

Kirkby BESS

Landscape and Visual Appraisal

Revision Number: 5.0

March 2025



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1 INTRODUCTION

This report presents the findings of a Landscape and Visual Appraisal ('LVA' or 'appraisal') undertaken as part of a planning application by Pivoted Power LLP ('the Applicant') for the installation of a Battery Energy Storage System (BESS) and associated infrastructure, ('the Proposed Development') on land at Hill View Farm, Cut Lane, Kirkby L33 3AJ in the Metropolitan Borough of Knowsley ('the Site').

The LVA has been undertaken by a Chartered Landscape Architect in accordance with good practice guidance and is informed by published landscape character assessments and other guidance as referred to in relevant sections of the LVA.

The figures illustrating the appraisal are located in Appendix 3.

2 DESIGN DEVELOPMENT AND MITIGATION

This section sets out the process of design evolution and the aspects of the Proposed Development and mitigation which have been appraised within the LVA.

2.1 THE PROPOSED DEVELOPMENT

The Proposed Development is for a BESS. It would be located within the main site located on Cut Lane, with a cable route connection to the grid at the substation located 820m to the south-west, and would follow the track within the main site, Cut Lane and Hewitt's Lane.

The Proposed Development would be operational for 40 years. Construction of the Proposed Development would likely be completed within 14 months and so any effects arising from this would be short term and reversible upon completion. All operational changes to the Site are considered long term. At the end of the operational period, the Proposed Development would be decommissioned in accordance with best practice at that time. Given the nature of the installation, no significant ground excavation is required although areas of new hardstanding would be required for the substation and inverter kiosk foundations, DNO and client substations, and battery storage containers.

The Proposed Development would consist of the following:

- BESS storage containers laid out in two double lines (each unit 6.058m x 2.439m x 4.182m high (H) to existing ground level) plus parallel Power Conversion System (PCS) & Transformer (360).
- Harmonic Filter and Resistor, spares container, welfare facilities located on the west side of the group (3m maximum height).
- BESS switch room (17.2m x 3300m H x 3.200m), LV Switch Room (6.200m x 3.200m x 3.300m H), Auxiliary Transformer and Control Room located on the south side of the group.

These elements would be surrounded by metal acoustic fencing (3.5m H) including a gate.

A DNO building (4.382m x 5058m x 2.934m H) and a circular water tank (9.356m diameter, 3.93m H plus ladder) outside the fence on the south side of the Site. A circular 4m wide track would link with the public road in the south of the Site and include 2no. EV parking spaces within the fence line for client usage. In addition CCTV cameras located on 4.5m high poles and PIR lighting would be required. The existing dark green coloured A-frame (8m) building would remain in its position on the west side of the Site.

All elements within the fence plus the water tank would be coloured a recessive colour e.g. RAL 6007 Bottle Green or other similar colours suitable for the landscape.

In addition two passing places would be required on Cut Lane to facilitate access during construction and a slight widening of the existing entrance to the BESS site.

A full description of the Proposed Development, including dimensions of all infrastructure, is set out in the Planning Design and Access Statement and Planning Drawings which accompany the planning application.

2.2 CONSTRUCTION

The construction period of the Proposed Development would typically last up to 14 months.

The elements of the construction period which are relevant to this LVA include the following:

- The use of construction vehicles and plant across the Site;
- The presence of people working on the Site;
- A temporary construction compound which would be installed for the construction phase at the south-west of the Site and towards the end of the construction period the compound would be reinstated as neutral grassland, enhanced;
- Temporary fencing at the construction compound and protection of all existing trees and hedges;
- Excavations associated with the formation of the access, the construction compound, laying cables, and foundations for elements of the BESS, lighting, security cameras and information boards;
- Gradual introduction of proposed structures;
- Reinstatement works including earthworks, topsoiling and decompaction;
- Planting of hedges and trees, seeding grasses and planting the wetland area;
- Erecting the metal acoustic fencing; and
- Lighting during any hours of darkness in winter (operated by motion sensor).

Construction access by HGVs and private vehicles would be via the A580, A5208, Molly's Lane and Cut Lane.

It would not be necessary to remove any sections of hedging but trees would be removed on the cable route near the substation.

There may be a need for temporary lighting during the construction phase, depending on the time of year and the length of the construction programme. This should only be required should construction occur during autumn-winter where there are reduced daylight hours, and in these instances would only be for short periods of time.

All construction works are considered short term and temporary.

2.3 EMBEDDED MITIGATION MEASURES AND DESIGN

As a result of the early appraisal of potential effects, a number of mitigation measures have been developed and incorporated into the design of the Proposed Development. A preliminary design layout assuming development across all of the developable site formed the basis of an early appraisal. The final layout was achieved through consideration of landscape and visual constraints and opportunities, in combination with other design parameters.

A Landscape Mitigation Plan (LMP) (Figure 9) accompanying this planning application sets out these measures in more detail. Details are set out Appendix 2: Landscape Enhancement and Mitigation Plan setting out species lists and landscape management details. The primary mitigation measures involved the selective siting of the main group of structures allowing landscape strips to the east and north to create screening. The following general landscape measures would be undertaken:

- All existing hedges would be retained and protected, and tree loss to construct the cable connection would be minimised.
- Native, predominantly deciduous hedge species, that typically exist within the hedge boundaries of the Site and local area, would be planted and maintained as clipped or over-grown hedges on the application boundary, at a height of a minimum of 3m in order to provide maximum screening.
- The existing eastern hedge would be supplemented with hedge trees, and there would be areas of native woodland within the Site. In addition areas of neutral grassland, enhanced and moderate, and a wetland area associated with the attenuation basin, would contribute to biodiversity and landscape quality and character.
- The housing for most of the new structures within the Site including the inverters

and transformers, battery storage containers and the BESS inverters/ transformers, metal fencing etc. would be a recessive colour with a matt finish.

- The poles for the cameras and lights would also be a recessive colour.

The scheme layout has been developed to reduce landscape and visual impacts in the following ways:

- Minimise views from sensitive residential, Public Rights of Way (PRoW) and road users located to the west and north on Sandy Brow Lane by retaining the earth bund on the western boundary and planting hedges and trees on the north side of the Site.
- Minimise views of sensitive road users on Cut Lane, and residential receptors located in the wider landscape to the south through retention of the hedge on the south-east side of the Site.
- Minimise views of sensitive receptors located on the Site to the east side of the Site, and within the wider landscape which includes users of PRoWs and scattered residential receptors.
- Sensitive colouring of any remaining visible elements would reduce prominence.
- Lighting on the site would be kept to a minimum to help reduce light pollution. The Site would not be permanently lit, and any lighting would be controlled by motion sensors.

The BNG has concluded that overall area habitats show a net gain of 1.59 BU, equating to a net gain of 10.076%. This will require creation of:

- Approximately 0.56 Ha of other broadleaved woodland (moderate condition) to achieve the required 2.5BU of woodland habitat;
- Approximately 0.45 Ha of other neutral grassland (enhanced condition) to satisfy trading rules and achieve 10% BNG; and
- Approximately 0.31 Ha of other neutral grassland (moderate condition) and 0.02Ha of wetland area to achieve 10% BNG.

It assumes a 10m working width of cable length 328m within the woodland located to the west of Hewitt's Lane where trees would be removed. The BNG classifies this as broadleaved woodland of 'moderate condition' and areas of loss would be replaced by tree planting within the main site.

3 SCOPE OF THE APPRAISAL

This section sets out the methodology, limitations and assumptions, study areas, information on the Zone of Theoretical Visibility (ZTV) mapping and appraisal viewpoints.

3.1 LVA METHODOLOGY & RELEVANT GUIDELINES

The methodology for the LVA is included in Appendix 1 and is based on current best practice guidance, namely:

- Landscape Institute/ Institute of Environmental Management and Assessment (2013), 'Guidelines for Landscape and Visual Impact Assessment', 3rd Edition ('GLVIA3')¹;
- Landscape Institute (2013), GLVIA3 Statement of Clarification 1/13²;
- Landscape Institute (2019), 'Visual Representation of Development Proposals', Technical Guidance Note³; and

¹ Landscape Institute and Institute of Environmental Management and Assessment, 2013, *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Routledge, London.

² The Landscape Institute (2015) GLVIA3 – Statements of Clarification. Available online at: <https://www.landscapeinstitute.org/technical-resource/glvia3-clarifications/>

³ The Landscape Institute, *Visual Representation of Development Proposals, Technical Guidance Note 06/19*, 17th September 2019.

- Natural England (2014), 'An Approach to Landscape Character Assessment'⁴.

The two components of LVA referred to throughout the report are based on the following definitions:

- 'Assessment of landscape effects: assessing effects on the landscape as a resource in its own right'⁵; and
- 'Assessment of visual effects: assessing effects on specific views and on the general visual amenity experienced by people'⁶.

