet search and review of relevant development plans for policies and designations to gain an understanding of the 'importance,' 'value' and 'sensitivity' of designated features attributed to the landscape and visual resource by the national and local government;
- Previously published landscape character assessments at a national and local scale to gain an understanding of the overall character, quality and sensitivity of the existing landscape within the study area;
- Maps and internet data to gain an understanding of the landform and landscape pattern as well as for information on the location of public rights of way, open access areas and visitor attractions; and
- Searches of the relevant local authority planning information as well as national databases and websites to find information on operational, under construction, consented and in planning wind energy schemes. The information is constantly changing and was last updated at the beginning of May 2022.

Site Survey

2.10 A site survey, including a photographic survey, was undertaken in fine weather in April 2022 by an experienced and chartered landscape architect.

2.11 The site was visited and the survey within the study area was undertaken from selected publicly accessible areas, such as public highways and public rights of way. Views from private properties, such as houses and settlements, were estimated from the closest publicly accessible location and checked using aerial photography.

2.12 The site survey helped to gain an understanding of the site and its context as well as the wider landscape character and visual amenity receptors and their views within the study area. The site survey also helped to determine the potential impacts and effects as a result of the proposed development as well as developing the design and mitigation measures. This supplemented the available information collected during the desk study.

Consultation

2.13 A non-EIA screening response was received from CC on 1st October 2021.

2.14 Information of relevance to the LVIA, within the non-EIA screening response, included:

- Any application should be supported by a full LVIA which should consider cumulative effects;
- There would be intervisibility with the turbines in close proximity and the proposed development. It is not considered that the cumulative landscape effects, having regard to the nature of the turbines and the characteristic of the intervening landscape (which is predominantly china clay pits and a commercial landscape) between them, would be significant in EIA terms;
- The development does not fall within an area statutorily designated for its landscape and scenic beauty. The site does not lie within any landscape designations and the Cornwall AONB occurs 4.8km to the south-east.

Taking into consideration the nature of these protected areas and the proposal itself, which is not within any of these areas, it is considered that there is unlikely to be a significant impact upon these designations due to the siting and nature of the proposal;

- The site is within landscape character area *LCA17 – St.Austell or Hensbarrow China Clay Area* which has been highlighted to have a moderate sensitivity towards wind energy development²;
- A wind turbine of the proposed scale in this location would be clearly visible and would have an impact on landscape character.

It is considered, however, that these impacts would not be likely to be significant in EIA terms due to the nature of this development, being a single turbine, and the environment that it is to be located within has a commercial/industrial character;

- The nearest residential properties are located to the east (Penisker Farm) and to the south (on the fringes of Trewoon) of the proposed development. Some properties are likely to experience an impact, however, this is not considered to be significant in EIA terms; and
- The proposed development would comprise of a tall structure with some prominence in the landscape which would likely be visible from far-reaching views. However, it would be seen in the context with other wind turbines and is within a long-established industrial landscape with China Clay workings, spoil heaps and pits which could lessen the magnitude of its visual impact.

The impacts are unlikely be complex, owing to the lack of statutory landscape designations and the small number of properties that would likely be affected by the development.

2.15 Following the collection of baseline data, including the production of the ZTVs, potential viewpoints to inform the LVIA were selected and issued to the Senior Development Officer at CC on 18th March 2022.

2.16 In summary, the potential viewpoints were:

- From the most 'exposed' viewpoints (based on the ZTVs);
- Broadly surrounding the proposed development, from all directions of view;
- From a variety of sensitivity of receptors, focussing on the most 'sensitive'; and
- From a variety of distances away from the proposed development.

2.17 A response was received from the Senior Development Officer at CC on 22nd March 2022 to state that the viewpoints to inform the LVIA were broadly acceptable.

Landscape Character and Visual Amenity Receptor Sensitivity Methodology

2.18 Landscape character and visual amenity receptors are assessed according to their sensitivity to change by combining the considerations of susceptibility and value.

2.19 The landscape character areas are assessed for their sensitivity based on a review and analysis of the elements, designations and previously published descriptions. The sensitivity of the visual amenity receptors is dependent on the location, context and importance of the viewer.

2.20 The sensitivity of both landscape character and visual amenity receptors are evaluated according to a five-point scale. The criteria used to assess the sensitivity of landscape character and visual amenity receptors are outlined in **Table 1**. The susceptibility to

² Cornwall Renewable Energy Advice, Annex 1: An assessment of the landscape sensitivity to on-shore wind energy and large-scale photovoltaic development in Cornwall, Cornwall Council, March 2016

change referred to relates specifically to the proposed development and the landscape character sensitivity also references the sensitivity levels and definitions as identified in the Cornwall Landscape Sensitivity Assessment (LSA)³.

Table 1 Broad criteria for assessing the sensitivity of landscape and visual receptors

Sensitivity	Landscape character description	Visual amenity receptor description
High	<p>Distinctive landscape elements and/or character.</p> <p>Includes areas with a very strong positive character with valued features that combine to give an experience of unity, richness and harmony.</p> <p>Landscapes in excellent condition that are considered to be of particular importance to conserve. No detractors present.</p> <p>Likely to be designated and <u>could</u> include very highly valued landscapes of strong scenic quality and rarity on a national/international scale (World Heritage Sites, National Parks/Areas of Outstanding Natural Beauty).</p> <p>Equivalent to <u>High</u> sensitivity level as identified in the LSA, defined as <i>“the key characteristics and qualities of the landscape are highly sensitive to change from the type of renewable energy being assessed.”</i></p>	<p>Residents of residential properties and settlements (ground floor – where it is assumed this is the ‘main’ living area, including gardens).</p> <p>Users of public rights of way/open access land in nationally/internationally designated areas of landscape value (World Heritage Sites, National Parks/Areas of Outstanding Natural Beauty).</p> <p>Users of national trails.</p> <p>Visitors to valued viewpoints (for example promoted or well-known viewpoints, key designed views or panoramic viewpoints marked on maps).</p>
Medium-high	<p>Highly valued landscape elements and/or character.</p> <p>These are landscapes in very good condition that are considered to be of importance to conserve. No or few detractors present.</p> <p>Likely to be designated and <u>could</u> include valued landscapes of scenic quality and rarity on a regional or local scale (AGLVs, designed landscapes).</p> <p>Equivalent to <u>Moderate-high</u> sensitivity level as identified in the LSA, defined as <i>“the key characteristics and qualities of the landscape are sensitive to change from the type of renewable energy being assessed.”</i></p>	<p>Residents of residential properties and settlements (first floor – where it is assumed these are bedrooms/bathrooms – not the main living area).</p> <p>Users of public rights of way/open access areas which <u>could</u> be locally recognised (for example Areas of Great Landscape Value (AGLVs) or in locations where the users are likely to pause to appreciate the view, such as at benches, key views to/from local landmarks.</p> <p>Users of outdoor recreational facilities with high interest in the surrounding environment including visitors to attractions or heritage assets.</p> <p>Users of recognised cycle routes and recreational routes.</p> <p>Travellers along identified scenic road routes.</p>
Medium	<p>Moderately valued or ‘everyday’ landscape elements and/or landscape character.</p> <p>These are landscapes in good condition</p>	<p>Recreational users travelling at low speeds on bridleways/cycle paths or public rights of way.</p>

³ Table 4.5: Sensitivity Levels and Definitions in the Cornwall Renewable Energy Advice, Annex 1: An assessment of the landscape sensitivity to on-shore wind energy and large-scale photovoltaic development in Cornwall, Cornwall Council, March 2016

Sensitivity	Landscape character description	Visual amenity receptor description
	<p>which <u>could</u> be appreciated by the community but has little or no wider recognition.</p> <p>Equivalent to <u>Moderate</u> sensitivity level as identified in the LSA, defined as “<i>some of the key characteristics and qualities of the landscape are sensitive to change from the type of renewable energy being assessed.</i>”</p>	<p>Visitors to cemeteries.</p> <p>Visitors staying at a caravan/camping site.</p>
Medium-low	<p>Reasonably valued landscape elements and/or landscape character.</p> <p><u>Could</u> include features/areas that exhibit positive character but which may have evidence of alteration, degradation and erosion of features resulting in areas of more mixed character.</p> <p>Some detractors likely to be present.</p> <p>Equivalent to <u>Low-moderate</u> sensitivity level as identified in the LSA, defined as “<i>few of the key characteristics and qualities of the landscape are sensitive to change from the type of renewable energy being assessed.</i>”</p>	<p>Travellers along most minor roads.</p> <p>Outdoor sporting facilities and users of recreational facilities with low interest in the surrounding environment.</p>
Low	<p>Weak landscape structure, partly degraded with frequent detractors.</p> <p>Highly likely to be a non-designated landscape in poor condition which <u>could</u> include elements and/or areas that are generally negative in character with few, if any, valued features.</p> <p>Equivalent to <u>Low</u> sensitivity level as identified in the LSA, defined as “<i>key characteristics and qualities of the landscape are robust and are less likely to be adversely affected by the type of renewable energy development being assessed.</i>”</p>	<p>Static office workers and workers in industrial facilities/indoor non-static environments.</p> <p>Travellers with limited opportunity to enjoy the view due to speed of travel (for example on motorways, trunk roads or rail routes).</p>

Assessment of Impacts and Effects Methodology

2.21 The existing conditions descriptions and the determination of sensitivity help to assess the magnitude of impact and level of effect on the landscape character and visual amenity receptors as a result of the proposed development.

Magnitude of Impact Methodology

2.22 An ‘impact’ is defined as a change likely to occur as a result of the construction, operation and decommissioning of the proposed development.

2.23 The scale or magnitude of impact is determined through the assessment of the duration and extent of the changes to the landscape and visual resource as a result of the proposed development.

- 2.24 The duration of impact determines the time period over which the changes as a result of the proposed development occurs. Most impacts as a result of the proposed development would be long-term, given that the operational period will be 35 years. However short-term impacts may be identified for example, during construction or decommissioning.
- 2.25 The extent of the impact indicates the geographic area over which the changes as a result of the proposed development occur. The extent of the impacts could be limited; localised; intermediate or wide.
- 2.26 The magnitude of impact on both landscape character and visual amenity receptors are evaluated according to a seven-point scale. The broad criteria for assessing the magnitude of impacts are outlined in **Table 2**.

Table 2 Broad criteria for assessing the magnitude of impact on landscape character and visual amenity receptors

Magnitude of impact	Landscape character description	Visual amenity receptor description
High	<p>High levels of change to landscape elements/ landscape character.</p> <p>The proposed development will be very prominent in the landscape and will be perceived as a determining factor of the landscape character.</p> <p>The proposed development will lead to a major alteration to the landscape character.</p> <p>The proposed development, when perceived with other wind energy schemes, will be immediately apparent and contribute to a 'landscape with wind farms.'</p>	<p>Receptors would experience an immediately apparent change to their views, arising from major alteration to the key characteristics of the existing view or the introduction of elements that will be totally uncharacteristic of the view.</p> <p>The proposed development will dominate the field of view and be impossible not to notice.</p> <p>The proposed development, when perceived with other wind energy schemes, would be immediately apparent and contribute to a view dominated by wind farms.</p>
Medium-high	<p>Prominent level of change to landscape elements/landscape character.</p> <p>The proposed development will be obvious in the landscape and will generally be perceived as a determining factor in local landscape character.</p> <p>The proposed development, when perceived with other wind energy schemes, would be obvious and contribute to a 'landscape with wind farms.'</p>	<p>Receptors would experience an apparent change to their views.</p> <p>The proposed development would be prominent in views or would be perceived as the determining factor within the field of view and be difficult not to notice.</p> <p>The proposed development, when perceived with other wind energy schemes, would be obvious and contribute to a view influenced by wind farms.</p>
Medium	<p>Partial levels of change to landscape elements/landscape character.</p> <p>The proposed development will be noticeable but not necessarily a determining factor of the landscape character.</p> <p>The proposed development would lead to a change to the landscape character.</p> <p>The proposed development, when perceived with other wind energy schemes, would be apparent and contribute to a 'landscape with wind farms.'</p>	<p>Receptors would experience a readily apparent change to their view, arising from partial alteration to the key characteristics of the existing view or the introduction of elements that may be prominent but will not dominate the field of view.</p> <p>The proposed development, when perceived with other wind energy schemes, would be apparent and contribute to a view influenced by wind farms.</p>
Medium-low	<p>Minor levels of change to landscape elements/landscape character.</p>	<p>Receptors would experience an apparent but minor change in their view, arising from an</p>

Magnitude of impact	Landscape character description	Visual amenity receptor description
	<p>The proposed development will be perceived but will not be a determining factor of the landscape character.</p> <p>The proposed development, when perceived with other wind energy schemes, would be noticeable and may contribute to a 'landscape with wind farms.'</p>	<p>alteration to the view.</p> <p>The proposed development will be present in views but will form only a minor element.</p> <p>The proposed development, when perceived with other wind energy schemes, would be noticeable and may contribute to a view influenced by wind farms.</p>
Low	<p>Low levels of change to landscape elements/landscape character.</p> <p>The proposed development will be present and will be perceived as a background feature of the wider landscape character.</p> <p>The proposed development would lead to a minor change to the landscape character.</p> <p>The proposed development, when perceived with other wind energy schemes, will not be immediately noticeable, although it may contribute to a 'landscape with wind farms.'</p>	<p>Receptors would experience a low level of change to views. The proposed development will be present in the wider landscape but will be perceived as a background component of views and easily go unnoticed.</p> <p>The proposed development would lead to a minor change to the view.</p> <p>The proposed development, when perceived with other wind energy schemes, will not be immediately noticeable, although it may contribute to a view with wind farms.</p>
Negligible	<p>Very minor levels of change to landscape elements/landscape character.</p> <p>The proposed development will be largely unnoticed in the landscape. It will be difficult to perceive changes to landscape elements/landscape character.</p> <p>The proposed development, when perceived with other wind energy schemes, will be largely unnoticed in the landscape.</p>	<p>Receptors would experience a very low level of change to views.</p> <p>The proposed development will be barely perceived in the wider landscape and easily go unnoticed.</p> <p>It would result in a difficult to perceive change in view.</p> <p>The proposed development, when perceived with other wind energy schemes, will be largely unnoticed in the view.</p>
No change	Indiscernible level of change. Equivalent to no change.	Indiscernible level of change. Equivalent to no change.

Level of Effect Methodology

- 2.27 An 'effect' is defined as the degree of change likely to occur as a result of the construction, operation and decommissioning of the proposed development.
- 2.28 The level of the effects on landscape character and visual amenity receptors is determined by balancing the sensitivity of the receptor and the magnitude of impact as a result of the construction, operation and decommissioning of the proposed development.
- 2.29 The correlation between the sensitivity of the landscape character and visual amenity receptor, and the magnitude of impact to determine the level of effect is summarised in **Table 3**. The matrix is however not a prescriptive tool and the analysis of the level of effects requires the exercise of professional judgement.