Development may have a direct (physical) effect on the landscape in which it is located as well as an indirect or perceived effect from landscape character areas surrounding it. The potential landscape effects occurring during the construction and operational stages of the Development may therefore include, but are not restricted to, the following:

- Changes to landscape elements: the addition of new elements or the removal of vegetation, buildings and other characteristic elements of the landscape character type;
- Changes to landscape qualities: degradation, erosion, or reinforcement of landscape elements and patterns, and perceptual characteristics, particularly those that form key characteristic elements of landscape character types;
- Changes to landscape character: landscape and character may be affected through the effect on characteristic elements (including perceptual characteristics), landscape patterns and attributes and the cumulative addition of new features, the magnitude and presence of which is sufficient to alter an important part of the overall landscape character type of a particular area; and
- Cumulative landscape effects: where more than one development may lead to a potential landscape effect.

Visual effects are concerned wholly with the effect of development on visual receptors and general visual amenity. Visual effects are identified for different receptors (people) who would experience the view such as at their places of residence, during recreational activities, at work, or when travelling through the area. Visual effects may include the following:

- Visual effect: change in the appearance of the landscape as a result of development. This may include changes to the quality of the view, ability of the visual receptor to appreciate the view, or changes to the characteristic elements within the view. These changes can be beneficial (i.e. positive or an improvement) or adverse (i.e. negative or a detraction); and
- Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

The level of any identified landscape or visual effect has been assessed in terms of being Major, Moderate, Minor or Negligible. Intermediate correlations are also possible and depend upon professional judgement, e.g. Moderate/Major. These categories are based on the juxtaposition of visual or landscape sensitivity with the predicted magnitude of change. This juxtaposition is not used as a prescriptive tool, rather it allows for the exercise of professional judgement. Thus, in some instances a particular parameter may be considered as having a determining effect on the analysis.

Where the landscape or visual effect has been classified as Major or Moderate/Major this is considered to be notable. Where Moderate effects are predicted, professional judgement is applied to ensure that the potential for notable effects arising has been thoroughly considered. The detailed description of the methodology used in the LVA has been provided in Appendix 1.

⁴ Natural England (2014), An Approach to Landscape Character Assessment. Available online at: <https://www.gov.uk/government/publications/landscape-character-assessments-identify-and-describe-landscape-types>

⁵ Ibid. page 21.

⁶ Ibid. page 21.

3.2 LIMITATIONS OF THE APPRAISAL / ASSUMPTIONS AND LIMITATIONS

The appraisal of residential properties, or groups of properties, is limited to those within 500 m of the Proposed Development. If properties are accessed from private farm tracks/ roads and due to the limitations of access, they have been appraised from the nearest public road or footpath with the aid of aerial photographs. No properties have been accessed and as such the appraisal should be regarded as an informed estimate of the likely visual effects.

3.3 CONSULTATION

During the pre-application consultation process for the Kirkby Planning Application, Knowsley Council was consulted regarding the scope and methodology of the LVA including study areas, and appraisal viewpoints. A response was set out dated 14.3.24 reference 23/00036/PREAPP which recommended:

- Storage containers and other apparatus are finished in a recessive colour to reduce impact to the surroundings;
- Effects should be assessed on visual amenity of local residents including effects of lighting; and
- There should be a Landscape and Visual Impact Assessment.

A further request was made to Knowsley Council for more detailed landscape and visual advice e.g. important viewpoint locations, but no response was received.

3.4 STUDY AREAS

Different study areas have been used to focus on potentially notable effects according to guidance¹ as follows:

- A 500 m radius from the planning application boundary of the Site to appraise visual effects on residential properties; and
- A 1.5km radius area from the planning application boundary for the Site to appraise visual effects on minor roads, PRoW and recreational users, settlements, landscape character and designations.

Beyond these areas it was concluded that the Proposed Development would be highly unlikely to have any meaningful influence on landscape resource or visual amenity due to the low-lying and visual nature of the Proposed Development, patterns of visibility and patterns of large scale and industrial development associated with the edge of Kirkby.

The extent of the study areas is shown in Figure 1.

3.5 DESK-BASED STUDY

Information for the LVA was gathered from the following key sources:

- Knowsley Council Local Plan documents and character assessments;
- Natural England (2013), National Character Areas⁷;
- Ordnance Survey mapping at 1:50,000 and 1:25,000 scales;
- Aerial Photography;
- Web GIS data bases;
- Lidar data;
- MAGIC website; and
- Google Earth, Street View and Maps.

3.6 FIELD STUDY

Following the desk-based appraisal, fieldwork was undertaken in November 2024.

Key activities undertaken during the fieldwork stage were:

⁷ Natural England 2013, National Character Area Profile NCA 24: Vale of Mowbray. Available online at: <http://publications.naturalengland.org.uk/publication/9856012?category=587130>

- To augment and verify published descriptions of landscape character with fieldwork observations;
- To undertake an appraisal of the quality or condition of the baseline landscape and visual resource;
- To identify any significant features and elements in the landscape such as vegetation or built form that would screen the Development and thereby verify or refine the ZTV;
- To visit each viewpoint location identified during the desk study and screening report, and to microsite each viewpoint location in accordance with good practice guidance and to obtain accurate coordinates;
- To undertake viewpoint photography at each viewpoint location; and
- To identify landscape features and elements that may be altered or removed as a result of the Development.

The fieldwork stage also included a provisional appraisal of effects on the following receptors:

- Landscape resource including landscape character, landscape designations, landscape sensitivity, landscape features and landscape elements;
- Residential and recreational receptors;
- Roads; and
- Public footpaths, bridleways and byways.

3.7 ZONE OF THEORETICAL VISIBILITY (ZTV)

To assist with defining the area within which the Proposed Development would be likely to be seen, and to help identify potential visual receptors and viewpoint locations, Zone of Theoretical Visibility (ZTV) maps have been prepared.

ZTVs are computer-generated from a digital terrain model of the up to 1.5km radius study area. The ZTV was run using LIDAR Composite DSM 2m (2022) data. The ZTVs do not map the visibility of other elements within the Development. The ZTVs have been used as a tool to assist in identification of visibility in combination with field work, mapping, aerial photography and photograph analysis. They illustrate the theoretical visibility of the BESS throughout the study area based on an average eye height of an adult person (taken as 1.6 m). 'Bare-earth' and 'screened' ZTVs have been prepared (refer to Figures 3 and 4). The bare-earth ZTV illustrates theoretical visibility of the BESS unit enclosure without the screening afforded by buildings and vegetation and, as such, it represents a 'worst-case scenario'. The Screened ZTV takes account of screening by above ground features such as buildings and vegetation using the Environment Agency's Digital Surface Model (DSM) LIDAR data (2022) which provides a helpful indication of the likely visibility of the Development in reality.

3.8 VIEWPOINTS

Five viewpoints sited to respond to the Pre-Application consultation as set out in section 3.3 have been selected to illustrate likely views of the Proposed Development from nearby residential properties, the local road network, PRowS (footpaths, bridleways and byways) and other publicly accessible locations. Some of the viewpoints also illustrate the local landscape context surrounding the Site.

The viewpoints were selected initially by reference to the ZTVs and were then refined in the field to take account of screening by vegetation, buildings and local landform. Following methodology established in GLVIA3, the viewpoints were chosen based on the following criteria:

- Viewpoints should be representative of the likely impacts;
- Viewpoints should show a range of different types of views;
- Viewpoints should be representative of a range of different receptor groups;
- Viewpoints should be representative of a range of distances and directions; and
- Viewpoints should be representative of the varying views of the Development

within the landscape.

A summary of the final viewpoints included in the LVA is provided in Table 1. The location of the viewpoints is shown in conjunction with the ZTVs in Figures 3 and 4. All viewpoints are located in publicly accessible locations.

Baseline photographic panoramas located at each viewpoint in the direction of the Site are illustrated on Figures 5a – 5e. These were taken in November when deciduous vegetation was in leaf and any screening of views has been accounted for in the appraisal of effects.

Table 1: LVA Selected Viewpoints

Viewpoint number and Location	OS Grid Reference Distance from Bess site	Reasons for choice/ Receptors
1 Cut Lane south of the Site	344549/397418 48m	Minor road close to the road entrance with views to the southern boundary. Road users. Green Belt. Simonswood Moss LCA.
2 Sandy Brow Lane west of the Site	344277/397591 135m	Minor road close to residential property with views to the west side of the Site. Residential and road users. Green Belt. Simonswood Moss LCA.
3 Sandy Brow Lane north of the Site	344404 , 397860 200m	Minor road close to residential property with views to the north-west side of the Site. Residential and Road Users. Green Belt. Simonswood Moss LCA.
4 A580 east of Moss Cottage	344672/396966 490m	Main road close to residential property with views to the Site within its wider context. Road and residential users. Green Belt. Simonswood Moss LCA.
5 New Cut Lane footpath east of the Site	345248/397708 645m	Track access and public footpath with views to the Site within its wider context. Recreational users of PRow. Green Belt. Simonswood Moss LCA.

The viewpoint photography has been undertaken to Landscape Institute Guidance and details are set out in Appendix 1.

4 LANDSCAPE LEGISLATION AND POLICIES

This section summarises current legislation, planning policy, and guidance of national and local importance that are pertinent to landscape and visual matters, and which are likely to have a bearing on the Site with implications for the Development.

4.1 EUROPEAN LANDSCAPE CONVENTION

The European Landscape Convention (ELC) became binding in March 2007.

The ELC defines landscapes as: “An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.”

The ELC applies to natural, rural, urban and peri-urban areas including land, inland water and marine areas. Its purpose is to promote landscape protection, management and planning in relation to all landscapes, regardless of whether their quality and condition is considered outstanding, ordinary or degraded.

The UK is recognised as already putting many of the principles of the ELC into practice. The importance of landscapes in contributing to local identity and in reflecting local cultural influences and ecological diversity is demonstrated through the use of Landscape Character Assessments at a national, regional and/ or local level.

4.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)⁸

The National Planning Policy Framework (NPPF) sets out the Government’s strategic vision for the planning system in England and how it is expected to be applied at a local level in development plans and planning decisions. The NPPF places great emphasis on plans and developments that contribute to sustainable development.

Policies and paragraphs which cover landscape and visual matters and which are potentially relevant to the Site and the Development include:

- Paragraphs 142 to 156 and 160 regarding development within Green Belt. Paragraphs 142 and 143 deal with Green Belt and state that the fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open, and that a key attribute of land in the Green Belt is its openness. It also sets out the five purposes of including land in the Green Belt, which are:
 1. To check unrestricted sprawl of large built-up areas;
 2. To prevent neighbouring towns from merging into one another;
 3. To assist in safeguarding the countryside from encroachment;
 4. To preserve the setting and special character of historic towns; and
 5. To assist in urban regeneration, by encouraging the recycling of derelict and other urban land.The over-riding principle is that new development in the Green Belt should preserve the openness of the Green Belt and reflect the purposes of its designation.
- Paragraphs 161 to 169 which deal with climate change.
- Paragraphs 187 to 195, which deals with the conserving and enhancing the natural environment and notes that policies and decisions should protect and enhance valued landscapes as well as recognise the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services.

4.3 REGIONAL AND LOCAL PLANNING POLICY

The determining authority for the planning application is Knowsley Metropolitan District Council.

The relevant planning policy is the Knowsley Local Plan which comprises a number of documents. The documents which are most pertinent to this LVA are the Knowsley Local Plan: Core Strategy and Proposals Map (2016)⁹.

Other adopted documents that are potentially relevant to this LVA include the Knowsley Landscape Character Assessment (2020)¹⁰.

⁸ Ministry of Housing, Communities and Local Government (February 2025), National Planning Policy Framework. Available online at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

⁹ Knowsley Council Knowsley Local Plan: Core Strategy and Proposals Map (2016);

¹⁰ Knowsley Metropolitan Borough Council (2020), Knowsley Landscape Character Assessment.

4.3.1 Knowsley Local Plan: Core Strategy and Proposals Map (2016)⁹

The Local Plan policies document was adopted in 2016 and run to 2028. It contains policies designed to manage development in a way that maintains and enhances environmental quality, whilst preserving a sense of place.

The Site is located within Green Belt and the following policy areas are located within 1.5km:

- Sustainable Urban Expansion between Molly's Lane and the B5202;
- Principal Regeneration Area Priority Zone for Low Carbon Development within the part of Kirkby located within the western part of the study area; and
- Knowsley Park Historic park and Garden located within the southern part of the study area.

Policies covering landscape and visual matters that are potentially relevant to this LVA are:

- *Policy CS5 Green Belt New Development in the Green Belt*
'1) Inappropriate development will not be permitted in the Green Belt except in very special circumstances in which it has been demonstrated that the harm to the Green Belt (including any harm to its openness, purposes or to its visual and recreational amenities) would be clearly outweighed by other considerations.
Major Previously Developed Sites in the Green Belt
2) Major Previously Developed Sites in the Green Belt will be identified in the Local Plan: Site Allocations and Development Policies.
3) Limited infilling and redevelopment of Major Previously Developed Sites in the Green Belt is considered appropriate provided it would not have a greater impact upon the openness of the Green Belt and the purposes of including land within it.
Review of Green Belt Boundaries to meet future development needs.
previously developed sites. A more complete definition of inappropriate development is set out in the NPPF. The over-riding principle is that new development in the Green Belt should preserve the openness of the Green Belt and reflect the purposes of its designation.'

The Core Strategy (para 5.43) states that the Council may allow appropriate future development within previously developed sites in the Green Belt provided the openness of the Green Belt is preserved. It states that these sites may not all be identified on the Policies Map. Those of a larger scale will be identified under in the Local Plan: Site Allocations and Development Policies, which may also include detailed policy guidance regarding new development within them.

- *Policy CS8: Green Infrastructure New Development should 'c) Seek to protect, maintain and where possible enhance biodiversity within and around new developments according to their designation and significance to provide space for nature; and*
d) Provide adequate mitigation and/or, as a last resort, compensation for Green Infrastructure or biodiversity loss, in circumstances where harm resulting from the development is otherwise unavoidable.'
- *Policy CS19 Design Quality and Accessibility in New Development*
'1) To enhance the local distinctiveness, identity and accessibility of places, new development within Knowsley will be expected to: a) Respond to and integrate positive characteristics of immediate surroundings, including local materials, scale, mass, form, layout, alignment and density of the existing built environment; b) Complement and enhance (where possible), existing landscape, topography, Green Infrastructure; and features of local importance and historic interest; c)
3) To address the challenges of climate change and future changes in ... new development should integrate: a) Sustainable design principles, with regard to Policy CS22: Sustainable and Low Carbon Development as appropriate; b) Biodiversity (in accordance with Policy CS8); c) Flood risk mitigation (in accordance with Policy CS24);..'
- *Policy CS20 Managing the Borough's Historic Environment*
'1) Development proposals in Knowsley should preserve or enhance the

borough's historic and architectural assets, including Listed Buildings, Conservation Areas, Historic Parks and Gardens and archaeological remains... The Council will: a) Require preservation of the local distinctiveness and character of historic assets through sensitive design of new development, including appropriate integration with their setting and immediate landscape; b) Prevent demolition and/or development which would result in substantial harm or the loss of a designated historic asset or its setting, unless the proposal would result in substantial public benefits which clearly outweigh the harm or loss; c) Where a development proposal will result in less than substantial harm to a designated heritage asset or its setting, assess such harm against the benefits of the proposal; d) Facilitate long term conservation and enhancement of local assets and areas of historic importance, including through the preparation of Conservation Area Management Plans....'

- Policy CS21 Greenspaces and Trees
'...development will be resisted where it would significantly harm any existing or potential special qualities of greenspace in the area in terms of: a) Visual amenity; b) Residential amenity; c) Biodiversity and environmental benefits; d) Historical, cultural or community value; e) Recreational benefits; or f) Physical and/or visual linkages between adjoining urban greenspaces...Enhancement of Natural and Semi-Natural Greenspace and Tree Protection 10) The Council will encourage proposals for new development to incorporate: a) Retention of existing trees, woodland, vegetation and other habitat features which offer a positive contribution to the local environment in terms of visual amenity, recreation value or biodiversity/wildlife interest; b) Appropriate planting of trees, other soft landscaping and installation of habitat features for the benefit of biodiversity; and c) Adequate replacement provision where tree loss is unavoidable, comprising two additional trees for every tree lost and taking account of species and size.'
- Policy CS23 Renewable and Low Carbon Infrastructure
'1) The Council will support proposals that will produce and distribute decentralised, low carbon and renewable energy, provided that they do not cause significant harm (in terms of their number, scale, siting or cumulative impacts) to: a) Natural resources, biodiversity, ... and, landscape character; ...c) Historical and cultural assets; d) Public amenity and living conditions; or e) Openness and amenity of the Green Belt, except in very special circumstances. 2) Proposals must be accompanied by information that shows how the local environment will be protected, and how the site will be restored when energy production ends. Proposals resulting in an unacceptable impact must be mitigated by appropriate measures agreed by the Council.'