Table 3 Overall determination of the level of effect on landscape character and visual amenity receptors

		Sensitivity of receptor				
		High	Medium-high	Medium	Medium-low	Low
Magnitude of impact	High	Major	Major or Major-moderate	Major-moderate or Moderate	Moderate or Moderate-minor	Moderate-minor or Minor
	Medium-high	Major or Major-moderate	Major-moderate or Moderate	Moderate	Moderate-minor or Minor	Minor or Minor-negligible
	Medium	Major-moderate or Moderate	Moderate	Moderate	Minor or Minor-negligible	Minor-negligible or Negligible
	Medium-low	Moderate or Moderate-minor	Moderate-minor	Moderate-minor or Minor	Minor-negligible or Negligible	Negligible
	Low	Moderate-minor or Minor	Minor or Minor-negligible	Minor-negligible or Negligible	Negligible	Negligible
	Negligible	Minor or Minor-negligible	Minor-negligible or Negligible	Negligible	Negligible	Negligible
	No change	Neutral	Neutral	Neutral	Neutral	Neutral

2.30 The level of effect on both landscape character and visual amenity receptors are evaluated according to an eight-point scale. The broad criteria for assessing the level of effect are outlined in **Table 4**.

Table 4 Broad criteria for assessing the level of effect on landscape character and visual amenity receptors

Level of effect	Landscape character description	Visual amenity receptor description
Major	Where the proposed development would be noticeably out of scale with the character or noticeably alter a recognised landscape or landscape element.	Where the proposed development would substantially alter a valued/ very important view or view of high quality.
Major-moderate	Where the proposed development would be out of scale with the character or noticeably alter a landscape element.	Where the proposed development would noticeably alter a local view.
Moderate	Where the proposed development would be at variance with the character and/or landscape elements.	Where the proposed development would be readily apparent.
Moderate-minor	Where the proposed development would be at slight variance with the character and/or landscape elements.	Where the proposed development would be noticeable.
Minor	Where the proposed development would be perceived but be at very slight variance with the character and/or landscape elements.	Where the proposed development would be barely noticeable.
Minor-negligible	Where the proposed development would have a slightly discernible effect on the character and/or landscape elements.	Where the proposed development would provide a small change to the existing view.

Level of effect	Landscape character description	Visual amenity receptor description
Negligible	Where the proposed development would have a barely discernible effect on the character and/or landscape elements.	Where the proposed development would provide a very small change to the existing view.
Neutral	No change	No change

2.31 It is important to note that effects can be adverse (negative) or beneficial (positive). The broad criteria for assessing the beneficial, adverse and neutral effects are outlined in **Table 5**.

Table 5 Broad criteria for assessing the beneficial, adverse and neutral effects on landscape character and visual amenity receptors

Level of effect	Landscape character description	Visual amenity receptor description
Beneficial	Improvement to landscape elements and/or features. Improvement to the value of landscape character and resource. This could also include removal of existing detractors of the landscape character.	Introducing elements that improve the view. This could also include removal of existing detractors to the view.
Adverse	Removal of landscape elements and/or features. Degradation of landscape character and resource.	Introducing elements that degrade the view.
Neutral	Changes to landscape character or landscape elements that would be neither positive nor negative. Could include the addition of elements within the landscape that already exists (for example housing) which would not involve the degradation or removal of valued aspects of the landscape resource.	Changes to views that would be neither positive nor negative. Could include the addition of elements within the view that already exists (for example housing) which would not involve the degradation or removal of valued aspects of the view.

Cumulative Assessment Methodology

2.32 Cumulative assessment is concerned with the ‘additional’ effects of the proposed development when perceived with other consented or in planning wind energy schemes. Operational wind energy schemes form part of the existing conditions assessment.

2.33 The cumulative assessment considers the additional impacts and effects on landscape relevant designations, landscape character and visual amenity receptors and their views.

2.34 In relation to visual amenity receptors, there are two types of impact. These include:

- Combined impacts which occur when the receptor is able to perceive two or more developments from one viewpoint, in combination or in succession; and
- Sequential impacts which occur when the receptor has to move to another viewpoint to see different developments, travelling along regularly used routes such as major roads or popular or recognised public rights of way.

3. Existing Conditions

3.1 The description of existing conditions establishes the landscape character and visual amenity context within the study area and forms the basis of the LVIA. The existing conditions include descriptions of the site and the immediate surrounds, cumulative wind energy schemes, landscape relevant designations, landscape character and visual amenity receptors and their views within the study area.

The Site and Surrounds

3.2 The site is situated on the slopes of rough grassland and heathland covered field, which slopes upwards from the minor road to the east and is crossed by tracks associated with the adjacent works.

3.3 The ponds and industrial landscape associated with the Blackpool China Clay works occurs immediately to the west and north. The site is within a landscape heavily influenced by the surrounding china clay works and is punctuated by tips, workings and pits.

3.4 A permissive quarry road also runs broadly from east to west to the north of the site and is heavily used by lorries associated with the surrounding works.

3.5 Scattered within the immediate industrial and agricultural landscape (within 2km) are single medium-scale operational wind turbines including Blackpool Quarry to the south, Higher Goonamarth Farm to the north and Greensplat to the north-east. The small-scale single operational wind turbine at Henavisten Farm also occurs to the west.

3.6 In addition, with reference to Table 1 in TGN 02/21⁴, the site is not a 'valued landscape.' The site is not within a landscape:

- Of ecological, geological or geomorphological or physiographic interest;
- With clear evidence of archaeological, historical or cultural interest;
- In good physical state both with regard to individual elements and overall landscape structure;
- Connected with notable people, events and the arts;
- With a strong sense of identity;
- Offering recreational opportunities where the experience of the landscape is important;
- That appeals to the sense, primarily the visual sense;
- With a strong perceptual value notably wildness, tranquillity and/or dark skies; and
- Which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape.

⁴ The Landscape Institute, Technical Guidance Note 02/21 Assessing Landscape Value Outside National Designations

3.7 The location of the site is illustrated in **Figure 1**. The site and immediate surrounds are also illustrated in oblique aerial photographs in **Figure 2**, showing the predominantly industrial, china clay influenced landscape that dominates the site and the immediate surroundings.

Cumulative Wind Energy Schemes

3.8 Operational wind energy schemes, greater than 15m to blade tip in are identified within the 10km radius study area. The presence of operational wind energy schemes is included within the descriptions of existing conditions.

3.9 These wind energy schemes are listed in **Table 6** and their location illustrated on **Figure 3**. This list was last updated at the beginning of May 2022.

Table 6 Operational Wind Energy Schemes

No.	Wind energy scheme	No. of wind turbines	Height of wind turbine(s) (metres to blade tip)	Height of wind turbine(s) (metres to hub height)	Direction from proposed wind turbine	Distance from proposed wind turbine (km)
1	Higher Goonamarth Farm	1	77m	50m	North	950m
2	Blackpool Quarry	1	77m	50m	South	500m
3	Greensplat	1	61m	35m	North-east	1.7km
4	Henavisten Farm	1	34.4m	24.8m	West	1.5km
5	Gunheath Quarry	1	77m	50m	North-east	3.5km
6	Mount Stamper Farm	1	21.54m	15m	East	3.3km
7	Ninnis Farm	1	34.4m	25m	South	3.2km
8	Bodinnick Farm	1	34.4m	24.8m	South-west	4.2km
9	Land south-east of Resugga Farm	1	36.6m	24.8m (assumed)	South-west	4.5km
10	Trebilcock Farm	1	77m	50m	North	7km
11	Gaverigan Farm	1	77m	50m	North-west	6.7km
12	Lestoon Farm	1	77m	50m	North-east	6.7km
13	Levalsa Meor Farm	1	21.55m	18m	South-east	5.3km
14	Penhale Farm	1	33.6m	24m	West	6.2km
15	Aggregate Industries	1	87m	59m	North-west	7.1km
16	South of A30	2	100m	59m	North	8.1km
17	Tortoiseshell Barn	1	39.6m	29.6m	North-east	7.7km

No.	Wind energy scheme	No. of wind turbines	Height of wind turbine(s) (metres to blade tip)	Height of wind turbine(s) (metres to hub height)	Direction from proposed wind turbine	Distance from proposed wind turbine (km)
18	Land at Menna Farm	1	34.2m	24.6m	West	7.1km
19	Carnwinnick Farm	1	47m	30.5m	South-west	6.6km
20	Garlenick Estate	2	110m	65m	South-west	6.2km
21	Cregan Gate	2	34.6m	25m	South-west	6.8km
22	Field at Grampound Hill	1	34.4m	24.8m	South-west	6.9km
23	Woodland Valley Farm	2	34.2m 20m	24.6m 15m	South-west	7.8km
24	Kerpit Farm	1	21.45m	18.7m	North	8.8km
25	Penchoise Farm	1	24.9m	18.4m	South-west	7.9km
26	Barteliver Farm	1	34.5m	24.9m	South-west	8.2km
27	Goenrounsen	1	34.2m	24.6m	West	9.9km
28	Tregerrick Farm	2	34.6m	24m	South	10km
29	Pittsdown Farm	1	79m	51m	South-west	8km
30	Goonabarn Farm	2	77m	50m	West	9.2km
31	Treworgans Farm	1	34.4	24.9m	South-west	9.8km

3.10 There three consented wind energy schemes within the study area, the potential influence considered within the cumulative assessment as described in **Table 7** below.

Table 7 Consented Wind Energy Schemes

No.	Wind energy scheme	No. of wind turbines	Height of wind turbine(s) (metres to blade tip)	Height of wind turbine(s) (metres to hub height)	Direction from proposed wind turbine	Distance from proposed wind turbine (km)
32	East Karlake	1	135m	77m	North	1.3km
33	Longstones	1	135m	77m	North	1.2km
34	Wheal Martyn	1	135m	77m	North-east	2.7km

3.11 In summary:

- There are 31 operational wind energy schemes within the 10km radius study area;
- There are 3 consented wind energy schemes within the 10km radius study area;

- There are no in planning wind energy scheme within the 10km radius study area;
- The majority of operational wind energy schemes are single wind turbines, with only 6 wind energy schemes consisting of a small cluster of two wind turbines;
- For the operational wind energy schemes in the 10km radius study area, 4 wind energy schemes are very small-scale (Band A⁵ - between 18-25m); 15 wind energy schemes, are small-scale (Band B - between 26-60m in height to blade tip); 10 wind energy schemes of medium-scale (Band C - between 61-99m in height to blade tip and there are 2 large-scale wind energy schemes (Band D - between 100-150m to blade tip);
- The consented wind energy schemes are all large-scale (Band D - between 100-150m to blade tip). Longstones is the closest wind energy scheme to the proposed development, approximately 1.2km to the north;
- The closest operational wind energy scheme to the proposed development is the single Blackpool Quarry wind turbine (77m to blade tip), approximately 500m to the south; and
- The wind energy schemes in the study area appear to be well-scattered throughout the study area, although largely avoiding the sensitive coastal fringes and the AONB to the south and the dense settlements to the south-east and east.

Landscape Character

Landscape Relevant Designations

- 3.12 The site is **not** recognised for its importance or value through any landscape relevant designations.
- 3.13 There are however landscape relevant designations within the study area. These are shown in **Figure 4** and described in more detail below⁶:
- The Cornwall Area of Outstanding Natural Beauty (AONB) occurs approximately 4.8km to the south-east, extending to the south-eastern fringes of the study area.
- The Cornwall AONB is made up of twelve separate geographical areas and contains some of Britain's finest coastal scenery. As identified in the Cornwall AONB Management Plan⁷, the AONB in the study area is within Area 9: South Coast Central. This is described within the Cornwall Landscape Sensitivity Assessment (LSA)⁸ as:
- A coastline of sweeping and extensive bays with majestic high cliffs rising above rocky shores, sandy beaches and small coves;

⁵ The height brackets of the wind energy schemes have been taken from Cornwall Renewable Energy Advice, Annex 1: An assessment of the landscape sensitivity to on-shore wind energy and large-scale photovoltaic development in Cornwall, Cornwall Council, March 2016

⁶ The LVIA considers historic landscape designations in terms of their role in defining landscape character, such as Conservation Areas and Registered Parks and Gardens where the potential impacts and effects on their setting are considered.

⁷ Cornwall Council, The Cornwall AONB Management Plan, 2022-2027, Adopted May 2022

⁸ Cornwall Renewable Energy Advice, Annex 1: An assessment of the landscape sensitivity to on-shore wind energy and large-scale photovoltaic development in Cornwall, Cornwall Council, March 2016

- Distinctive rocky promontories;
- Subtly rolling inland plateau;
- Far-reaching panoramic views from the rugged cliff tops;
- Medieval fields small in scale with irregular boundaries bounded by bare low stone walls near the exposed coasts to being broad and well-vegetated in the sheltered valleys;
- Outlines of early strip field systems are preserved in the current field patterns;
- Woodlands on steep valley sides, alongside streams and in valley bottoms in combination with other valuable wetland habitats such as fens and rush pasture;
- Coastal rough ground including scrub and bracken on wild cliff tops;
- A tranquil landscape relatively free of man-made land marks or structures;
- Rich in discernible pre-historic features from the largest Bronze Age burial mound in Cornwall at Carne Beacon to the County's largest prehistoric enclosure at the Iron Age cliff castles at Dodman;
- Estates and ornamental parklands notably at Caerhays and Heligan taking advantage of the sheltered valleys;
- Attractive coastal villages sheltered in the coves at stream mouths or around picturesque small harbours as at Mevagissey and Gorran Haven;
- Sparse settlement – an even distribution of hamlets and farmsteads linked by narrow winding lanes with high hedges and blind corners; and
- Traditional black and white painted metal finger signs.

In addition, the LSA states that within the AONB “*qualities that may particularly be affected by wind energy development are the majestic scale of the cliffs, far reaching panoramic views from the rugged cliff tops, the wild character of the cliff tops, and the prominence and skyline of pre-historic features from the largest Bronze Age burial mound in Cornwall at Carne Beacon to the County's largest prehistoric enclosure at the Iron Age cliff castles at Dodman, and the narrow winding lanes with high hedges and blind corners.*”

The Cornwall AONB is also protected by Cornwall Council (CC) in Policy 23⁹ which states that “*great weight will be given to conserving the landscape and scenic beauty within or affecting the setting of the AONB. Proposals must conserve and enhance the landscape character and natural beauty of the AONB and provide only for an identified local need and be appropriately located to address the AONB's sensitivity and capacity. Proposals should be informed by and assist the delivery of the objectives of the Cornwall and Tamar Valley AONB Management Plans including the interests of those who live and / or work in them...*”

- The Cornwall and West Devon Mining Landscape World Heritage Site (WHS) occurs approximately 5.2km to the east and south-east of the site, extending to the eastern fringes of the study area.