4.4 LANDSCAPE PLANNING DESIGNATIONS

As part of the baseline, any value attached to the landscape within the study area is taken into account. This usually takes the form of landscape-related designations valued for their wild qualities or scenic beauty at a national, regional or local level such as National Parks of national landscapes (NLs).

The baseline also takes account of any protected features, the presence of which may indicate value at a national, regional or more local level. Protected features mostly relate to cultural heritage or nature conservation assets such as World Heritage Sites, Ancient Monuments, Conservation Areas, Listed Buildings, Historic Parks and Gardens, Sites of Special Scientific Interest, Nature Reserves, Ancient Woodland, etc.

Landscape-related designations and protected features are identified within the Site and wider study area from a search of the Knowsley Council website and MAGIC website¹¹.

¹¹ MAGIC website. Available online at: <https://magic.defra.gov.uk/>

4.5 CUMULATIVE APPRAISAL

Cumulative effects are additional effects on key characteristics of landscape character and / or on views and visual amenity that arise when the Development is seen or experienced in conjunction with one or more other large developments, including other BESS developments, from a particular location. Cumulative effects on views and visual amenity may also occur sequentially where two or more developments may be seen as part of a journey, for instance, along a road or recreational route.

As part of the baseline, a search was undertaken of other large-scale electrical infrastructure that are operational, approved or subject of a valid planning application within 1.5km of the Site. The existing Knowsley National Grid substation and four associated high voltage overhead lines which radiate to the west, north and east, lies 1km to the west on the junction with the A5208 and the A580. In addition a single wind turbine lies approximately 400m to the north-east.

5 BASELINE CONDITIONS

This section describes the baseline landscape character, designations and visual amenity of receptors against which the Proposed Development will be appraised. This has been identified through desktop studies supplemented by field observations of the Site and wider study area.

Guidance² states that where there is a modified baseline (e.g. an active mineral development site assessments be based on the modified baseline or pre-construction/ restored landscape baseline which in this case is the most likely future scenario. This report is assessing effects relative to an assumed baseline that has been reinstated as level, open arable or grazing land with the existing dark green A-frame building (ridge line 8.18m, eaves 6.18m). The bund on the western boundary would also be retained.

5.1 SITE AND CONTEXT

The Ordnance Survey mapping and aerial photography of the Site and the wider study area are illustrated in Figures 1-2.

The Site extends to an area of approximately 3.34 hectares (ha). The main part of the Site (the BESS site) is broadly rectangular measuring 215m north to south at its widest point. The proposed built development located in the BESS site would physically affect a relatively small area measuring c. 0.55 ha collectively. The Site also includes the route of the cable connection with the Knowsley National Grid substation running along the verges of Cut Lane and Hewitt's Lane.

At the time of writing the Site comprises rough ground with a large shed, hard standing areas, two large excavations, large stock piles of soil and rocks. The Site is accessed via a track to the south which links with Cut Lane. The west boundary comprises a steep-sided bund comprising stones and soil which is undercut but currently stable. Buddleia, some birch and dense brambles have regenerated the bund naturally. The north side of the Site is largely open with thorn hedges to the east and south sides. Occasional non-native conifers occur on the access, and on the boundaries and otherwise vegetation largely comprises recently regenerated herb layer species of limited landscape or biodiversity value.

The Site sits within a gently undulating and sloping landscape with a gradual rise to the east, forming part of a subtle ridge. The Site sits at approximately 52m AOD and within a 1.5km radius area height ranges from 35m AOD in the west and 60m AOD in the south. It should be noted that the final site topography values are theoretical and approximate, and will be based on drainage requirements.

There are a series of small water courses and drains located on field margins and small ponds but no major water courses within the study area. Whilst the ditches are minor elements which have been partially canalised, they tend to be marked by vegetation including isolated trees and some hedging.

The study area can be divided into areas of agricultural fields (mixed arable and grazing), urban (largely business parks) in the west, and Knowsley Park (parkland) to the south. Whilst the urban and parkland areas are generally enclosed due to structures or large areas of woodland, the agricultural area is more open, other than intermittent hedges, hedge trees and groups of trees associated with scattered dwellings particularly. A stand of largely ash trees is located on the west side of the Site and a row of mature leylandii is prominent on the south-west boundary of the Site. Within the wider area there are areas of acid heath scrub including willow, blackthorn and birch with bracken understorey. Oak trees line Sandy Brow Lane.

The A580 and A5208 located to the south and west of the Site, are dualled and have a strong negative influence on a sense of tranquillity in the area. In addition the large scale sub-station located 540m to the south-west of the Site, the four high voltage overhead lines that radiate from it, and the Site's proximity to the edge of Kirkby all further diminish a sense of tranquillity. Two minor roads access the Site and its surrounds, in addition to tracks and PRoW including footpath KB/15/1 (New Cut Lane) located to the east, and KB/18/4, KB18/2 and KB/18/1 bridleway located to the north. Knowsley Park contains a number of tracks.

There are 20 residential properties, or groups of, located within 500m of the Site and these are marked in Figure 8. The closest is Hawthorn Cottage, located 60m south-west of the BESS site and on the cable route on Cut Lane.

Established vegetation on and immediately adjacent to the boundaries of the Site provides a degree of visual containment. Visibility across the study area is limited by screening elements and a relatively level landscape with longer views located to the south and east of the Site as illustrated by the Screened ZTV in Figure 4.

5.2 LANDSCAPE CHARACTER

An appraisal of the baseline landscape character has been considered at two levels:

- National landscape character, in relation to National Character Area (NCA) profiles produced by Natural England⁷; and
- Regional and local landscape character in relation to Landscape Character Areas (LCAs) identified in the Knowsley Landscape Character Assessment (2020)¹⁰.

5.2.1 National Landscape Character

At a national level the Site is on the border of NCA 32 Lancashire Plains and 58 Mersey Conurbation.

The key characteristics of the NCAs are set out in a supporting document or 'profile', which was updated by Natural England in 2013. Given the scale of the NCAs, their characteristics are likely to be represented over a wide area. As such, any changes at site or study area level relative to the scale of the NCA would be extremely small in scale, and are unlikely to impact upon those key landscape characteristics identified for the NCA. The NCAs are not considered further in the LVA.

5.2.2 Regional and Local Landscape Character

The study area falls within the Knowsley Character Assessment¹⁰. Landscape character is illustrated in Figure 6.

The Site and the study area fall within two LCAs: The Site itself falls within LCA Simonswood Moss and the southern part of the study area falls within LVA Knowsley Estate. There is a small area of EB20 Knowsley Village M57 Corridor located to the south-west but it would not be affected by views to the Site and has been discounted from the appraisal. The remaining area is urban.

The following description identifies the key characteristics and key sensitivities of the LCAs within the 1.5km study area, based on the 2020 study.

5221 Landscape Character Area Simonswood Moss

This LCA is located between Kirkby Industrial Park and the eastern boundary of the Borough. This area is located at the extreme southern end of the LCA and is typical of the moss landscapes of the Lancashire Plains.

The key characteristics of the LCA within the study area are:

- Flat low-lying topography with wide views across a mainly agricultural landscape.
- A patchwork of large fields of arable and market garden crops, framed by woodland edges or rising ground on the horizon. Sparse tree cover is largely restricted to groups of trees around buildings and along roads and farm tracks.
- An open character which is emphasised by localised loss of field boundaries including hedgerows, trees and ancient field patterns, evidenced by the presence of remnants of drainage ditches that characterised this landscape.
- The dark peaty soils form a strong visual element.
- Remote brick built farmsteads, barns and wayside dwellings scattered across the landscape. The 'urban edge' of Kirkby and in particular Kirkby Industrial Park on the west of the area has localised distracting impact on the landscape, as does the landfill site at Coopers Moss, on Perimeter Road.
- A number of overhead power lines and pylons detract from the overall landscape character of this area providing a dominating visual intrusion against the horizon.

5222 Landscape Character Area Knowsley Estate

This LCA is located between Kirkby Industrial Park and the eastern boundary of the Borough. The northern area shares some characteristics with LCA Simonswood Moss.

The key characteristics of the LCA within the study area are:

- This area is dominated by the historic Knowsley Estate, which possesses unique characteristics associated with the formal nature of its parkland.
- Flat topography and low-lying topography in the north. This becomes a more gently rolling topography in the south as the land rises up towards Prescot.
- To the north of the area there is agricultural activity with evidence of localised loss of field boundaries including hedgerows. The mixed cropping and formal amenity areas provide a strong visual texture within the estate landscape.
- The dominant element that defines this character area is the estate plantations and belts of trees. Tree cover gives a strong sense of enclosure throughout the estate and has been used as a device to frame views within the more formal grounds. The enclosed nature of the landscape means that the neighbouring urban edges of Huyton and St Helens do not distract from an inherently rural character.
- Knowsley Hall is set within a walled parkland, with a number of outlying estate houses and farm dwellings. Attractive landscape features such as sculptures, follies, ponds, lakes and specimen tree clumps provide focal points and contribute to the formality of the area. Large areas of cut grass and areas with intensive grazing add to the impression of a well-managed landscape that is a positive contributor to landscape character.