The Cornwall and West Devon Mining WHS is recognised for the substantial remains as a result of the rapid growth of pioneering copper and tin mining in the 18th and 19th centuries, leaving behind a legacy of deep underground mines, engine houses, foundries, new towns, smallholdings, ports and harbours and their ancillary structures.

⁹ Cornwall Council, Cornwall Local Plan, Strategic Policies 2010 – 2030, Adopted November 2016

The remains are a testimony to the contribution Cornwall and West Devon made to the Industrial Revolution in the rest of Britain.

The Cornwall and West Devon Mining WHS is also protected by CC in Policy 24 which states “*development within the Cornwall and West Devon Mining Landscape World Heritage Site (WHS) and its setting should accord with the WHS Management Plan. Proposals that would result in harm to the authenticity and integrity of the Outstanding Universal Value, should be wholly exceptional. If the impact of the proposal is neutral, either on the significance or setting, then opportunities to enhance or better reveal their significance should be taken.*”

- There are four Areas of Great Landscape Value (AGLV) in the study area including:
 - The Fal Valley (including Trenowth), approximately 3.3km to the south-west, recognised for its inaccessible and 'unspoilt' nature of the valley, the woodland and thick hedgerows, the ornamental landscapes around Trewithen, the peaceful character in areas of coppice, and the dramatic viaducts;
 - Helman Tor and Luxulyan Valley, approximately 6.7km to the east, recognised for its boggy woodland, marsh, wetland vegetation and heaths at Helman Tor/Redmoor, the dominance of Helman Tor as a landmark feature, the woodlands within the Luxulyan Valley, the dominance of the Treffry Viaduct as a landmark within the Luxulyan Valley, and the ornamental character of the landscape at Prideaux;
 - Camel and Allen Valleys, approximately 9.4km to the north, recognised for its Ancient Woodland, small meadows and wetlands of the Camel and Allen Valleys, parkland landscape around Pencarrow; and
 - Arrallas Farm, approximately 8.6km to the west.

AGLVs are areas of high landscape quality with strong and distinctive characteristics which make them particularly sensitive to development.

CC in Policy 23 recognises the importance of AGLVs and states that development within AGLVs “*should maintain the character and distinctive landscape qualities of such areas.*”

- There are three Registered Parks and Gardens in the study area, including:
 - Tregrehan, Grade II*, approximately 6.3km to the east. This is a mid-19th century garden and pleasure grounds, together with significant plant collections, set in parkland;
 - Heligan, Grade II, approximately 6.8km to the south. This is a late 18th century and early 19th century park and gardens, with an extensive plant collection; and
 - Trewithen, Grade II*, approximately 9km to the south-west. This is an 18th century pleasure grounds which form the setting for an early 20th century woodland garden.

Registered Parks and Gardens are protected by CC in Policy 24 which states that “*development proposals will be expected to... conserve and, where appropriate, enhance the design, character, appearance and historic significance of historic parks and gardens.*”

- Some of the towns and villages in the study area have been recognised as Conservation Areas. These include:
 - St Austell, approximately 2.8km to the south-east;
 - Charlestown, approximately 5.1km to the south-east;
 - Pentewan, approximately 7.1km to the south-east;

- Grampound, approximately 7.4km to the south-west;
- Tywardreath, approximately 9.7km to the east; and
- Mevagissey, approximately 9.3km to the south-east.

Conservation Areas are protected by CC in Policy 24 which states that “*development proposals will be expected to... maintain the special character and appearance of Conservation Areas...*”

- There is minimal Ancient Woodland in the study area, the closest, Bodinnick Wood, approximately 3.8km to the south-west.

Ancient Woodlands are protected by CC in Policy 23 which states that “*development must avoid the loss or deterioration of Ancient Woodland...*”

Landscape Character

National Landscape Character

- 3.14 The Natural England¹⁰ national landscape character information is referred to for a strategic understanding of landscape character within the study area. This outlines the wider setting for the site and provides a context for the description of the local landscape character.
- 3.15 Within the study area, there are two national landscape character areas. Their location is illustrated in **Figure 5**.
- 3.16 The site, broadly stretching in a band from the north-east to the north-west, extending to the eastern fringes of the study area is within the *Hensbarrow national landscape character area (154)*. This is described as an interesting and varied landscape, named after Hensbarrow Downs, the granite hills which are the focus of the china clay industry. The world-famous Eden Project is located in an old china clay pit and to the north, Goss Moor forms an open and wild landscape that is touched by human infrastructure such as roads, electricity pylons and historical tin extraction. The eastern side is an area of contrast between the wild and open granite tors, the biodiverse heath and willow carr and an idyllic pattern of fields bounded by Cornish hedges and woodlands. Settlements are fairly small, and the local vernacular is of granite or cob and granite buildings, roofed with slate and sometimes with hanging slate. The locally produced concrete blocks are also a distinctive feature.
- 3.17 To the north, west and south of the study area is within the *Cornish Killas national landscape character area (152)*. This area forms the main body of the Cornish landmass around the granite outcrops of Bodmin Moor, Hensbarrow, Carnmenellis, West Penwith and The Lizard. The northern half of the area, with its open character and general lack of tree cover, affords long views across Cornwall to neighbouring areas and out to sea. The gently rolling scenery, sheltered coves, headlands, and estuaries of the south coast contrast with the exposed high cliffs and more rugged nature of the north coast. The rocky coastline is characterised by coves and headlands and possesses an impressive number of important geological exposures.

¹⁰ National Character Area profiles (www.gov.uk)

Local Landscape Character

- 3.18 Cornwall Council (CC)¹¹ has identified eight landscape character areas within the study area. The landscape character areas are described in more detail below and are illustrated in **Figure 6**.
- 3.19 The site is within the *St Austell or Hensbarrow China Clay Area landscape character area (LCA17)*, extending in a broad band across the centre of the study area.
- 3.20 The *St Austell or Hensbarrow China Clay Area (LCA17)* is a very varied, dramatic landscape of china clay waste tips and areas of rough vegetation, characterised by open-pit mining. The mix of active and disused sites creates a dramatic 'lunar' landscape of huge, light coloured waste tips and settling ponds within a relic pastoral farming landscape. It is a rugged area of great variation and drama. Dominant visual elements include the large white spoil heaps, either conical or flat-topped in form, aqua-blue pools, areas of rough ground and natural and naturally regenerated scrub and heath, as well as large quarry pits. The scale of these features contrasts dramatically with the small-scale field patterns. The fluctuating and changing condition and relationship of elements in this landscape and the natural regeneration of heathland, new woodland planting and rough ground provides a vivid and dynamic visual landscape character quite unlike surrounding landscape character areas.
- 3.21 The key landscape characteristics of the *St Austell or Hensbarrow China Clay Area (LCA17)* includes:
- High extensive spoil heaps and vivid blue settling ponds, lakes and mica dams;
 - Extensive industrial buildings, both active and derelict;
 - Fluctuation and change in condition and relationship of landscape elements;
 - Settlement pattern of large mining villages and terraces and many industrial buildings;
 - Huge scale of spoil heaps, contrasting with small scale of farmland;
 - Small areas of pastoral farmland and rough grazing;
 - Fragmented areas of lowland heathland, scrub and broadleaved woodland with areas of natural regeneration and restoration of heathland, woodland and rough ground;
 - High density of open water in the form of pools;
 - Small-scale field pattern of miners' smallholdings around St Dennis; and
 - Visible time-depth of structures and patterns within landscape - Bronze Age barrows, medieval field pattern, 19th century mining relics and modern china clay workings.
- 3.22 The *St Austell or Hensbarrow China Clay Area (LCA17)* has been subject to great change and is poorly managed, with fragmented ecological corridors and intensive land use. However, this is a vibrant and dynamic industrial landscape of deep pits and steeply angled tips overlying an older farming and mining landscape, the remnants of which can be found amongst the present day workings. There is also scattered, generally single and small and medium-size operational wind energy schemes present, including large-scale consented single turbines, nestled within the diverse predominantly industrial landscape. Although a distinctive landscape, it has a weak landscape structure, partly degraded with frequent detractors with very good to substantial ability to accommodate change. This is a large scale industrial landscape with significant human influence, the presence of the

¹¹ Cornwall Council, *Landscape Character Assessment* (on-line via interactive map www.cornwall.gov.uk)

prominent and distinctive skyline of huge pale spoil heaps and the presence of historic skyline features increase levels of sensitivity to wind energy development. As a result, it is of **medium (moderate)** sensitivity.

- 3.23 To the north of the site, extending to the northern fringes of the study area, is the *Mid Cornwall Moors landscape character area (LCA20)*, extending in a band across the study area from the north-east to the north-west.
- 3.24 The *Mid Cornwall Moors (LCA20)* is an open plateau that comprises the remnants of the poorly drained wildland/moorland of Goss Moor at its heart and Red Moor and Breney Common to the east. These combine with areas of rough grazing with pastoral farmland on the surrounding slopes. The associated wetland and heathland flora and fauna found within this area is important locally and nationally. There are extensive views to higher land around and south to *St Austell or Hensbarrow China Clay Area (LCA17)*. The higher ground encircling the Moors to the east forms part of *St Austell Bay and Luxulyan Valley (LCA39)*. Tree cover is sparse on the higher ground, but the sheltered slopes and lower land are well wooded. The northern part of the area features the Iron Age hillfort of Castle-an-Dinas. The re-routing of the A30 which crosses most of the area provides enhanced opportunities to restore the integrity of the wildland but has significantly damaged an extensive and well-preserved medieval strip field system. Much of the area has a scatter of industrial and residential development and infrastructure, including a few generally single or small clusters of small, medium and large-scale wind energy schemes focused along the A30 road corridor.
- 3.25 The character of the *Mid Cornwall Moors* is largely intact and well-managed but diluted by pylons and the dominance of transport corridors and large-scale industry. As a result, it has a **medium (moderate)** sensitivity.
- 3.26 To the east of the site, extending to the eastern fringes of the study area is the *St Austell Bay and Luxulyan Valley landscape character area (LCA39)*.
- 3.27 The *St Austell Bay and Luxulyan Valley (LCA39)* stretches out to sea at the headland at Gribben Head. It is a wedge-shaped section of high plateau land wrapping around the south of *St Austell or Hensbarrow China Clay Area (LCA17)*. In the north, fingers of high ground, notably Helman Tor stretch out onto the low-lying ground of *Mid Cornwall Moors (LCA20)*. The low rocky cliffs of the coastline forming the northern and eastern side of *St Austell Bay* are punctured by the wide alluvial estuary at Par Beach where extensive sands have built up in the mouth of the Par River. This river with its small tributaries winds inland in flat wide-bottomed valleys that have been settled and heavily industrialised or have developed wet woodlands. Another area of alluvial plain stretches inland at Par Moor running up behind the cliffs of Carlyon Bay. The higher ground in this area is heavily built up with the urban centre of *St Austell* and sprawling residential areas of Carlyon Bay, *St Blazey* and *Par* while the coastal zone with long sandy beaches at the base of the cliffs is much used for recreation. At *Par* the deep water channel created by the river has enabled a docks complex to be developed. On the eastern side leading to pressures of the bay, there is no sand and the cliffs are higher and rocky with few sheltered coves, notably *Polkerris*. Inland, woodland and pastoral landscapes dominate, changing to wetland between the settlements of *Par* and *Tywardreath*. One main feature is the well-wooded *Luxulyan Valley* that has extensive relics of the mining industry.
- 3.28 The character of the *St Austell Bay and Luxulyan Valley (LCA39)* has been significantly altered over time and its current condition is mixed. There is a scattering of single, small to medium scale turbines present. The western area is highly developed with urban and suburban development, holiday facilities and recreational/amenity areas making a major

impact as opposed to the eastern side of the bay where development has not been allowed to despoil the natural beauty. As a result, it has a **medium (moderate)** sensitivity.

- 3.29 To the south of the site, extending to the southern fringes of the study area is the *Gerrans, Veryan and Mevagissey Bays landscape character area (LCA40)*.
- 3.30 The *Gerrans, Veryan and Mevagissey Bays (LCA40)* is comprised of a high farmland plateau bounded to the south by the sea, and to the north by the River Fal and its tributaries and the southern outskirts of St Austell. The coastline is comprised of three large and sweeping coastal bays whose rocky shores, sandy beaches and small coves are derived from their geology of Killas rocks. The coastal strip is dominated by scrub and bracken which has grown up where agriculture has retreated. Punctuating the bays are the distinctive promontory headlands of Nare Head, Dodman Point and Black Head, formed from harder bedrock extending from the elevated plateau inland. The combination of headlands, bays and cliffs give rise to spectacular coastline scenery and far-reaching views. The plateau behind the coast is a farmed landscape, intersected by stream valleys that flow to the sea in the south and into the River Fal to the north-west. The stream valleys give rise to an undulating landform and a transport pattern of tight winding lanes with many blind corners that offer an intimate and sheltered character when the lanes dip into the woodland that is concentrated in the valley sides and bottoms. This is a medieval landscape of largely anciently enclosed land with fields of small to medium size and irregular shape bounded in most places by slate Cornish hedges. The size and shape of fields are variable across the area as is the extent to which the hedges have tree cover. The fertile land is a mixture of arable and pastoral farming with some parkland giving the area a domesticated feel. Settlement is sparsely distributed across the area which is dotted with small farmsteads and medieval farm hamlets, many with the prefix 'Tre', giving away their medieval origins. Some of these hamlets have expanded into larger medieval church towns such as Veryan, Gerrans, Philleigh and Gorran Churchtown; Tregony developed as a medieval new town adjacent to a castle and port on the Fal; Grampound was also a planted medieval settlement at a river crossing on a major east-west road route. Other villages to the north of the area such as Polgooth and Coombe developed due to their links with the mining industry to the north. Coastal villages are found within each of the bays, tucked into the sheltered mouths of steep-sided stream valleys. Most are former fishing villages the exception is Pentewan which developed as an industrial port, but they are now all influenced by tourism to greater or lesser extents. In the northern section of this area the distant china clay tips and the industry related to Charlestown and St Austell Bay have a significant visual influence on the landscape, as do views across the Fal Estuary and the River Fal to the south and west.
- 3.31 The agricultural pattern of mixed farming of the *Gerrans, Veryan and Mevagissey Bays (LCA40)* is largely intact and in reasonable condition, although is being affected by the intensification of agriculture in some places. This is manifested in large sprawling agricultural buildings and over-intensive hedge maintenance leading to degradation of the Cornish hedges and the use of post and wire fencing, often associated with horsiculture or arable conversion. In places, the estate style of management and planting; has resulted in the replacement of traditional field boundaries with fencing. The coastal strip is in poor condition due to a lack of grazing to manage the coastal heath or coastal field pattern. There has been local change from farmland or parkland to amenity uses such as caravan sites, with consequent loss of character. Woodlands in this area are largely unmanaged due to their situation in the steep sides stream valleys and grazing of these woodlands may be a problem. Conversely, woodlands in the parklands tend to be very highly managed. The main transport corridors interrupt tranquillity considerably in this character area, particularly in the summer months when traffic is heavy and the smaller lanes of the Roseland groan under the pressure. Where roads have been improved,

Cornish hedges have often been rebuilt with non-vernacular stone slate and there has been gradual urbanisation of the area resulting from transport associated infrastructure such as metal bus stops, a proliferation of signage, particularly around villages, hard kerbing of verges and road paint. The traditional fingerposts are almost all in degraded to poor condition with peeling paint and rust. Some non-vernacular rural housing development away from village cores, along linear transport routes, has resulted in increased urbanisation, erosion of rural character and the loss of tranquillity. There are also scattered single largely small and medium-scale wind energy schemes present (outside the AONB). The character of some villages, particularly those on the coast has been weakened by tourist development, which although usually small in scale, is having an incremental impact. This character area has a strong visual relationship with its neighbours. The views of the spread of St Austell and china clay area, which do not share common characteristics, erode the tranquillity of this area. As a result, it has a **medium (moderate)** sensitivity, increasing to **medium-high (moderate-high)** sensitivity within the AONB.