5.3 DESIGNATIONS

Landscape-related designations and protected features identified within the study area are summarised below and shown on Figure 7.

A number of cultural heritage assets have been appraised within this LVA in terms of their contribution to landscape character or to a visitor attraction in accordance with GLVIA3, and may have been appraised in terms of effects on cultural heritage features and effects on setting of an asset elsewhere.

The Site is located within Green Belt and there are Listed Buildings and a Conservation Area located over 1km to the south-west at Knowsley. The Site is not covered by any landscape designations and trees within or adjacent to the Site are not covered by a Tree

Preservation Order (TPO). There are no Scheduled Monuments or areas of Ancient Woodland within 1.5 km of the Site.

5.3.1 Knowsley Park Registered Park and Garden

Knowsley Park is Grade II entry number 1000997 on the Park and Garden register and is a landscape and heritage designation. It comprises Knowsley Hall and designed lakes, rides (tracks), blocks of trees and single trees set within mostly grazed parkland. Knowsley Hall (listed grade II*) is an L-shaped building situated in the south-west of the designated park and garden, 3.5km south of the Site.

There are a series of designed views and vistas within the landscape which is now also used as a safari park. A hill is located to the south of the main lake.

The Screened ZTV presented in Figure 5 illustrates potential visibility from some of the woodland located on the north side of the parkland.

5.3.2 Green Belt

Green Belt is a spatial designation (not a landscape designation). This report appraises the potential effects on aspects of 'openness' and is not an appraisal of effect on the Green Belt as a whole.

When identifying the factors taken into account when considering the potential impact of development on the openness of the Green Belt guidance¹² (para.13) Considering the potential impact of development on the openness of the Green Belt) states '*openness is capable of having both spatial and visual aspects – in other words, the visual impact of the proposal may be relevant, as could its volume*'. The assessment of visual impacts has included visual intrusion on character, cutting off of long distance views and the visual amenity enjoyed by users.

Knowsley⁹ Policy CS5 Green Belt New Development in the Green Belt states '*the harm to the Green Belt including any harm to its openness, purposes or to its visual and recreational amenities*' is important to consider.

The Site is located within the Knowsley Green Belt which extends to the boundaries of the Borough to the north and the east, and to the edge of Knowsley Industrial Park 300m to the south-west of the Site. The justification for and an assessment of the Knowsley Green Belt is set out in Knowsley and Sefton Green Belt Study 2012¹³ which is part of the evidence base for the Local Plan.

Any effects of the Proposed Development should be assessed against the purposes of the Green Belt set out in NPPF paragraphs 137-138 and Knowsley Local Plan Policy CS5 (see Section 4).

The Bare Earth and the Screened ZTVs indicate that there would be some areas of visibility to the Site across the study area.

A detailed analysis of the part of the Green Belt which includes the Site is set out in Knowsley and Sefton Green Belt Study¹³ Appendix 2, under the parcel Analysis of K002 which identifies that it is:

- Fully developed;
- Not contained;
- In countryside use;
- Agricultural Land Grades 1-3; and
- Parcel is within a wide gap to the east of Kirkby and St Helens. Development within this parcel would not impact on the separation of these areas.

¹² Guidance Green Belt Advice on the role of the Green Belt in the planning system. 2019 (updated 2025). <https://www.gov.uk/guidance/green-belt>

¹³ Knowsley and Sefton Green Belt Study, Knowsley Metropolitan Borough Council (2012)

5.4 VISUAL RECEPTORS

The visual appraisal draws on the ZTVs, site visits and viewpoint analysis to determine the potential effects of the Proposed Development on views and visual amenity experienced by a variety of visual receptors (people) within the study area. The Bare Earth ZTV is located in Figure 3, the Screened ZTV is located in Figure 4 and visual receptors are located on Figure 7.

Visual receptors include people who:

- Live and work in the area;
- Visit the area for a specific reason (for instance, visitors to tourist or recreational attractions); and
- Pass through the area (on foot, by horse, by bicycle, by car or by train).

In this instance, the following key receptor groups have been identified within the study area:

- Occupiers of residential properties (individually, in groups or part of larger settlements);
- Users of sign-posted recreational routes (local footpaths, bridleways and byways);
- People engaged in outdoor sport or recreation; and
- Users of the existing road and rail network (motorways, A- and B-class roads and local roads).

Within these key receptor groups, the appraisal of effects focuses on receptors who are most likely to undergo a 'significant' change in visual amenity arising from views gained of the Proposed Development.

5.4.1 Settlements and Residential Properties

The main Site is located in a rural and agricultural landscape 700 m east of the settlement edge of Kirkby and there are a number of scattered farmsteads and residential properties within the study area. This pattern of settlement is shown on Figure 1.

Much of the area of Kirkby that is included within 1.5km is not residential, comprising large warehouses and business park areas. The exceptions are small residential pockets located in the Spinney Road and Perimeter Road areas, north of Boundary Road and the A5208.

The ZTVs indicate that there could also be visibility from Knowsley.

In considering effects on views from these settlements, the appraisal takes account of any public open spaces or public realm areas included within the settlement boundaries as well as residential areas that make up the built form.

In addition to the main settlements, there are a number of isolated properties, small groups of properties and farmsteads scattered across the study area from which there may be views of the Proposed Development. A radius of 500m was considered appropriate given the low-rise nature of the Proposed Development, the character of the receiving landscape and the contained nature of the Site afforded by boundary vegetation. The pattern of hedgerows, trees and wooded areas which characterises the wider area also has a limiting effect on views. The LVA considers potential effects on occupiers of properties within 500m of the Site. Within 500m radius 20 individual and small groups of residential properties have been identified and are shown on Figure 8 where they are numbered P1, P2, etc.

5.4.2 Recreational Routes

Public footpaths, bridleways and byways (PRoW) cross the study area and are also included in the appraisal. Users of recreational routes have potential to undergo a 'notable' effect on views and visual amenity arising from the Proposed Development.

The routes affected by the Screened ZTV within 1.5 km of the Site include:

- The bridleway which exits Sandy Brow Lane 220 m to the north of the Site (KB/18/4, KB/18/2 and KB/18/1), with a section of footpath linking with Kirkby (KB/19/1);

- The footpath which follows New Cut Lane and exits Cut Lane 475 m to the east (KB/15/1 and KB/16/1-2); and
- The short sections of footpath located south of the A580 near Canrow Farm within 580m (KN/11/1, KN/11/3 and KN/12/1).

5.4.3 Outdoor Sport and Recreation

People engaged in outdoor sport or recreation within the study area are included in the appraisal. There are no promoted tourist destinations in the study area, and recreational facilities that could have visibility to the Proposed Development are limited to:

- Starbucks and Copper Pot café/public house located 230 m south-west of the Site; and
- Acorn Field Plantation nature reserve 420 m to the north-west.

The Screened ZTV indicates that there would not be any visibility from the Starbucks and Copper Pot café/public house and this has not been considered further.

5.4.4 Transport Routes

Key transport routes pass through the study area, and are included in the appraisal.

The following main roads are affected by the Screened ZTV, and have been included in the appraisal:

- The principal road in the study area is the dualled A580 which is located 480 m south of the main Site and 115 m south of the cable route; and
- The dualled A5208 is located 800 m west of the main Site and 450 m west of the cable route.

Users of local roads which pass within 1.5 km of the Site have most potential to undergo a 'notable' effect on views and visual amenity arising from the Proposed Development and so the LVA focuses on these. The following routes are located within the Screened ZTV.

- Cut Lane is the minor road which accesses the Site from the south and continues as Molly's Lane in the west;
- Sandy Brow which continues onto Red Cut Lane is located 130 m west of the BESS site and is a continuation of Hewett's Lane to the south; and
- Ormskirk Road and Knowsley Road is south of the A580.

Ormskirk Road and Knowsley Road have been discounted from the visual appraisal because they are not affected by the Screened ZTV.

5.5 FUTURE BASELINE

The Knowsley Local Plan Proposals Map shows the parcel of land that is located between Molly's Lane and the B5202 as Sustainable Urban Expansion and therefore may contain more built development in the future. The remaining areas are under agricultural use and protected by its Green Belt status and therefore unlikely to change unless they come under pressure from expansion of Kirkby. It is possible that Knowsley substation could attract more electrical infrastructure in the future. Otherwise it is not anticipated that the baseline conditions of much of the local landscape character and land use, described above, will differ significantly in the future without the Proposed Development, with the Proposed Development or after the 30-year operational phase.