- 3.32 To the west of the site, extending to the western and north-western fringes of the study area is the *Newlyn Downs landscape character area (LCA14)*.
- 3.33 The *Newlyn Downs (LCA14)* is extensive and takes in the open and exposed gently undulating plateau landscape extending east to west with extensive views out to sea from the higher ground. The *Newlyn Downs (LCA14)* is incised by shallow valleys on the margins. Field patterns are predominantly medieval but with strongly rectilinear post-medieval enclosure of former rough ground in some areas, particularly to the south. Land use is a mix of pasture and arable. Cornish hedgerows are prevalent but mature trees are fewer on higher ground due to exposure and close flailing of hedges. There is some woodland, mostly wet woodland, in the valleys with small areas of wetlands with fens. There is a significant area of lowland heathland at Newlyn Downs and along the coast between Perranporth and St Agnes. The historic route way of the A30 and its associated development follows the east-west spine of higher ground. There are scattered largely small and medium-scale operational wind energy schemes nestled within the rolling and well-vegetated farmland. Settlement is generally small nucleated villages associated with the communications network and dispersed farm settlements.
- 3.34 The *Newlyn Downs (LCA14)* consists of generally well-managed uncluttered wide rolling farmland divided by Cornish hedges. There are pressures on the landscape from renewable energy developments including wind farms and solar schemes. As a result, it is of **medium-low (low-moderate)** sensitivity.

Cornwall Landscape Sensitivity Assessment

- 3.35 The Cornwall Landscape Sensitivity Assessment (LSA)¹² “provides an assessment of the sensitivity of the Cornish landscape to two types of renewable energy development, onshore wind turbines and ground mounted solar photovoltaic arrays.” The LSA forms part of an evidence base to support the Cornwall Local Plan and the outputs will enable Cornwall Council to make robust, well-informed decisions on the wind and solar development applications received.

¹² Cornwall Renewable Energy Advice, Annex 1: An assessment of the landscape sensitivity to on-shore wind energy and large-scale photovoltaic development in Cornwall, Cornwall Council, March 2016

- 3.36 The main aims of the LSA are:
- To assess the sensitivity of the landscape to wind farms and solar developments. The LSA includes landscape recommendations on the appropriate siting and scale of future development (wind and solar) within each of Cornwall's 40 landscape character areas; and
 - To develop a landscape strategy for deployment of each technology in each landscape character area, to give an indication of the relative amounts of development that might be accommodated in different landscape character areas, independent of renewable energy targets.
- 3.37 Within the LSA, the *St Austell or Hensbarrow China Clay Area landscape character area (LCA17)* has been identified as having a '**moderate**' overall landscape sensitivity for wind energy development where "*the natural granite outcrops of Roche and St Dennis and the outer boundary tips and landforms of the area would be particularly sensitive.*"
- 3.38 'Moderate' sensitivity is defined as "*some of the key characteristics and qualities of the landscape are sensitive to change from the type of renewable energy being assessed.*"
- 3.39 The landscape strategy for wind energy development is "*for a landscape with **occasional** wind energy development within the central part of the LCA - comprising small, medium or large clusters of turbines, comprising turbines up to and including Band D (turbine size and cluster size should relate to landscape scale which varies within the LCA).*"
- 3.40 The landscape strategy also states that "*whilst each wind energy development influences the perception of the landscape at close proximity, they do not have a defining influence on the overall experience of the landscape.*"
- 3.41 The proposed development, therefore, conforms to the requirements of the LSA and is:
- A Band D turbine as identified by CC (between 100-150m in height to blade tip);
 - Situated within the central part of the landscape character area, away from and not influencing the more sensitive landscapes of Roche and St Dennis; and
 - A single wind turbine, within a large-scale landscape, influenced by surrounding industrial development.

Visual Amenity Receptors and their Views

- 3.42 An overview of the visual amenity receptors and their views within the study area is described below. The location of principal visual amenity receptors is illustrated in **Figure 7**.

Settlements – Towns, Villages and Hamlets

- 3.43 There are a number of **high** sensitivity towns, villages and hamlets scattered throughout the study area, generally situated along the major road corridors or associated with the quarry workings, including the large coastal town of St Austell to the south-east, extending to the boundary with St Austell Bay. Largely sloping down towards the coastal fringes and enclosed by surrounding development, it is only from the fringes of St Austell, as illustrated in **Viewpoint 9 (Figure 20A)**, that more expansive views inland are possible. Views over the adjacent undulating farmland, mineral workings and scattered wind energy schemes are possible.

- 3.44 One of the closest settlements to the site is Trewoon to the south. Situated along the A3058 including rising up the slopes towards the site along Carne Hill, many wider views are restricted by the enclosure along the major road as well as surrounding development, mineral workings and mature vegetation. Wider views northwards, including over the scattered wind energy schemes, are largely restricted by a combination of undulating landform and mature vegetation. However, from selected open locations within and on the fringes of Trewoon, as illustrated in **Viewpoint 5 (Figure 16A)** and **Viewpoint 6 (Figure 17A)**, from gaps or above in the surrounding built enclosure, glimpses of operational wind turbines are possible.
- 3.45 The contained Gainsborough Holiday Village also occurs to the west. Set amidst an undulating landscape, wider views are restricted by the intervening reclaimed spoil heap.
- 3.46 The settlements of Foxhole and Nanpean occur to the west and north-west and Stenalees to the north-east. Set on the lower slopes, amidst the undulating landscape, heavily influenced by surrounding industry and mineral workings, wider views from the settlement fringes are often restricted. It is only from selected open locations on the fringes of the settlements, that more expansive views across the undulating landscape, punctuated by spoil heaps, mineral workings and scattered operational wind turbines are possible.
- 3.47 Other settlements further afield, including St Stephen to the west and St Dennis to the north-west, are focussed around a church, often situated on elevated ground at the core of the settlements. Wider views are possible from the settlements across the surrounding farmland, including towards the conical and distinctive distant tips, punctuated by scattered operational wind energy schemes.
- 3.48 Roche is also situated to the north and views from the settlement fringes are dominated by the surrounding tips, including the numerous lines of pylons that cross the landscape.

Scattered Residential Properties

- 3.49 Individual **high** sensitivity residential properties and farms are scattered within the undulating landscape, often stretched out along the network of minor roads, or focussed along junctions, becoming sparser within the industrial landscape immediately surrounding the site.
- 3.50 Most of these houses and farms have restricted views into the surrounding landscape from a combination of vegetation enclosing many properties, screening provided by adjacent development, subtle variations in landform and by the numerous lines of mature vegetation, including hedgerows, linear tree belts, mature trees, small copses and woodlands, in the wider landscape.
- 3.51 There are however a number of scattered and small clusters of residential properties within close proximity to the site.
- The residential property associated with Penisker Farm occurs on lower ground approximately 725m to the east. Nestled within the sloping farmland, views are possible across the adjacent sloping farmland, including towards the more distant mineral workings, scattered with operational wind turbines;
 - Residential properties associated with Higher Biscovillack Farm and Lower Biscovillack Farm, approximately 1.2km to the north-east and east respectively. Difficult to perceive from publicly accessible locations, the properties appear to be relatively well-enclosed by a mixture of surrounding mature vegetation, buildings and

sloping landform, although views over the surrounding mineral workings, scattered with operational wind turbines could be possible;

- There is a small cluster of residential properties to the north-west, situated at a crossroads of minor roads, including Longstone Cottage and Longstone House, approximately 1.5km to the north-west. Oblique views over the adjacent sloping fields and quarry workings are possible from the fringes of the properties although many views are restricted by garden vegetation and subtle variations in landform (including tips and mineral workings) both surrounding the properties and in the intervening landscape; and
- Greystone Cottage is situated along Greensplat Road, approximately 1.6km to the north-east. Situated on elevated ground, adjacent and to the west of the minor road, views are possible across the adjacent sloping farmland, including towards the more distant mineral workings, scattered with operational wind turbines, as illustrated in **Viewpoint 7 (Figure 18A)**, from the nearby Greensplat Road.

National Trails

- 3.52 The **high** sensitivity South West Coast Path National Trail crosses the study area from the east to the south approximately 5.9km to the south-east of the site at its closest point.
- 3.53 Following the dramatic coast, as well as skirting the settlement fringes of St Austell, views are focussed across the coast and coastal fringes, with views inland largely restricted by the undulating and well-vegetated agricultural landscape.

Recreational Routes

- 3.54 The **medium-high** sensitivity Saints Way recreational route crosses the study area from the north-east to the east, approximately 7.5km to the east of the site at its closest point.
- 3.55 Crossing the varied undulating and well-vegetated landscape, variable views are possible, including of the scattered generally single and small clusters of wind energy schemes.

National Cycle Routes

- 3.56 Numerous **medium-high** sensitivity National Cycle Routes (NCRs) cross the study area, general passing from the north-west, to the north-east and south-east, with many of the routes connecting at St Austell to the south-east.
- 3.57 The closest, NCR2, the Clay Trail, passes approximately 2.6km to the east of the site at its closest point, connecting with the Wheal Martyn Museum and Country Park.
- 3.58 Largely following minor roads as well as purpose-built routes along former railway lines associated with the mining landscape, views from the NCRs are largely restricted by the immediate enclosure by vegetation, including Cornish hedges as well as the wider screening by development and undulating landform including the numerous and dramatic tips surrounding the site and within the wider landscape.
- 3.59 Glimpsed views however into the surrounding varied landscape, including the scattered single and small clusters of wind energy schemes are possible from gaps in the enclosure, or from selected elevated locations, such as bridges.

Places of Interest (including Country Parks)

- 3.60 The **high** sensitivity and renowned Eden Project occurs approximately 6km to the east of the site at its closest point, the Lost Gardens of Heligan, approximately 7.5km to the south and Black Head National Trust owned land occurs approximately 8.1km to the south-east.
- 3.61 The Wheal Martyn Museum and Country Park also occurs approximately 2.3km to the north-east. Focussed around a museum and visitor centre, there are also walks surrounding the centre, generally through woodlands scattered with remnants of the mining industry. There are also 'look-out' points, as illustrated in **Viewpoint 8 (Figure 19A)**, focusing on a working quarry, although views into the wider mining landscape, scattered with operational wind energy schemes are also possible.

Local Public Rights of Way, Bridleways and Cycleways

- 3.62 There are few **medium (medium-high** within the AGLV and **high** within the AONB) sensitivity scattered public rights of way, bridleways and cycleways present within the study area.
- 3.63 In close proximity to the site, a public right of way connects with the permissive quarry road, with associated open views across the adjacent farming and industrial landscape, including towards the nearby operational Higher Goonamarth Farm wind turbine.
- 3.64 The public right of way extends to the east towards Greensplat Road and to the south towards Penisker Farm, as illustrated in **Viewpoint 1 (Figure 12A)** and **Viewpoint 3 (Figure 14A)**, views are possible from the public right of way across the adjacent industrial and farming landscape, including towards the scattered operational wind energy schemes, although occasionally restricted by intervening vegetation and landform, including the often dramatic tips and quarry workings.
- 3.65 Further afield, wider views are possible from the network of public rights of way across the diverse farming and industrial influenced landscape, although often limited by subtle variations in landform and mature vegetation in the immediate and wider landscape. Scattered operational wind energy schemes are also often perceived.
- 3.66 Even from a public right of way on the fringes of the AONB, as illustrated in **Viewpoint 13 (Figure 24A)**, it is only from selected open and elevated locations that expansive and distant views are possible, including of the scattered operational wind energy schemes.

Open Access Areas

- 3.67 There are scattered **medium** and **medium-high** sensitivity (within the AGLVs) open access areas within the study area.
- 3.68 Largely focussed on open and elevated locations within the undulating landscape, selected wider views are possible across the rolling landform including towards the distinctive tips and quarries, punctuated by scattered single and small clusters of wind turbines.
- 3.69 As illustrated in **Viewpoint 10 (Figure 21A)**, expansive views are possible from the open access area adjacent to Hensbarrow Beacon across the landscape of rough grassland, dominated by large tips and quarry workings and punctuated by lines of pylons and scattered wind energy schemes.

- 3.70 Permissive access is also possible from Caerloggas Downs to the north-east. As illustrated in **Viewpoint 11 (Figure 22A)**, expansive views are possible from the downs, including over the nearby settlements, mineral workings and farmland, scattered with operational wind energy schemes.
- 3.71 However, further afield, from the **medium-high** sensitivity open access area on Castle-an-Dinas to the north as illustrated in **Viewpoint 14 (Figure 25A)**, and from the **medium-high** sensitivity open access area within the AGLV adjacent to Helman Tor, as illustrated in **Viewpoint 15 (Figure 26A)**, expansive views are possible across the surrounding undulating farmland and wooded landscape, scattered with distant glimpses of single and small clusters of wind turbines. Although distantly perceived, wind energy schemes, however, do not dominate or largely influence the expansive views.

Major Roads

- 3.72 Numerous **low** sensitivity major roads pass through the study area, the closest, the A3058, crossing the study area from the west to the east, passing through St Austell to the south-east, approximately 1.2km to the south of the site at its closest point. Largely enclosed by development and mature vegetation, it is only from a few selected open locations, as illustrated in **Viewpoint 5 (Figure 16A)** from the fringes of Trewoon and as the A3058 emerges from the enclosure of St Austell, as illustrated in **Viewpoint 9 (Figure 20A)** that more expansive views across the wider industrial and farming landscape, scattered with operational wind energy schemes, are possible.
- 3.73 The A391 also crosses the study area from the north-east, where it connects with the A30 at a junction, to the south-east passing through St Austell, approximately 3.7km to the east of the site at its closest point. Largely enclosed by development and mature vegetation, it is only from a few selected open locations, that more expansive views across the wider industrial and farming landscape, scattered with operational wind energy schemes, are possible.
- 3.74 Further afield, the major roads are largely enclosed by rolling landform, adjacent development and surrounding mature vegetation. Although views of the scattered operational wind energy schemes are possible from the network of major roads, they do not dominate.

Minor Roads

- 3.75 Numerous **medium-low** sensitivity minor roads cross the study area and are largely enclosed by mature linear trees, hedgerows and hedgebanks. It is only from selected high points, or gaps in the enclosure, that views into the surrounding farmland and industrial influenced landscape are possible.
- 3.76 The closest minor road occurs to the east of the site, connecting with Trewoon and the A3058 to the south. Crossing the agricultural and rough grassland landscape, amidst the quarry workings and glimpsed views of operational single wind turbines, occasional open views between vegetation are possible, as illustrated in **Viewpoint 2 (Figure 13A)**.
- 3.77 The permissive quarry road occurs to the north and passes broadly from the north-east to the north-west. As illustrated in **Viewpoint 4 (Figure 15A)**, views are possible from the permissive quarry road over the adjacent farmland and tip, including towards the site. The adjacent Higher Goonamarth Farm wind turbine is also prominent in the view at close proximity.

- 3.78 Many views from Greensplat Road to the east are restricted by intervening hedgebanks and linear vegetation. From selected elevated and open locations, as illustrated in **Viewpoint 7 (Figure 18A)**, expansive views across the sloping farmland towards the operational Higher Goonamarth Farm wind turbine are possible, set against a background of the tips and workings.
- 3.79 Further afield, along the network of minor roads that cross the study area, it is only from selected open and elevated locations, as illustrated in **Viewpoint 12 (Figure 23A)** that more expansive views over the surrounding undulating agricultural and wooded landscape, punctuated with scattered wind energy schemes, including the dramatic distant tips, are possible. Although distantly perceived, wind energy schemes, however, do not dominate or largely influence the expansive view.

Railway Lines

- 3.80 A number of **low** sensitivity railway lines cross the study area, passing through St Austell to the south-east, with views generally restricted by a combination of adjacent development and mature vegetation.

4. Design and Mitigation Measures

- 4.1 Mitigation measures to help minimise the potential impacts and effects have been incorporated into the distinct phases of the proposed development, including during the design process (designed in mitigation) and planning for construction, operation and decommissioning.

Design

- 4.2 A balance between technical and environmental constraints, effectiveness and landscape and visual impacts were the key factors in determining the selection and siting of the proposed wind turbine for the site.

Mitigation through the selection of the proposed wind turbine

- 4.3 The size and model of the proposed wind turbine was selected to provide a substantial amount of electricity generation.
- 4.4 Although larger wind turbine models were also investigated, these were discounted due to airport constraints.
- 4.5 The proposed wind turbine is also the same size as the nearby consented single turbines at East Karlake, Longstones and Wheal Martyn and would largely be perceived within the same context as the nearby operational single wind turbines at Higher Goonamarth Farm and Blackpool Quarry.

Mitigation through siting of the proposed wind turbine

- 4.6 The proposed wind turbine is sited within an industrial working landscape already influenced by other operational and consented wind turbine developments. The proposed wind turbine would appear as an additional single element within a landscape already influenced by wind energy schemes.

- 4.7 The proposed wind turbine was positioned away from high sensitivity receptors, such as residential properties and large settlements.
- 4.8 The proposed wind turbine will have minimal effects on any landscape elements. As a result, during construction, there will be limited removal of vegetation, with associated **negligible adverse** effects on landscape elements.
- 4.9 In addition, habitat improvements are also proposed including heathland restoration, scrub enhancement and new scrub planting. This will overall improve the biodiversity and nature conservation interest of the immediate surroundings.
- 4.10 The generic siting guidance relevant to the *St Austell or Hensbarrow China Clay Area landscape character area (LCA17)* as found within the LSA¹³ was also referenced including:
- Locate turbines in the mining landscapes in the centre of the LCA (away from the outward presenting edge of the Clay area) and in the areas of more regular field patterns which tend to occur on higher ground away from the river valleys and older settlements.
 - Site turbines away from the natural granite outcrops of Roche and St Dennis and the outer boundary tips and landforms of the area so that these are retained as distinctive features on the skyline;
 - Ensure wind energy development does not dominate, or prevent the understanding and appreciation of, historic landmarks on the skyline, including St Stephen's Beacon, St Dennis church and the 15th century chapel on the tor of Roche Rock. With reference to the ZTVs (**Figures 10 and 11**) – these features are all excluded from the ZTV and will experience no potential influence on their setting as a result of the proposed development;
 - Avoid locating the largest scale wind energy development in areas of very small, ancient fields (especially in the east, at Stenalees, Penwithick, in the north, around St Dennis, and in the south, at Goverseth and Carpalla);
 - Consider how turbines fit with existing skyline features when siting and designing wind development – turbines may be better sited on the top of flat tips than close to distinctive conical forms, and away from the outward presenting edge of the Clay area; and
 - Ensure wind energy development does not dominate the huge pale spoil heaps, extensive turquoise lagoons and settling tanks, Trenance viaduct on the north edge of St Austell, Gover Viaduct, the Norman towers of both St Dennis and Roche, Roche Rock and Hensbarrow Beacon as distinctive features of the landscape.

Construction

- 4.11 Mitigation measures, relevant to the LVIA during the construction period, include:
- Vegetation loss, including hedgerows, tree and shrub removal will be kept to a minimum;

¹³ Cornwall Renewable Energy Advice, Annex 1: An assessment of the landscape sensitivity to on-shore wind energy and large-scale photovoltaic development in Cornwall, Appendix 1: Landscape Sensitivity and Strategy Matrices for each Landscape Character Area, Cornwall Council, March 2016

- The construction compound will be located alongside the wind turbine site minimising direct and indirect effects on landscape character and visual amenity receptors and their views; and
- All temporarily disturbed and excavated areas will be reinstated following the completion of construction activities.

Operation

- 4.12 Given the scale of the proposed wind turbine, there are few realistic mitigation measures that could be introduced, which would help limit the visibility of the proposed development within the wider landscape during the operational period. A new tall structure with moving vertical elements will be introduced which, due to its size and scale, will be perceived over a relatively wide area.
- 4.13 However, it should be acknowledged that the operational effects of the proposed development will be temporary, given the 35 year operation period.

Decommissioning

- 4.14 The proposed development will be operational for 35 years, at the end of which it will be dismantled and removed and the site reinstated to previous conditions.
- 4.15 Mitigation measures, relevant to the LVIA during the decommissioning period will be similar to the construction period and will include:
- Vegetation loss, including hedgerows, tree and shrub removal will be kept to a minimum; and
 - The decommissioning compound and all disturbed and excavated areas will be reinstated following the completion of decommissioning activities. The concrete foundations will be broken up and removed from the site and underground cabling will be removed or left in-situ, covered to make up levels and spread with recovered subsoil and topsoil, appropriate to re-establish previous conditions.

5. Construction and Decommissioning Impacts and Effects

- 5.1 Construction activities that have the potential to affect the landscape character and views from visual amenity receptors include:
- Deliveries to site and vehicle movements on and off-site;
 - Presence of crane (maximum of 3 days – in good weather conditions) to erect the proposed wind turbine;
 - Erection of proposed wind turbine tower, installation of turbine nacelle and blades; and
 - Reinstatement works to areas disturbed by construction activities.
- 5.2 Decommissioning activities that have the potential to affect the landscape character and views from visual amenity receptors include:

- Presence of crane (maximum of 3 days – in good weather conditions) to dismantle and remove the proposed wind turbine;
 - Dismantling and removal of on-site small cabinet control house; and
 - Removal of underground cables and proposed wind turbine foundation.
- 5.3 From the description of the construction and decommissioning activities, as outlined above, any effects on landscape character and visual amenity receptors and their views during the construction and decommissioning phases will be very temporary in duration.
- 5.4 Other short-term impacts and effects will be associated with crane movements, only present on site for a likely period of 3 days.
- 5.5 Therefore, the short-term, reversible and temporary nature of the construction and decommissioning activities on both landscape character and visual amenity receptors and their views will ensure that the overall effects will be **minor**.

6. Operational Impacts and Effects

Overview

- 6.1 Zones of Theoretical Visibility (ZTVs) have been generated calculated to a hub height of 77m and blade tip of 135m covering the 30km radius study area (**Figures 8 and 9**) and the 10km radius study area (**Figures 10 and 11**).
- 6.2 Fifteen viewpoints, their location illustrated in **Figures 10 and 11**, have been selected to help illustrate the potential impacts and effects of the proposed development.
- 6.3 The ZTVs are calculated using specialist software. Further details on the production of the ZTVs are found in **Appendix B**.
- 6.4 The ZTVs illustrate the areas of potential visibility of the proposed wind turbine, based on landform data only across the study area. The ZTVs do not take into account the screening effects from local features such as subtle variations in landform, vegetation cover or development. Therefore, the ZTVs represent the 'worst-case' scenario based on the maximum potential hub height and blade tip of the proposed wind turbine but are a starting point for assessing the operational impacts and effects of the proposed development on landscape character and visual amenity receptors and their views.
- 6.5 Within the 30km radius study area, as illustrated in **Figures 8 and 9**, the wider extent of potential visibility is broadly spread throughout the study area, with only selected high points with the potential to perceive the proposed development and barely, if any, potential indirect influence on the Cornwall AONB.
- 6.6 Within the 10km study area, as illustrated in **Figures 10 and 11**, the undulating landform ensures that the potential visibility of the proposed wind turbine will be relatively limited.
- 6.7 The potential visibility of the proposed development will be however quite evenly spread throughout the study area, with the greatest potential visibility in close proximity, reducing substantially with distance, with wider visibility focussed on selected high points and ridges.

- 6.8 There will also be some limited potential visibility from the fringes of St Austell to the south-east. The large expanses of urban areas, including intervening buildings and mature vegetation that predominates, will help to restrict the potential visibility of the proposed development although these factors are not reflected in the ZTV analysis.
- 6.9 There will also be a substantial difference between the potential visibility between hub height and blade tip, as illustrated in the ZTVs.
- 6.10 The difference between the predicted extent of visibility between the maximum blade tip and hub height ZTVs is particularly noticeable to the north, east and west, where the potential extent of visibility is substantially reduced between the blade tip and hub height.

Viewpoint Analysis

- 6.11 Fifteen viewpoints, their locations are shown in **Figures 10 and 11**, have been selected to inform the LVIA and help determine and describe the magnitude of impact and level of effect of the proposed development.
- 6.12 The viewpoints represent the most ‘exposed’ publicly accessible views of the proposed wind turbine, from the most ‘sensitive’ receptors, broadly surrounding the proposed wind turbine from all directions of view.
- 6.13 To illustrate the predicted views of the proposed wind turbine, photographic views, wireframes and photomontages have been produced for all of the viewpoints. The other wind energy schemes within the study area are also shown on all wireframe views.
- 6.14 Details of the preparation of the viewpoint graphics are included in **Appendix B**.

Operational Impacts and Effects on Landscape Character

Landscape Elements

- 6.15 There will be some removal of scrub vegetation as a result of the proposed development, in particular, to construct the turbine foundations. Any removal of vegetation will be kept to a minimum and there will be, at worst, **negligible adverse effects**.
- 6.16 However, the proposed biodiversity enhancements will more than compensate for this limited loss and over time will bring **minor beneficial effects** to the close proximity landscape elements.

Landscape Relevant Designations

- 6.17 The proposed development will not directly affect any landscape relevant designations.
- 6.18 However, with reference to the ZTVs (**Figures 8-11**), there will be the potential for indirect impacts and effects on the setting of selected landscape relevant designations as a result of the operation of the proposed development, as follows:
- The Cornwall Area of Outstanding Natural Beauty (AONB) occurs approximately 4.8km to the south-east of the proposed development, extending to the south-eastern fringes of the study area.

Intermittently within the ZTVs, the proposed development has the potential to indirectly influence the setting of the “*landscape character and natural beauty of the AONB.*”

As illustrated in **Viewpoint 13 (Figures 24A-24C)**, from an open and elevated public right of way on the fringes of the AONB, the proposed development has the potential to be perceived.

It will be selectively viewed from within the AONB as an additional single vertical element within the inland industrial influenced landscape, within a landscape already influenced by other scattered operational wind energy schemes. It will add another single vertical moving element to the landscape, when perceived from the fringes of the AONB.

The proposed development, although selectively perceived within AONB will not, as outlined within the LSA, affect *“the majestic scale of the cliffs, far reaching panoramic views from the rugged cliff tops, the wild character of the cliff tops, and the prominence and skyline of pre-historic features from the largest Bronze Age burial mound in Cornwall at Carne Beacon to the County’s largest prehistoric enclosure at the Iron Age cliff castles at Dodman, and the narrow winding lanes with high hedges and blind corners.”*

At worst, the magnitude of impact on this **high** sensitivity landscape will be **negligible**, the level of effect will be **minor-negligible adverse**.

However, for the vast majority of the AONB, including the wider AONB within the 30km study area, the proposed development will be difficult to perceive and will not influence this nationally recognised landscape. For the majority of the AONB, the magnitude of impact will be **no change**, the level of effect will be **neutral**.

- Cornwall and West Devon Mining Landscape World Heritage Site (WHS) occurs approximately 5.2km to the east and south-east of the proposed development, extending to the eastern fringes of the study area.

Excluded from the ZTVs, there will be no potential influence on its setting as a result of the proposed development.

The magnitude of impact will be **no change**, the level of effect will be **neutral**.

- The Camel and Allen Valleys AGLV, approximately 9.4km to the north, is excluded from the ZTV and will experience no potential influence on its setting as a result of the proposed development.

The Arrallas Farm AGLV, approximately 8.6km to the west, is excluded from the hub height ZTV, with only the potential to perceive the blade tips only. However, in reality a combination of distance and screening by intervening development and mature vegetation will ensure that any indirect influence on its setting will be very difficult to ascertain.

The Fal Valley (including Trenowth), approximately 3.3km to the south-west is intermittently within the ZTVs. The potential visibility of the proposed development will be largely restricted to selected high points and ridges within the predominantly undulating landscape which will easily become ‘lost’ with distance and due to the screening by the numerous woodlands and thick hedgerows that are characteristic of the landscape.