6 ZTV AND VIEWPOINT ANALYSIS

The potential landscape and visual effects arising from the Proposed Development have been analysed using the ZTVs, key viewpoints and field work.

6.1 VIEWPOINT ASSESSMENT

In order to gain an understanding of the nature of changes to views and visual amenity arising from visibility of the Development, five viewpoints have been identified in the visual baseline section to represent visibility from key visual receptor groups (e.g. residents, recreational walkers, road users, etc.) in a selection of locations. The viewpoint assessment helps inform the assessment of effects across the study area.

For each viewpoint, the following information is provided:

- A representative baseline photograph (90 -degree horizontal angle of view) orientated in the direction of the Development to illustrate the existing view;
- A description of the existing baseline view; and
- A qualitative appraisal of the potential visual effects, taking account of the sensitivity of the receptor and the predicted magnitude of change in view.

It is recognised that different receptors would perceive the landscape in different ways, depending on whether they live, work, or are recreating in the area, and how they are travelling e.g. in a vehicle or foot, etc.

Those living within, or travelling through, the landscape of the study area on a regular basis may appreciate it beyond the perception of a visitor and may appreciate familiarity of landscape and views, based on their experience of viewing it in a certain way, over time and in its present state without intervention. Therefore, those who notice change within the landscape may be more acutely affected by change irrelevant of the scale of the Proposed Development. There may also be a different appreciation for change where such change for instance brings social or economic benefits and as such it is difficult to interpret how such changes would be interpreted by various users other than as set out in the methodology in Appendix 1.

Baseline photographic panoramas at each viewpoint presenting views to the Site are located in Figures 5a-e. An assessment of visual effects at each viewpoint has been used to inform the assessment of effects on receptors identified in the baseline section of this report.

Table 2: LVA Selected Viewpoints

Viewpoint 1 - Cut Lane south of the Site	
This viewpoint is located at OS grid reference 344549/397418, located 48 m from the Site on Cut Lane representing minor road user receptors. It is located in LCA Simonswood Moss and Knowsley Green Belt. The representative 90 degree view is centred on a north-westerly direction and a panorama photograph is presented in Figure 5a. The current view is characterised by the grazed field and Cut Lane minor road. The Site is located beyond an overgrown hedge beyond which the roofline of the existing building is visible. In addition the HV pylon line and the smaller line located on the north side of the Site are visible. A small part of the large-scale pale coloured buildings located on the east side of Knowsley are visible in the distance. The entrance to the Site is just visible on the north side of Cut Lane. During construction it is likely that the upper sections of cranes would be visible above the intervening hedge; and the construction of the cable route near the site entrance on Cut Lane would also be visible. In addition lighting on the Site may also be visible during construction, should it be required, but would be minimal during operation. There would be no change to the view other than the formation of a larger road entrance onto Cut Lane in the left hand side of the image. It is likely that all other elements of the Proposed Development would be hidden in summer and winter. Landscape effects LCA Simonswood Moss is assessed as being of Low-Medium sensitivity to the Proposed Development. The Green Belt is given a Medium-High sensitivity. The Proposed Development would make imperceptible changes to the Site during operation. During construction, the presence of lighting within the area is characteristic and the views to cranes would be short lived. By Year 10 there may be some visibility to the tops of trees planted in the Site but this would have minimal influence on character or a sense of openness. Effects on Visual Amenity The changes to the experience of people using the lane would be minimal.	
Sensitivity	Minor road users: Medium

	LCA Simonswood Moss: Low-Medium Green Belt Medium-High		
	Construction	Year 1	Year 10
Magnitude of Change	Low	Negligible	Negligible
Level of Landscape Effect	LCA Simonswood Moss: Minor Green Belt: Moderate/Minor	LCA Simonswood Moss: Negligible Green Belt: Minor	LCA Simonswood Moss: Negligible, neutral. Green Belt: Minor, neutral
Level of Visual Effect	Road Users: Minor	Road Users: Minor	Road Users: Minor
Viewpoint 2 - Sandy Brow Lane west of the Site			
This viewpoint is located at OS grid reference 344277/397591, located 135 m to the north-west of the Site representing minor road user and residential receptors. It is located in LCA Simonswood Moss and Knowsley Green Belt. The representative 90 degree view is centred on a south-easterly direction and a panorama photograph is presented in Figure 5b. The current view is across a grazed field which is punctuated by a wood pole line. Beyond the bund on the west side of the Site the upper part of the large green building is visible amongst a few trees including the prominent conifers located on the south-west side of the Site, and the tops of a barn and residential property located to the south-west of the Site. The HV electricity line and pylons located to the south of the Site, and the pole line to the north, are prominent seen against the sky. At the time the photograph was taken, the stockpiles of earth in the Site were visible. The view is from the road and represents potential views from the nearby property. During construction the ground level of the Site would be screened by the bund but there would be some views to cranes and potentially some lighting. During operation it may be possible to see a small part of the top sides of the BESS (4.2m H) between the existing building and the distant wind turbine, but the welfare building (3m H) is likely to be screened by the bund located on the west boundary. Over time the trees proposed in the north part of the Site would screen any views to the tops of the BESS units and soften views to the main building. Landscape and Green Belt effects LCA Simonswood Moss is assessed as being of Low-Medium sensitivity to the Development. The Green Belt is given a Medium-High sensitivity. At this location, the Proposed Development would not be clearly visible or prominent at construction. The physical openness of the view is currently compromised by the large bund on the west side of the Site. Whilst the view contains large numbers of vertical infrastructure elements and the existing building, it remains rural and agricultural in character. Any views to small parts of the BESS or other structures would be within the context of large numbers of pylons, a wind turbine, and a number of building roofs, limiting effects, albeit remaining adverse. Visual Amenity Views to any additional built elements would further reduce the scenic qualities of the view to a small degree. It would remain largely vegetated and the recessive colour of the BESS units would reduce their prominence further. By Year 10 the proposed tree planting would eventually screen any views to new built structures and would begin to screen the existing A-frame, and this would comprise an improvement.			
Sensitivity	Residential users: High Minor road users: Medium LCA Simonswood Moss: Low-Medium Green Belt: Medium-High		
	Construction	Year 1	Year 10
Magnitude of Change	Low	Low	Low
Level of Landscape Effect	LCA Simonswood Moss: Minor Green Belt: Moderate/ Minor	LCA Simonswood Moss: Minor Green Belt: Moderate/ Minor	LCA Simonswood Moss: Minor beneficial Green Belt: Moderate/ Minor, beneficial

Level of Visual Effect	Residential users: Moderate/ Minor Road Users: Minor	Residential users: Moderate/ Minor Road Users: Minor	Residential users: Moderate/ Minor beneficial Road Users: Minor, beneficial
Viewpoint 3 - Sandy Brow Lane north of the Site			
This viewpoint is located at OS grid reference 344404/397860, 200 m from the Site on Sandy Brow Lane representing residential, bridleway and minor road user receptors. It is located in LCA Simonswood Moss and Knowsley Green Belt. The representative 90 degree view is centred on a southerly direction and a panorama photograph is presented in Figure 5c. The current view is characterised by the grazed fields divided by hedges, trees and stock fences. These limit long views but there are filtered views to the north side of the Site. The upper parts of stock piles of material present in the Site during photography and the building are visible. In addition HV pylons and wood poles are visible. During construction there would be some semi-filtered views to central and eastern parts of the Site, including use of vehicles, stock piling of materials, cranes and the installation of the BESS. Lighting required during the construction period would also be prominent. The existing bund is likely to screen other elements. During operation it is likely that parts of the acoustic fence and the battery units (4.2m H) and welfare building (3m H) would be visible in the northern part of the Site, visible to the left side of the existing bund in the view. Their recessive colour would make them less prominent within the wider view. The hedge that is proposed on the northern boundary would begin to soften, and then largely screen the new built elements and it would be managed for dense growth to 3m. In addition some of the trees that are proposed in the northern part of the Site, would provide additional softening and screening of the built elements over time. Eventually they would also screen much of the existing A-frame building. There may still be some glimpse views through the hedge and trees in winter. Landscape and Green Belt effects LCA Simonswood Moss is assessed as being of Low-Medium sensitivity to the Development. The Green Belt is given a Medium-High sensitivity. At this location, the Proposed Development would be partly visible at construction and within the first five years until the hedge on the north boundary had grown. Views to the BESS units particularly, would contribute to a level of built development in the countryside and would reduce a sense of openness to a relatively small degree. They would, however, be present in the context of a proliferation of pylons, a wind turbine, the large building located on the Site, and would be partially screened by the small trees in the intervening landscape. Visual Amenity The presence of additional built development within the rural view would be an adverse effect although the level of change would be limited and diffused by the intervening trees outside the Site, and those proposed within the Site, particularly in summer. The proposed perimeter hedge would be managed to provide screening over time.			
Sensitivity	Recreational and residential users: High Minor road users: Medium LCA Simonswood Moss: Low-Medium Green Belt Medium-High		
	Construction	Year 1	Year 10
Magnitude of Change	Low-Medium	Low-Medium	Low
Level of Landscape Effect	LCA Simonswood Moss: Minor Green Belt: Moderate not notable	LCA Simonswood Moss: Minor Green Belt: Moderate not notable	LCA Simonswood Moss: Minor Green Belt: Moderate/Minor
Level of Visual Effect	Recreational and residential users: Moderate not notable	Recreational and residential users: Moderate not notable	Recreational and residential users: Moderate/Minor