Even for the Helman Tor and Luxulyan Valley AGLV, approximately 6.7km to the east, only very small elevated sections are within the ZTVs. As illustrated in **Viewpoint 15 (Figures 26A-26C)**, from a high point adjacent to Helman Tor, the potential visibility of the proposed development will be extremely restricted and difficult to ‘pick out’ within a landscape already indirectly influenced by scattered operational wind energy schemes.

The proposed development although with the potential to be perceived (often, at worst, just blade tips only) from selected distant and high points within the AGLVs will not

affect “*the character and distinctive landscape qualities of such areas.*” A combination of distance and intervening undulating and well-vegetated landform will ensure that even if distantly perceived, the proposed development will not influence or affect the special qualities and value of these locally recognised landscapes.

The magnitude of impact will be **no change**, the level of effect will be **neutral**.

- The Registered Parks and Gardens in the study area are intermittently within the ZTVs. A combination of distance and mature vegetation within and on the boundaries of the parks and gardens and within the wider undulating landscape will ensure there will be no indirect influence on their setting as a result of the proposed development.

The proposed development will not adversely affect “*the design, character, appearance and historic significance of historic parks and gardens.*”

The magnitude of impact will be **no change**, the level of effect will be **neutral**.

- The Conservation Areas in the study area are largely excluded from the ZTVs with no potential indirect influence on their setting as a result of the proposed development.

Even from the closest Conservation Area, St Austell, approximately 2.8km to the south-east, which is within the ZTVs, the density and screening provided by the surrounding development will ensure there will be no indirect influence on its setting as a result of the proposed development.

The proposed development will therefore not affect “*the special character and appearance of Conservation Areas...*”

The magnitude of impact will be **no change**, the level of effect will be **neutral**.

- No Ancient Woodlands will be directly affected by the proposed development. The closest, Bodinnick Wood is approximately 3.8km to the south-west.

The magnitude of impact will be **no change**, the level of effect will be **neutral**.

Landscape Character Areas

- 6.19 The main impacts and effects of the proposed development will be on the landscape character areas in close proximity to the proposed development.
- 6.20 The proposed development is within the **medium (moderate) sensitivity** *St Austell or Hensbarrow China Clay Area (LCA17)* which extends in a broad band across the centre of the study area.
- 6.21 Already influenced by scattered generally single and medium-sized operational wind energy schemes, the proposed development will introduce an additional single moving vertical element to this varied, dramatic landscape of china clay waste tips and areas of rough vegetation, characterised by open-pit mining.
- 6.22 As illustrated in **Viewpoints 1-4 (Figures 12A-C-15A-C)**, within close proximity, the proposed development will be perceived as a prominent vertical element, largely viewed adjacent and in combination with the nearby Higher Goonamarth Farm and Blackpool Quarry operational wind turbines, within the overall dramatic lunar landscape of huge, light coloured waste tips and settling ponds within a relic pastoral farming landscape.
- 6.23 Variable screening provided by intervening development, vegetation and variations in landform, as illustrated in **Viewpoints 5 and 6 (Figures 16A-16C and 17A-17C)**, will help to reduce the influence of the proposed development, although still perceived.

- 6.24 These subtle variations in the characteristic undulating landform, including intervening tips and spoil heaps, as illustrated in **Viewpoint 10 (Figures 21A-21C)**, will help to restrict some of the influence of the proposed development within the *St Austell or Hensbarrow China Clay Area (LCA17)*.
- 6.25 However, as illustrated in **Viewpoints 7-9 and 11 (Figures 18A-18E to 20A-20C and 22A-22C)**, the proposed development will be perceived with a wider industrial landscape where it will add another vertical moving element to a landscape already scattered with other similar sized operational wind turbines. The proposed development will be perceived as an additional vertical element within a landscape in combination with and influenced by other wind energy schemes. The proposed development, from selected locations, will also appear as part of a small cluster of similar-sized wind energy schemes.
- 6.26 Further afield, however, a combination of distance and screening provided by the undulating landscape, including the tips and spoil heaps, will help to reduce the wider influence of the proposed development. Even if distantly perceived, the proposed development will be barely viewed as an additional vertical element within a working landscape, already influenced by scattered wind energy schemes, its addition difficult to ascertain within the landscape.
- 6.27 In summary, the operation of the proposed wind turbine will introduce a new single vertical moving element within this vibrant and dynamic industrial landscape. The proposed development will be perceived particularly within close proximity as a prominent vertical element, but set within an industrial changing landscape, reasonably tolerant of change, the proposed development will not feel ‘out of place.’
- 6.28 The proposed development will also be perceived in combination and adjacent to other operational wind turbines within the industrial landscape with associated limited influence on landscape character. At worst, the magnitude of impact on this **medium** sensitivity landscape will be **medium**, the level of effect will be **moderate adverse**, although these effects will dramatically reduce with distance.
- 6.29 In addition, within the LSA, the *St Austell or Hensbarrow China Clay Area landscape character area (LCA17)* has been identified as having a ‘moderate’ overall landscape sensitivity for wind energy development where “*the natural granite outcrops of Roche and St Dennis and the outer boundary tips and landforms of the area would be particularly sensitive.*”
- 6.30 The landscape strategy for wind energy development in the *St Austell or Hensbarrow China Clay Area landscape character area (LCA17)* is “*for a landscape with occasional wind energy development within the central part of the LCA - comprising small, medium or large clusters of turbines, comprising turbines up to and including the ‘large’ size (turbine size and cluster size should relate to landscape scale which varies within the LCA).*”
- 6.31 The proposed development, therefore, conforms to the requirements of the LSA and is:
- ‘Large’ wind turbine as identified by CC (between 100-150m in height to blade tip);
 - Situated within the central part of the landscape character area, away and not influencing the more sensitive landscapes of Roche and St Dennis.
- Roche and St Dennis are excluded from the ZTVs with no potential influence as a result of the proposed development.
- The proposed development will therefore not influence these identified sensitive locations within the landscape character area; and

- A single wind turbine, within a large-scale landscape, influenced by surrounding industrial development.
- 6.32 With reference to the ZTVs (**Figures 10-11**), the proposed development has the potential to indirectly influence the landscape character areas further afield, broadly to the north, east, south, and west, extending to the fringes of the study area.
- 6.33 As illustrated in **Viewpoints 12-13 (Figures 23A-23C and 24A-24C)**, from *Gerrans, Veryan and Mevagissey Bays (LCA40)*, **Viewpoint 14 (Figures 25A-25C)** from *Mid Cornwall Moors (LCA20)* and **Viewpoint 15 (Figures 26A-26C)**, from *St Austell Bay and Luxulyan Valley (LCA39)* from selected open and/or elevated locations, the proposed development has the potential to be distantly perceived.
- 6.34 However, often viewed as a single additional vertical element (and largely just the blade tips) within a landscape and views already influenced by other scattered wind energy schemes, the addition of the proposed development will not significantly affect the key characteristics and features of the more distant landscape character areas. Although with the potential to be distantly and selectively perceived, for the majority of the landscape character areas within the study area, the magnitude of impact will be **no change**, the level of effect will be **neutral**.

Operational Impacts and Effects on Visual Amenity Receptors and their Views

An Overview of Visual Amenity Receptors and their Visibility within the Study Area

Settlements – Towns, Villages and Hamlets

- 6.35 There are a number of **high** sensitivity towns, villages and hamlets scattered throughout the study area, generally situated along the major road corridors or associated with the quarry workings, including the large coastal town of St Austell to the south-east, extending to the boundary with St Austell Bay. Largely sloping down towards the coastal fringes and enclosed by surrounding development, it will only be from the fringes of St Austell, as illustrated in **Viewpoint 9 (Figure 20A-20C)**, that more expansive views inland, including towards the proposed development, will be selectively possible. The proposed development will be selectively perceived, amidst and adjacent to other scattered wind energy schemes. Set within an expansive undulating farmland and industrial influenced landscape, the addition of the proposed development although noticeable, will not significantly alter the view. The proposed development will however be selectively perceived from open locations on the fringes of the **high** sensitivity settlement with associated **low impacts** and **minor effects**. However, for the majority of St Austell, a combination of sloping landform and screening by the density of surrounding development will ensure that the proposed development will not be perceived and the magnitude of impact will be **no change**, the level of effect will be **neutral**.
- 6.36 Similar views of the proposed development may also be possible from one of the closest settlements, Trewoon to the south, situated along the A3058 including rising up the slopes along Carne Hill. Many wider views towards the proposed development will be restricted by the enclosure along the major road as well as surrounding development, mineral workings and mature vegetation. However, from selected open locations within and on the fringes of Trewoon, as illustrated in **Viewpoint 5 (Figures 16A-16C)** and **Viewpoint 6 (Figures 17A-17C)**, from gaps or above in the surrounding built enclosure, glimpses of the proposed development and scattered operational wind turbines will be possible. The

proposed development may have the potential to be perceived in combination with the scattered wind energy schemes, although the majority of views will be restricted by a combination of undulating landform, development and mature vegetation. At worst, the magnitude of impact will be **low**, the level of effect will be **minor**. However, for the majority of Trewoon, the proposed development will not influence any views and the magnitude of impact will be **no change**, the level of effect will be **neutral**.

6.37 The contained Gainsborough Holiday Village also occurs to the west. Set amidst an undulating landscape, wider views including towards the proposed development will be restricted by the intervening reclaimed spoil heap. The magnitude of impact will be **no change**, the level of effect will be **neutral**.

6.38 The settlements of Foxhole and Nanpean occur to the west and north-west and Stenalees to the north-east. Excluded from the ZTVs and set on the lower slopes, amidst the undulating landscape, heavily influenced by surrounding industry and mineral workings, wider views from the settlement fringes towards the proposed development will be restricted. Other settlements further afield, including St Stephen to the west, Roche to the north and St Dennis to the north-west, are also excluded from the ZTVs. For the majority of the settlements, the proposed development will not influence any views and the magnitude of impact will be **no change**, the level of effect will be **neutral**.

Scattered Residential Properties

6.39 Individual **high** sensitivity residential properties and farms are scattered within the undulating landscape, often stretched out along the network of minor roads, or focussed along junctions, becoming sparser within the industrial landscape immediately surrounding the proposed development.

6.40 Most of these houses and farms have restricted views into the surrounding landscape, including towards the proposed development, from a combination of vegetation enclosing many properties, screening provided by adjacent development, subtle variations in landform and by the numerous lines of mature vegetation, including hedgerows, linear tree belts, mature trees, small copses and woodlands, in the wider landscape. For the majority of **high** sensitivity scattered residential properties in the study area, the proposed development will not influence their views and the magnitude of impact will be **no change**, the level of effect will be **neutral**.

6.41 There are however, a number of scattered and small clusters of residential properties in close proximity of the proposed development which will have the potential to experience views.

- The residential property associated with Penisker Farm occurs on lower ground approximately 725m to the east. Nestled within the sloping farmland, views will be potentially possible towards the proposed development, including towards the more distant mineral workings, scattered with operational wind turbines, as represented in **Viewpoint 3 (Figures 14A-14C)**, from the nearby, closer and elevated public right of way. The proposed development will have the potential to be perceived up the slopes, in combination and adjacent to similar operational wind energy schemes. At worst, the magnitude of impact will be **medium-low**, the level of effect will be **minor**;
- Residential properties associated with Higher Biscovillack Farm and Lower Biscovillack Farm, approximately 1.2km to the north-east and east respectively. Difficult to perceive from publicly accessible locations, the properties appear to be relatively well-enclosed by a mixture of surrounding mature vegetation, buildings and sloping landform, although views over the surrounding mineral working, scattered with

operational wind turbines could be possible. At worst, the magnitude of impact will be **medium-low**, the level of effect will be **minor**;

- There is a small cluster of residential properties to the north-west, situated at a crossroads of minor roads, including Longstone Cottage and Longstone House, approximately 1.5km to the north-west. At worst, oblique views over the adjacent sloping fields and quarry workings including the blade tips of the proposed development will only be possible from the fringes of the properties although many views will be restricted by garden vegetation and subtle variations in landform (including tips and mineral workings) both surrounding the properties and in the intervening landscape. At worst, the magnitude of impact will be **negligible**, the level of effect will be **minor-negligible**; and
- Greystone Cottage is situated along Greensplat Road, approximately 1.6km to the north-east. Situated on elevated ground, adjacent and to the west of the minor road, views will be possible across the adjacent sloping farmland, including towards the more distant mineral workings, scattered with operational wind turbines. The proposed development will be perceived in combination with the adjacent operational wind turbine, as illustrated in **Viewpoint 7 (Figures 18A-18E)**, from the nearby Greensplat Road. Already influenced by operational wind energy schemes, set within an industrial landscape, the addition of the proposed development will not dramatically alter or dominate the view. At worst, the magnitude of impact will be **medium**, the level of effect will be **moderate**.

National Trails

- 6.42 The **high** sensitivity South West Coast Path National Trail crosses the study area from the east to the south approximately 5.9km to the south-east of the proposed development at its closest point.
- 6.43 Largely excluded from the ZTVs and following the dramatic coast, as well as skirting the settlement fringes of St Austell, views are focussed across the coast and coastal fringes, with views inland, including towards the proposed development largely restricted by the undulating and well-vegetated agricultural landscape. From the vast majority of the National Trail, the proposed development will not be perceived, and the magnitude of impact will be **no change**, the level of effect will be **neutral**.

Recreational Routes

- 6.44 The **medium-high** sensitivity Saints Way recreational route crosses the study area from the north-east to the east, approximately 7.5km to the east of the proposed development at its closest point.
- 6.45 Excluded from the ZTVs, from the recreational route, the proposed development will not be perceived, and the magnitude of impact will be **no change**, the level of effect will be **neutral**.

National Cycle Routes

- 6.46 Numerous **medium-high** sensitivity National Cycle Routes (NCR) cross the study area, generally passing from the north-west to the north-east and south-east, with many of the routes connecting at St Austell to the south-east.

- 6.47 The closest, NCR2, the Clay Trail, passes approximately 2.6km to the east of the proposed development at its closest point, connecting with the Wheal Martyn Museum and Country Park.
- 6.48 Largely following minor roads as well as purpose-built routes along former railway lines associated with the mining landscape, views from the NCRs towards the proposed development will be largely restricted by the immediate enclosure by hedgerow vegetation, including Cornish hedges as well as the wider screening by development and undulating landform including the numerous and dramatic tips surrounding the proposed development and within the wider landscape.
- 6.49 Glimpsed views however into the surrounding varied landscape including towards the proposed development may be possible, including the scattered single and small clusters of wind energy schemes from gaps in the enclosure, such as field gates or from selected elevated locations, such as bridges. However, the addition of the proposed development will not dramatically change the view and for the vast majority of the NCRs, the proposed development will not be perceived and the magnitude of impact will be **no change**, the level of effect will be **neutral**.