	Road Users: Moderate not notable	Road Users: Moderate not notable	Road Users: Minor
Viewpoint 4 - A580 east of Moss Cottage			
This viewpoint is located at OS grid reference 344672/396966, 490 m from the Site on the A580 representing major road user and residential receptors at the nearby property. It is located in LCA Simonswood Moss and Knowsley Green Belt. The representative 90 degree view is centred on a north-westerly direction and a panorama photograph is presented in Figure 5d. The current view is characterised by the arable fields interspersed with small tree groups and filtered views to scattered farms and the large, long roofs on the east side of Knowsley to the north. The large green shed located on the Site is currently visible. During construction it is likely that most elements would be screened by intervening vegetation including the hedges on the south side of the Site. The tops of cranes and lighting would be clearly visible and it may be possible to see the construction of the cable route in Cut Lane. During operation there may be visibility to the tallest elements including the top part of the ladder on the water tank, or the tops of some of the BESS. However, it is likely that most elements will be fully screened. Lighting during operation would be movement activated and minimal. Over time the proposed hedges and trees would increase the level of vegetation visible within the Site to a small degree. Landscape effects LCA Simonswood Moss is assessed as being of Low-Medium sensitivity to the Proposed Development. The Green Belt is given a Medium-High sensitivity. At this location, the Proposed Development would make imperceptible changes to the Site during operation. The presence of lighting within the area is characteristic and the views to cranes would be short lived. Partial views to built development are a characteristic of the view and the proposals may contribute to this to a small degree although they are likely to be fully or nearly fully screened. Effects on the openness of the Green Belt would be very limited and neutral. Effects on Visual Amenity The effects on fast moving road users would be minimal with limited effects on the views from the nearby residential property although there are likely to be some clearer view from upper windows.			
Sensitivity	Residential users: High Major road users: Low LCA Simonswood Moss: Low-Medium Green Belt Medium-High		
	Construction	Year 1	Year 10
Magnitude of Change	Low	Negligible	Low
Level of Landscape Effect	LCA Simonswood Moss: Minor Green Belt: Moderate/Minor	LCA Simonswood Moss: Negligible Green Belt: Minor	LCA Simonswood Moss: Minor neutral Green Belt: Moderate/Minor, neutral
Level of Visual Effect	Residential users: Moderate/Minor Road Users: Negligible	Residential users: Minor Road Users: Negligible	Residential users: Moderate/Minor neutral Road Users: Negligible, neutral
Viewpoint 5 – New Cut Lane footpath east of the Site			
This viewpoint is located at OS grid reference 345248/397708, 645 m north-east of the Site on New Cut Lane public footpath KB/15/1, representing footpath recreational user receptors. It is located in LCA Simonswood Moss and Knowsley Green Belt. The representative 90 degree view is centred on a south-westerly direction and a panorama photograph is presented in Figure 5e. The current view is characterised by a series of arable fields interspersed by the track on which the viewpoint is located, a single wind turbine, a series of HV electricity pylons and wood pole lines; and distant large-scale buildings of the industrial estates on the east side of Knowsley. Groups of trees cumulatively terminate ground level views in the distance but the view has an open and rural character.			

The Site is identifiable by the upper portion of the green building on the Site. Ground levels are fully screened by hedges and trees. During construction there may views to the upper parts of cranes and some lighting but all other elements would be screened. During operation ground-based elements would also be screened. By Year 10 the canopies of some of the trees may be visible, contributing to the vegetated character of the horizon to a small degree. Changes would, however, be minimal seen within the large scale built development located within the wider landscape. Landscape effects LCA Simonswood Moss – Central is assessed as being of Low-Medium sensitivity to the Proposed Development. The Green Belt is given a Medium-High sensitivity. At this location, the Proposed Development would make small changes during construction; and imperceptible changes to the Site during operation. The presence of lighting within the area is characteristic and the views to cranes would be short lived. By Year 10 there may be some visibility to the tops of trees planted in the Site but this would have minimal influence on character or a sense of openness. Effects on Visual Amenity The changes to the experience of people using the lane would be minimal.			
Sensitivity	Recreational users: High LCA Simonswood Moss: Low-Medium Green Belt Medium-High		
	Construction	Year 1	Year 10
Magnitude of Change	Negligible	None	Negligible
Level of Landscape Effect	LCA Simonswood Moss: Negligible Green Belt: Minor	LCA Simonswood Moss: None Green Belt: None	LCA Simonswood Moss: Negligible neutral. Green Belt: Minor, neutral.
Level of Visual Effect	Recreational Users: Minor	Recreational Users: None	Recreational Users: Minor, neutral

6.1.1 Summary of Viewpoint Appraisal

The appraisal of effects at the five representative viewpoints illustrates that there would be no notable effects on landscape or visual receptors within 1.5 km of the Site. Effects would generally be greatest during the temporary construction period; reduced by Year 5 when the proposed hedges had grown; and continuing to reduce beyond Year 10 when the proposed trees would have further softened or screened the existing building on the Site. Effects would generally be adverse except at Viewpoints 1, 4 and 5 where they would change from adverse to neutral by Year 10 due to screening by trees, and Viewpoint 2 where effects would be beneficial by year 10.

The viewpoint appraisal is summarised in Table 4.

Table 4: LVA Selected Viewpoints

Viewpoint Number	User Sensitivity	Magnitude of Change Construction, Year 1, Year 10	Effect Construction, Year 1, Year 10
1 Cut Lane south of the Site	LCA Simonswood Moss: Low-Medium	Low, Negligible, Negligible.	Minor, Negligible, Negligible, neutral.
	Green Belt: Medium-High		Moderate/Minor, Minor, Minor neutral.
	Road: Medium		Minor, Minor, Minor.

Viewpoint Number	User Sensitivity	Magnitude of Change Construction, Year 1, Year 10	Effect Construction, Year 1, Year 10
2 Sandy Brow Lane west of the Site	LCA Simonswood Moss: Low-Medium	Low, Low, Low.	Minor, Minor, Minor beneficial.
	Green Belt: Medium-High		Moderate/Minor, Moderate/Minor, Moderate/Minor beneficial.
	Road: Medium		Minor, Minor, Minor beneficial.
	Residential: High		Moderate/Minor, Moderate/Minor, Moderate/Minor beneficial.
3 Sandy Brow Lane north of the Site	LCA Simonswood Moss: Low-Medium	Low-Medium, Low-Medium, Low.	Minor, Minor, Minor.
	Green Belt: Medium-High		Moderate not notable, Moderate not notable, Moderate/Minor
	Road: Medium		Moderate not notable, Moderate not notable, Minor.
	Recreational High		Moderate not notable, Moderate not notable, Moderate/Minor.
	Residential: High		Moderate not notable, Moderate not notable, Moderate/Minor.
4 A580 east of Moss Cottage	LCA Simonswood Moss: Low-Medium	Low, Negligible, Low.	Minor, Negligible, Minor neutral.
	Green Belt: Medium-High		Moderate/Minor, Moderate/Minor, Minor/Negligible neutral.
	Road: Low		Negligible, Negligible, Negligible neutral.
	Residential: High		Moderate/Minor, Minor, Moderate/Minor neutral.
5 New Cut Lane footpath east of the Site	LCA Simonswood Moss: Low-Medium	Negligible, None, Negligible.	Negligible, None, Negligible neutral.
	Green Belt: Medium-High		Minor, None, Minor, neutral.
	Recreational: High		Minor, None, Minor neutral.

7 LANDSCAPE EFFECTS

This section considers the potential effects on the landscape resource in terms of the Development on landscape designations and landscape character and designations of the study area during its construction and operational phases.

The elements of the operational period of the Development that could cause landscape effects are set out in Section 2.

Judgments about levels of effect are arrived at by combining levels of receptor 'sensitivity' with the predicted levels of 'magnitude of change' that are likely to arise from the Development during the operational period. This methodology is set out in detail in Appendix 1.