Places of Interest (including Country Parks)

- 6.50 The **high** sensitivity Eden Project occurs approximately 6km to the east of the proposed development at its closest point and Black Head National Trust owned land occurs approximately 8.1km to the south-east. Excluded from the ZTVs, there would be no views of the proposed development from these places of interest and the magnitude of impact will be **no change**, the level of effect will be **neutral**.
- 6.51 Even from the Lost Gardens of Heligan, approximately 7.5km to the south, a combination of distance and screening by mature vegetation both within and surrounding the place of interest will restrict any influence the proposed development may have on its setting. The magnitude of impact will be **no change**, the level of effect will be **neutral**.
- 6.52 The Wheal Martyn Museum and Country Park also occurs approximately 2.3km to the north-east. Focussed around a museum and visitor centre, there are also walks surrounding the centre, generally through woodlands scattered with historic remnants of the mining industry which will help to screen and restrict the influence of the proposed development.
- 6.53 However, as illustrated in **Viewpoint 8 (Figures 19A-19C)**, there are 'look-out' points. Focussed on a working quarry, views into the wider mining landscape, including towards the proposed development perceived in combination with scattered operational wind energy schemes, will be possible. Only the blade tips of the proposed development will have the potential to be perceived and viewed in combination with other scattered operational wind energy schemes, will not be 'out of place' within this dynamic working landscape. There will however be a slight change in view with the addition of the proposed development and the magnitude of impact will be **low**, the level of effect will be **minor**.

Local Public Rights of Way, Bridleways and Cycleways

- 6.54 There are few **medium (medium-high** within the AGLV and **high** within the AONB) sensitivity scattered public rights of way, bridleways and cycleways present within the study area.

- 6.55 These public rights of way are generally enclosed by thick hedgerows and mature tree and woodland vegetation which will restrict most views into the wider rolling agricultural landscape, including towards the proposed development, set amidst and against a backdrop of existing tips, spoil heaps and quarries and often perceived in combination with other wind energy schemes.
- 6.56 It will generally only be from those few public rights of way in close proximity that will experience exposed views towards the proposed development.
- 6.57 A public right of way connects with the permissive quarry road to the north, with associated open views across the adjacent farming and industrial landscape, including towards the proposed development and the nearby operational Higher Goonamarth Farm wind turbine.
- 6.58 The public right of way extends to the east towards Greensplat Road and to the south towards Penisker Farm and as illustrated in **Viewpoint 1 (Figures 12A-12C)** and **Viewpoint 3 (Figures 14A-14C)**, views will be possible towards the proposed development set within the industrial and farming landscape, including amidst scattered operational wind energy schemes. Although views of the proposed development will occasionally be restricted by intervening vegetation and landform, including the often dramatic tips and quarry workings, the proposed development will be selectively perceived, in combination with other wind energy schemes, from open and close proximity locations along the nearby public right of way network. At worst, the magnitude of impact will be **high**, the level of effect will be **moderate** from the close proximity **Viewpoint 1 (Figures 12A-12C)**, reducing with distance to **medium-high** impacts and **moderate effects** from **Viewpoint 3 (Figures 14A-14C)**.
- 6.59 Further afield, wider views of the proposed development will be intermittently possible from the network of public rights of way which cross the diverse farming and industrial influenced landscape.
- 6.60 Even from **high** sensitivity public right of way on the fringes of the AONB, as illustrated in **Viewpoint 13 (Figures 24A-24C)**, it will only be from selected open and elevated locations that expansive and distant views towards the proposed development will be possible. Scattered with distant glimpses of single and small clusters of operational wind turbines, the addition of the proposed development, although distantly perceived, will not dominate or largely influence the expansive view. At worst, the magnitude of impact will be **negligible**, the level of effect will be **minor-negligible**, although in reality, the proposed development will be difficult to 'pick out' and the magnitude of impact will be **no change**, the level of effect will be **neutral**.

Open Access Areas

- 6.61 The scattered **medium** and **medium-high** (within the AGLVs) sensitivity open access areas within the study area, largely focussed on open and elevated locations within the undulating landscape, are intermittently within the ZTVs.
- 6.62 Selected wider views are possible across the rolling landform including towards the proposed development, set amidst distinctive tips and quarries, within a landscape punctuated by scattered single and small clusters of wind turbines.
- 6.63 However, as illustrated in **Viewpoint 10 (Figures 21A-21C)**, from the open access area adjacent to Hensbarrow Beacon, although expansive views will be possible across the landscape of rough grassland, dominated by large tips and quarry workings and

punctuated by lines of pylons and scattered wind energy schemes, the proposed development will not be perceived, screened by the surrounding industrial landform. From this **medium** sensitivity open access area, the magnitude of impact will be **no change**, the level of effect will be **neutral**.

- 6.64 Permissive access is also possible from Caerloggas Downs to the north-east. As illustrated in **Viewpoint 11 (Figures 22A-22C)**, expansive views towards the proposed development will be possible from the downs, including over the nearby settlements, mineral workings and farmland. Perceived as an additional moving vertical element, just above the surrounding industrial landform, within a view already scattered with operational wind energy schemes, the proposed development will not dominate the view. At worst, the magnitude of impact will be **medium-low**, the level of effect will be **moderate-minor**.
- 6.65 However, further afield, from the **medium-high** sensitivity open access area on Castle-an-Dinas to the north as illustrated in **Viewpoint 14 (Figures 25A-25C)**, and from the **medium-high** sensitivity open access area within the AGLV adjacent to Helman Tor, as illustrated in **Viewpoint 15 (Figures 26A-26C)**, although expansive views will be possible towards the proposed development across the surrounding undulating farmland and wooded landscape, scattered with distant glimpses of single and small clusters of wind turbines, the proposed development will be difficult to 'pick out.'. Although distantly perceived, wind energy schemes do not dominate or largely influence the expansive view. The magnitude of impact will be **no change**, the level of effect will be **neutral**.

Major Roads

- 6.66 Numerous **low** sensitivity major roads pass through the study area, the closest, the A3058, crossing the study area from the west to the east, passing through St Austell to the south-east, approximately 1.2km to the south of the proposed development at its closest point. Largely enclosed by development and mature vegetation, it is only from a few selected open locations in close proximity, as illustrated in **Viewpoint 5 (Figures 16A-16C)** from the fringes of Trewoon that the proposed development will be perceived. The proposed development will be viewed as a vertical moving element, just above the horizon, often adjacent and in combination with an operational wind turbine. At worst, the magnitude of impact will be **low**, the level of effect will be **negligible**.
- 6.67 Glimpsed views of the proposed development will also be possible as the A3058 emerges from the enclosure of St Austell, as illustrated in **Viewpoint 9 (Figures 20A-20C)**.
- 6.68 The proposed development will be selectively perceived, amidst and adjacent to other scattered wind energy schemes. Set within an expansive undulating farmland and industrial influenced landscape, the addition of the proposed development although noticeable, will not significantly alter the view. The proposed development will however be selectively perceived from open locations along the major road with associated **low impacts** and **negligible effects**.
- 6.69 The A391 also crosses the study area from the north-east, where it connects with the A30 at a junction, to the south-east passing through St Austell, approximately 3.7km to the east of the proposed development at its closest point. Largely enclosed by development and mature vegetation, it will only be from a few selected open locations, that more expansive views across the wider industrial and farming landscape, scattered with operational wind energy schemes including the proposed development, will be possible. At worst, only the blade tips of the proposed development will have the potential to be perceived, with **negligible impacts** and **negligible effects**, although in reality the

influence of the proposed development will be difficult to perceive and will easily go unnoticed in the view.

- 6.70 Further afield and for the vast majority of the lengths of the major roads, the proposed development will not be perceived. The major roads will be largely enclosed by rolling landform, adjacent development and surrounding mature vegetation which will restrict views towards the proposed development. The magnitude of impact will be **no change**, the level of effect will be **neutral**.

Minor Roads

- 6.71 Numerous **medium-low** sensitivity minor roads cross the study area and are largely enclosed by mature linear trees, hedgerows and hedgebanks which will restrict the majority of wider views, including towards the proposed development.
- 6.72 It will only be from close proximity or from selected high points, or from gaps in the enclosure, that views into the surrounding farmland and industrial influenced landscape, towards the proposed development, will be possible.
- 6.73 The closest minor road occurs to the east of the site, connecting with Trewoon and the A3058 to the south. Crossing the agricultural and rough grassland landscape, amidst the quarry workings and glimpsed views of operational single wind turbines, occasional open views between vegetation including towards the proposed development will be possible. As illustrated in **Viewpoint 2 (Figures 13A-13C)**, the proposed development will be a prominent vertical and moving element in the view which will be impossible not to notice in close proximity with at worst, **medium-high impacts** and **moderate-minor effects**.
- 6.74 The permissive quarry road occurs to the north and passes broadly from the north-east to the north-west. As illustrated in **Viewpoint 4 (Figures 15A-15C)**, views will be possible from the permissive quarry road over the adjacent farmland and tip, including towards the proposed development. The adjacent Higher Goonamarth Farm wind turbine will also be prominent in the view at close proximity. The proposed development will be perceived as part of a small cluster of operational wind turbines within an industrial influenced landscape. The magnitude of impact will be **medium**, the level of effect will be **minor**.
- 6.75 Many views of the proposed development from Greensplat Road to the east will be restricted by intervening hedgebanks and linear vegetation. From selected elevated and open locations, as illustrated in **Viewpoint 7 (Figures 18A-18C)**, views across the sloping farmland towards the proposed development set amidst tips, and adjacent to the Higher Goonamarth Farm wind turbine will be possible. Already influenced by operational wind energy schemes, set within an industrial landscape, the addition of the proposed development will not dramatically alter or dominate the view. At worst, the magnitude of impact will be **medium**, the level of effect will be **minor**.
- 6.76 Further afield, along the network of minor roads that cross the study area, it will only be from selected open and elevated locations that more expansive views over the surrounding undulating agricultural and wooded landscape, towards the proposed development and scattered wind energy schemes, including the dramatic distant tips, will be possible. As illustrated in **Viewpoint 12 (Figures 23A-23C)**, the proposed development will have the potential to be perceived in combination with the operational wind energy schemes but will not dominate the expansive view. At worst, the magnitude of impact will be **low**, the level of effect will be **negligible adverse**, although, in reality, the majority of distant effects from the network of minor roads will be **neutral**.

Railway Lines

- 6.77 A number of **low** sensitivity railway lines cross the study area, passing through St Austell to the south-east, with wider views, including towards the proposed development, generally restricted by a combination of adjacent development, undulating landform and mature vegetation. Even if obliquely glimpsed, the proposed development will be viewed as an additional single vertical element, set within a landscape already influenced by scattered operational wind energy schemes, its addition difficult to ascertain.
- 6.78 For the vast majority of users of the railway lines in the study area, the magnitude of impact will be **no change**, the level of effect will be **neutral**.

7. Cumulative Impacts and Effects

- 7.1 The influence of the proposed wind turbine will be considered 'in addition' to consented wind energy schemes in the study area, where the wind turbines are highly likely to exist in the future.
- 7.2 There are three consented wind energy schemes within the 10km radius study area. The consented wind energy schemes are the same size as the proposed development. They are all Band D category (between 100-150m in height to blade tip).
- 7.3 To aid in the cumulative assessment, additional photomontages have been created, from selected viewpoints (**Viewpoints 2, 6-15, Figures 13D and 17D-26D**), showing the proposed development in combination with the nearby consented Longstones, East Karlake and Wheal Martyn wind turbines.
- 7.4 The locations of the wind energy schemes are illustrated in **Figure 3**.

Landscape Character

- 7.5 As illustrated in **Viewpoints 2, 6-15 (Figures 13D and 17D-26D)**, the proposed development has the potential to be perceived in combination with the nearby consented and same sized wind turbines. They will largely be perceived as a small cluster, with the nearby operational Higher Goonamarth Farm wind turbine.
- 7.6 Set within an expansive industrial influenced landscape, already influenced by wind energy schemes, the addition of the proposed wind turbine, in combination with the consented (and operational) wind turbines, will not dramatically change the wider characteristics of the landscape character areas or create a landscape dominated by wind turbines. The introduction of another vertical element, in combination with the consented wind turbines, however, will slightly increase the perception of wind energy on the landscape.
- 7.7 In summary, wind energy schemes although perceived, even with the addition of the proposed wind turbine in combination with the consented wind turbines, will not dominate the landscape. The undulating, industrial influenced landscape appears to have the capacity to absorb the proposed wind turbine even in combination with other wind energy schemes without creating a 'wind farm' landscape.

Visual Amenity Receptors and their Views

Combined Views

- 7.8 As illustrated in **Viewpoints 2, 6-15 (Figures 13D and 17D-26D)**, the proposed wind turbine will be viewed in combination with the nearby consented and same sized wind turbines. They will largely be viewed as a small cluster, with the nearby operational Higher Goonamarth Farm wind turbine.
- 7.9 The proposed wind turbine, in combination with the consented wind turbines, will slightly add to the perception of wind energy schemes in the view, although set within an industrial influenced landscape already influenced by scattered operational wind energy schemes, the addition of the proposed wind turbine, even when perceived in combination with the consented wind turbines, will not dominate the view.
- 7.10 The addition of the proposed development, when viewed in combination with the consented wind energy schemes however will not dominate the view.

Sequential Views

- 7.11 Passing in often close proximity to the consented (and operational) wind energy schemes in the study area as well as the proposed development, sequential views of wind energy schemes will be possible from the transport corridors including the adjacent minor roads and public rights of way.
- 7.12 The screening surrounding many of the transport corridors, largely focussed along the well-vegetated valley floors or set within an undulating and developed landscape, however, will ensure that many views of wind energy schemes will be glimpsed and quickly vanish due to a combination of enclosure by mature vegetation and the undulating landform.
- 7.13 In sequential views from the transport corridors, the proposed development and the consented wind turbines will add vertical elements to the view, largely perceived as a small cluster in combination with the operational Higher Goonamarth wind turbine.
- 7.14 The addition of this single moving element, even in combination with the nearby consented wind turbines will not create 'wind farm' dominated journeys.

8. Conclusions

- 8.1 The landscape around the proposed development is dominated by the surrounding existing and remnants of the china clay works, interspersed with rolling well-vegetated farmland. Visual amenity receptors consist of scattered residential properties and farms and towns and villages connected by a network of transport corridors including major and minor roads and public rights of way. Selected views are only possible from limited scattered receptors, generally only where gaps in vegetation cover or when elevated open land allows occasional expansive views.
- 8.2 The site is not recognised for its value through any landscape relevant designations, although there are scattered landscape relevant designations within the study area. The nationally recognised Cornwall Area of Outstanding Natural Beauty (AONB) occurs to the south-east, extending and focussed along the coastal fringes. There are four locally

recognised Areas of Great Landscape Value on the fringes of the study area to the north, east, south-west and west and the Cornwall and West Devon Mining Landscape World Heritage Site occurs to the east. There are three Registered Parks and Gardens present and some of the centres of the scattered towns and villages are recognised as Conservation Areas. There are also a few widely scattered Ancient Woodlands present.

- 8.3 Mitigation measures during the site selection and design stages have ensured that the proposed development will have limited direct effects on landscape elements and limited landscape vegetation such as scrub will be lost. Proposed additional ecological mitigation measures will more than compensate for this limited loss and help to improve the overall biodiversity and nature conservation of the site and immediate surroundings. The design and location of the proposed development within an industrial landscape also minimises the wider impacts on landscape character, landscape relevant designations and nearby visual amenity receptors. However, the proposed development, due to its scale, will affect both landscape character and visual amenity receptors and their views during construction, operation, and decommissioning.
- 8.4 The containment and enclosure provided by the surrounding dramatic and occasionally well-vegetated landscape will also ensure that the proposed development will only have minimal effects on both landscape character and visual amenity receptors and their views during construction and decommissioning. Crane activity will be perceived and will draw attention to the proposed development within the landscape and be visible for selected close proximity medium-low and medium sensitivity close proximity visual amenity receptors (such as road users and public rights of way), but their presence will not be out of place within this changing industrial landscape. The cranes will also be present for a very short period of time and will be temporary.
- 8.5 During the operation period, the proposed wind turbine, due to its scale, will be visible and potentially perceived over a relatively wide area. However, the majority of effects on landscape character and visual amenity receptors and their views will be neutral, largely because of the enclosure provided by the surrounding tips and spoil heaps as well as mature vegetation, undulating landform, and development in the wider landscape. Exposed views of the proposed turbine will be limited and will generally be only from those receptors in close proximity or from selected, high, and open locations further afield. However, although potentially and selectively perceived, the proposed development will be viewed as an additional single built moving element, in combination with the adjacent operational and consented wind energy schemes, within an expansive landscape already influenced by extensive development, including wind energy schemes.
- 8.6 Further afield, the proposed development will have the potential to be perceived, particularly from selected open and/or elevated locations. It will be viewed as an additional single vertical element within a landscape and views already scattered with operational and consented wind energy schemes. The proposed development will add another single vertical moving element. With distance, however, the proposed development will easily become 'lost' within the wider landscape, set within a landscape and views already influenced by scattered wind energy development.
- 8.7 The majority of effects on landscape character, landscape relevant designations and visual amenity receptors and their views will therefore be neutral largely because of the enclosure provided by the surrounding tips, dense hedgerows and hedgebanks, the rolling landform and the dense screening vegetation focussed around residential properties, settlements and transport corridors in the wider landscape.

- 8.8 With regard to the landscape character areas, the proposed development will not dramatically change the characteristics of the wider landscape or affect the integrity of landscape relevant designations. The setting of the proposed wind turbine within an industrial landscape, which is tolerant to change, will ensure that there will be very limited indirect effects on landscape character areas and the setting of landscape relevant designations. The proposed development will be selectively visible but will largely be perceived as a single built element, often in combination with other similar sized wind turbines, within a landscape already extensively influenced by development. The proposed development will fit within the existing landscape pattern and will not be out of scale with the surrounding landscape.
- 8.9 Exposed views of the proposed development from visual amenity receptors will be limited and will be generally only from those very few receptors in close proximity, from selected high points or where there is limited vegetation cover or 'gaps' in the enclosing vegetation and development further afield. These receptors already experience views of the working, industrial landscape, including operational and consented wind energy schemes. However, it is important to note that views of the proposed wind turbine will not be 'overbearing' or dominate the view, perceived in combination with other operational (and consented) wind energy schemes. Relatively few visual amenity receptors will have close-range views of the proposed development, the majority of wider views will be obscured by localised screening from vegetation, variations in landform and adjacent development. The influence of the proposed development will also very rapidly decrease with distance where the majority of views will be obscured by localised screening from intervening development and mature vegetation.
- 8.10 In summary, the proposed development will:
- Add a single built vertical moving element to the landscape;
 - Avoid and does not have a direct impact on any designated landscapes;
 - Be set within a landscape heavily influenced by China Clay works and tips, with a very good to substantial ability to accommodate change without detriment to its landscape character;
 - Is positioned within a landscape that has the capacity to accept wind energy development (as defined by Cornwall Council within their landscape sensitivity assessment);
 - Be perceived in close proximity as a prominent vertical element, in combination and adjacent to similar scale operational and consented wind turbines;
 - Very quickly become 'lost' within the wider expansive undulating landscape; and
 - Overall, have limited impacts on landscape relevant designations, landscape character and visual amenity receptors and their views.

Appendix A - References

LVIA References

The Landscape Institute and the Institute of Environmental Management and Assessment, *Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third Edition*, 2013,

The Landscape Institute, *Technical Guidance Note 06/19, Visual Representation of Development Proposals*, 17th September 2019,

The Landscape Institute, *Technical Guidance Note 02/21 Assessing Landscape Value Outside National Designations*

General LVIA Designation References

Ministry of Housing, Communities and Local Government, National Planning Policy Framework, 2021

The government information website (www.magic.gov.uk)

Heritage gateway website for information on Registered Parks and Gardens (www.heritagegateway.org.uk)

Historic parks and gardens (www.parksandgardens.org)

Landscapes for Life – The National Association for Areas of Outstanding Natural Beauty (www.landscapesforlife.org.uk)

Local Plan References

Cornwall Council, Cornwall Local Plan, Strategic Policies 2010 – 2030, Adopted November 2016

Cornwall Council, The Cornwall AONB Management Plan, 2022-2027, Adopted May 2022

Landscape Character References

National Character Area profiles (www.gov.uk)

Cornwall Council, *Landscape Character Assessment* (on-line via interactive map www.cornwall.gov.uk)

Cornwall Council, *Cornwall Renewable Energy Advice, Annex 1: An assessment of the landscape sensitivity to on-shore wind energy and large-scale photovoltaic development in Cornwall*, March 2016

Cornwall Council, *Cornwall Renewable Energy Advice, Annex 1: An assessment of the landscape sensitivity to on-shore wind energy and large-scale photovoltaic development in Cornwall, Appendix 1: Landscape Sensitivity and Strategy Matrices for each Landscape Character Area*, March 2016

Cornwall Council, *Cornwall Renewable Energy Advice, Annex 2: Cumulative Impact Assessment Guidance for Cornwall – Wind Turbines*, March 2016

Visual Amenity References

SUSTRANS website for important cyclepaths (www.sustrans.org.uk)

Long Distance Walkers Association website for information on recreational routes (www.ldwa.org.uk)

Open access website (www.openaccess.naturalengland.org.uk)

National Trust website (www.nationaltrust.org.uk)

Cumulative LVIA References

Renewable Energy Statistics Database for the United Kingdom (REStats) (www.gov.uk)

National infrastructure planning portal for large scale wind energy developments in England and Wales (www.infrastructure.planninginspectorate.gov.uk)

Cornwall Council Onshore Wind Energy Maps (www.cornwall.gov.uk)

Cornwall Council planning portal (www.cornwall.gov.uk)

Appendix B – Technical Information

Introduction

The interpretation of the magnitude of impact and the level of effect of the proposed development was determined with the assistance of specialist computer generated information.

The Landscape Institute ‘*Technical Guidance Note 06/19, Visual Representation of Development Proposals, 17th September 2019*’ was referenced for the creation and presentation of the landscape and visual technical graphic information, to accompany and inform the LVIA. It was also referenced for guidance on the use of the camera and photography.

Zone of Theoretical Visibility (ZTV)

A computer-generated Zone of Theoretical Visibility (ZTV) was the first step in the assessment of effects.

The ZTV helps to inform judgements on the effects of the proposed development and provides information on:

- Where visibility is theoretically likely to occur;
- How much of the proposed wind turbine is likely to be visible (calculated to hub height and blade tip); and
- Extent and pattern of visibility.

The ZTV was calculated using QGIS computer software on a Digital Terrain Model (DTM) derived from OS Raster tiles of 1:50,000 scale, and Environment Agency Lidar Composite DTM 2m 2020.

A ZTV, to blade tip and hub height, covering the 30km radius study area was overlaid on an OS base map of 1:250,000 scale and plotted at A3 size at 1:250,000 scale for graphic interpretation.

In addition, a ZTV, to blade tip and hub height, covering the 10km radius study area was overlaid on an OS base map of 1:50,000 scale and plotted at A3 size at 1:75,000 scale for graphic interpretation.

A ZTV represents a theoretical area from which the proposed wind turbine or part of the proposed wind turbine may be seen. The ZTV, therefore, represents potential visibility.

The proposed development was plotted based on the hub height to 77m and 135m to blade tip above ordnance datum (AOD) assuming a viewer height above ground level of 2m. The ZTV was calculated considering earth curvature.

The ZTV was based on landform data only with any ridgelines, plateaux and valleys reflected in the extent of predicted visibility. The ZTV however does not take into account subtle variations in landform (which the DTM data does not always reflect), local conditions

such as built development or vegetation such as woodland, which can and does significantly reduce the area and extent of actual visibility.

The ZTV, therefore, represents a 'worst-case scenario with regard to the visibility of the proposed wind turbine. It does not convey the magnitude of impact or level of effect. However, it forms an appropriate starting point for undertaking the LVIA.

The ZTV is also a useful basis for selecting potential viewpoints, wireframes, and photomontage locations.

Photographs

Photographs included in the assessment were taken by an experienced chartered landscape architect when conducting the site survey.

The photographs were taken with a Nikon D610 camera with a Nikon AF-S Nikkor 50mm f/1.8g fixed lens.

The panoramic photographs were taken with the aid of a tripod with the head fixed on a vertical and horizontal axis also incorporating a spirit level to ensure 'level' photographs. The camera was positioned at 1.5m above ground level unless otherwise specified (such as a hedge, tree or other obstruction in the view).

The photographs were mainly taken in landscape format. Some of the close proximity views were taken in portrait format to ensure enough of the proposed wind turbine would be represented in the view.

GPS coordinates and height data (AOD), using a hand-held GPS device was taken at every photographic location. A compass bearing was also taken to ensure the direction of view was correct. The horizontal field of view was also recorded.

A series of overlapping photographs were taken, with each photographic frame overlapping between 20-30% and stitched together using Adobe Photoshop software to provide panoramic views. These are 'cylindrical' projections. The photographs were then converted to 'planar' projection using a re-projection tool in Resoft Windfarm.

Viewpoints

A number of viewpoints from which the proposed wind turbine will be visible were selected.

The viewpoints were discussed and agreed with the Unitary Authority.

A selection of existing photographic views, wireframe drawings and photomontages were generated for these viewpoints.

The viewpoint photographs were taken in fine weather with good visibility in April 2022.

The viewpoints meet the following criteria:

- A balance of viewpoints from the main directions of view;

- Provide a representative selection of views and receptors towards the proposed development; and
- For receptors most likely to experience the greatest change of view.

Wireframes

Wireframes are computer-generated line drawings, based on a DTM, which indicate an objective three-dimensional shape of the landform and proposed wind turbine.

The wireline drawings were produced using Resoft WindFarm (Version 4.2.5.1) computer software to generate a perspective view of the proposed wind turbine. The software used a 3D DTM model of the existing landscape within the study area derived from OS Terrain 5 grid data, based on a 5m grid, and Environment Agency Lidar Composite DSM 2m 2017.

A 3D model of the proposed development was generated based on the turbine grid coordinates and specified turbine geometry, with the proposed wind turbine shown with one blade positioned upwards, orientated towards the viewer.

Using GPS grid coordinates and a specified direction and field of view, wireframe views of the proposed wind turbine within the existing landform were then generated within the Resoft WindFarm software by superimposing the models.

In addition, other wind energy schemes within the study area are shown on the wireframe views.

Photomontages

A photomontage is where a computer-rendered image of the proposed wind turbine is superimposed onto the existing photographic view.

The geometry of the overlain rendered image of the wind turbine matches as accurately as possible with the base photography.

The viewpoint location, height and direction of the view is identical, as is the horizontal field of view with the base photography.

Photomontages are a valuable tool for presenting an overall realistic impression of the proposed wind turbine in the landscape from selected agreed viewpoints.

The finished image is a representation of the likely appearance of the proposed wind turbine only.

The proposed wind turbine is orientated to appear consistent with any adjacent operational wind turbines (when perceived in the view) to give a more realistic interpretation of what the proposed development would look like when perceived in combination with adjacent operational wind turbines.

The photomontages show the proposed wind turbine only and did not show the ancillary development including access tracks, control building etc.

The proposed wind turbine is usually centred within the view, except when other features, such as cumulative wind energy schemes can be illustrated in the view.

Resoft WindFarm (Version 4.2.5.1) software was used to create the photomontages.

Panoramic images were imported into the software and geographic features matched with the corresponding coordinate of that feature on a base map. The two features were then aligned within the image. A wireline was also superimposed over the image to ensure the accuracy of the field of view and direction. Specific turbine models created from the manufacturer's designs were used to render the proposed wind turbine. Lighting conditions were created from the software lighting system to create realistic conditions based on the location and time/position of the sun. A perspective match was achieved between the computer-generated panorama and the photographs by iterative adjustments until all major features were aligned satisfactorily. Their interpretation of view assumes good visibility.

The final photomontages were composited using Adobe InDesign and exported as high-resolution full-colour digital images.

The PDFs were saved so that the file size was suitable to be uploaded onto the planning portal.

For all photomontages:

- There is an element of judgement. While the base data is factual (DTM/photograph) within established parameters, the finished image is a representation of the likely appearance of the proposed development; and
- Each photograph incorporates the lighting and conditions as seen. The photomontage upon which it is based therefore only represents the appearance of the proposed wind turbine as it would have appeared at that time, on that day and at that time of year.

Presentation

All viewpoints are presented as:

- 90° baseline panorama photographic view - showing the extent of the 53.5° planar panorama and the extent of the central 50mm frame used to construct the panorama;
- 90° wireline view – illustrating the proposed development and any other cumulative wind energy schemes in the view;
- 53.5° wireline view – illustrating the proposed development and any other cumulative wind energy schemes in the view;
- 53.5° photomontage, illustrating the proposed development; and
- 53.5° photomontage, illustrating the proposed development in combination with the consented turbines at Longstones, East Karlake and Wheal Martyn (where relevant).

For all viewpoint representations, the following information is included:

- Figure number;
- Viewpoint number and description of viewpoint location;
- OS grid reference of viewpoint location;
- Viewpoint altitude;

- Direction of view;
- Distance to the proposed development;
- Horizontal field of view;
- Paper size;
- Weather and lighting conditions (for photographic images only);
- Viewing recommendations;
- Camera and lens details including camera height (for photographic images only);
- Date/time of photograph (for photographic images only); and
- Distance to cumulative wind energy schemes (53.5° wireline view only).