In summary, the sensitivity of a landscape designation or character receptor takes account of its 'susceptibility' to the proposed change, together with any 'value' attached to the landscape. This is described in the following sections in relation to each landscape designation or character receptor appraised.

Magnitude of change takes account of matters such as the 'size or scale' of change, the 'geographical extent' of area affected, the 'duration' of effects and their 'reversibility'. The size or scale of change and geographical extent of area affected (at different scales from regional to site) are described in the following sections. In terms of the duration and reversibility of effects arising from construction would be 'temporary' and from the completed development would be 'long-term' but 'reversible', and are not generally re-iterated in the appraisal. All effects are assessed as 'adverse' unless stated otherwise.

7.1 APPRAISAL OF EFFECTS ON LANDSCAPE CHARACTER

The effects of the Proposed Development on landscape character have been considered in relation to the two LCAs identified in Section 5 of the baseline conditions section.

The character assessment draws on the ZTVs in Figures 3 and 4, and the landscape character mapping in Figure 6.

7.1.1 Simonswood Moss LCA

Simonswood Moss LCA would be directly affected by the Proposed Development and there could also be views to the Proposed Development from areas of the LCA beyond the Site.

7.1.1.1 Sensitivity to the Development

The following sensitivity refers to the key characteristics described in the Knowsley Character Assessment¹⁰.

- Topography: 'Flat, low-lying', and simple with some gentle undulations.
- Scale (landform and component landscape features): Varying small to large-scale field pattern, with conspicuous modern features, e.g. overhead power lines, a substation, single wind turbine and major road infrastructure.
- Landscape pattern and complexity (including sense of time-depth): The Site would contain no features after restoration. Beyond the Site fields are fairly regular with some remnant ditches and hedges.
- Perceptual qualities: Rural, but not tranquil due to strong presence of OHL, the substation, views to the Knowsley Business Park and infrastructure and views to the A580 and A5208. *'The 'urban edge' of Kirkby and in particular Kirkby Industrial Park on the west of the area has localised distracting impact on the landscape, as does the landfill site at Coopers Moss, on Perimeter Road.'* *'A number of overhead power lines and pylons detract from the overall landscape character of this area providing a dominating visual intrusion against the horizon.'*
- Skyline character and visual prominence: The skyline is dominated by pylons and the large scale industrial buildings at Kirkby.
- Visual sensitivities and intervisibility: *'Flat low-lying topography with wide views.'* There is little intervisibility beyond the LCA.

In terms of value, the landscape within the study area is undesignated. The quality of the landscape is generally low with a small large pattern of fields with hedging often gappy or missing. It is, however, designated Green Belt and valued in terms of an area of countryside on the outskirts of Kirkby and is considered to be of Medium value.

The LCA is already characterised by electrical infrastructure and influenced by views to large scale built development in addition to the influences of fast moving traffic on the A850 and has Low landscape susceptibility at site and study area levels.

The landscape and visual sensitivity of Simonswood Moss LCA to the Proposed Development is judged to be Low-Medium across the study area and within the Site.

7.1.12 Nature of Change

The screened ZTV indicates that there could be visibility to the Proposed Development from southern, eastern and central parts of the LCA represented within 1.5km. In addition there would be some changes in views from Viewpoints 1-5, effects ranging from Negligible to Moderate/Minor at Construction, None to Minor at Year 1, and Minor, adverse to Minor beneficial at Year 10.

In addition the changes to the cable route would be apparent in south-west parts of the LCA during construction.

The level of change to views and the key characteristics of the LCA is as set out in Table 5.

Table 5: Nature of Change to Simonswood Moss LCA

Character Criteria	Nature of Change
Topography	There would be some excavations on the Site and the cable route during construction
Scale (landform and component landscape features)	The group of built elements within the BESS site would contribute a level of complexity albeit directly affecting a limited area and not prominent in views from the wider landscape. They would relate to the area of the Site which is defined by the bunding and hedges on its boundaries.
Landscape pattern and complexity (including sense of time-depth), land cover	A corridor 10m wide would be cleared of trees within the area located to the west of Hewitt's Lane to construct the cable route.
Perceptual qualities	The BESS and cable route would be disruptive to the rural landscape during construction. During operation they would be recessive or not visible having limited effects on the rural landscape other than within the Site.
Skyline character and visual prominence	Although largely screened from beyond the Site, some of the taller structures including the BESS units would be partially visible from the wider landscape. They would not, however, affect the skyline which is dominated by pylons. Any new development would be seen within the context of a patchwork landscape with some intervening trees and hedges. The mitigation planting of hedges and trees would further reduce visibility over time.
Visual sensitivities and intervisibility	Visual effects would be limited with very little intervisibility with other LCAs.

The geographical extent over which physical changes would occur or be experienced would be relatively localised. Perceptual changes would occur up to 1km to the north and east although at this distance any changes in views would be minimal.

Considered within the Site, changes to the LCA would be High. Effects would be Moderate not notable at Construction and Year 1, becoming Minor and neutral at Year 10 with the growth of hedges, trees, a wetland area and neutral grassland, enhanced and moderate, which would improve the value of the LCA.

Considered within the study area changes to the LCA would be Negligible at Construction, Year 1 and Year , Negligible and neutral at Year 10 with the growth of hedges, trees and neutral grassland, enhanced and moderate, improving the value of the LCA.

7.1.2 Knowsley Estate LCA

Knowsley Estate LCA does not include the 'host' landscape and therefore has the potential to be indirectly affected by the Proposed Development. Effects are considered within the Site and the 1.5km study area.

7.121 Sensitivity to the Development

The following sensitivity refers to the key characteristics described in the Knowsley Character Assessment¹⁰.

- Topography: Simple becoming gently rolling to the south.
- Scale (landform and component landscape features): Small to medium-scale open parkland areas enclosed by blocks of woodland.
- Landscape pattern and complexity (including sense of time-depth): patterns of woodland blocks and open parkland are simple and clear. Strong sense of time depth due to a lack of modern elements, historic buildings and designed woodland rides and copses.
- Perceptual qualities: Rural and generally tranquil due to a lack of modern elements located within views across the LCA.
- Skyline character and visual prominence: *'Tree cover gives a strong sense of enclosure throughout the estate and has been used as a device to frame views within the more formal grounds. The enclosed nature of the landscape means that the neighbouring urban edges of Huyton and St Helens do not distract from an inherently rural character.'*
- Visual sensitivities and intervisibility: Visual patterns characterised by controlled spaces formed by woodland blocks enclosing areas of parkland to form a series of 'rooms'. There is little intervisibility beyond the LCA.

The LCA is located within Green Belt and Knowsley Park Registered Park and Garden. It contains a number of PRow and its value in terms of an area of countryside on the outskirts of Knowsley is considered to be High.

The LCA is characterised by mature parkland with limited views to large scale built development in addition to the influences of fast moving traffic on the A850 and its susceptibility is considered to be High.

The perceptual sensitivity is considered to be High.

7.122 Nature of Change

The screened ZTV indicates that there would be some visibility to the Proposed Development from the north sides of the parkland tree belts located on the north side of the LCA. The level of change to views and the key characteristics of the LCA would be minimal as set out in Table 6.

Table 6: Nature of Change to Knowsley Estate LCA

Character Criteria	Nature of Change
Topography	N/A.
Scale (landform and component landscape features)	N/A.
Landscape pattern and complexity (including sense of time-depth)	N/A.
Perceptual qualities	Changes to the character of the views to the north would be negligible.
Skyline character and visual prominence	The Development would not affect skylines.
Visual sensitivities and intervisibility	Views to the Development would be negligible from the south.

The geographical extent over which physical changes would be experienced would be limited to small areas of woodland where other built elements within LCA Simonswood Moss are prominent.

Appraised within the study area effects on landscape character during Construction, Year 1 and Year 10 would be Negligible.

7.2 LANDSCAPE-RELATED DESIGNATIONS AND PROTECTED FEATURES

The assessment of effects on designations draws on the ZTVs in Figures 3 and 4, and the designations mapping in Figure 7.

7.2.1 Knowsley Park Registered Park and Garden

Knowsley Park Registered Park and Garden landscape and heritage designation does not include the 'host' landscape and has the potential to be indirectly affected by the Proposed Development. Effects are considered within the Site and the 1.5km study area.

7211 Sensitivity to the Development

In terms of value, Knowsley Park is all designated under the register of Historic Parks and Gardens. It is considered that the value of the landscape is High.

Knowsley Park is characterised by historic elements which could be affected by views in conjunction with modern elements such as the BESS and has High landscape susceptibility.

The landscape and visual sensitivity of Knowsley Park to the Proposed Development is judged to be High.

7212 Nature of Change

The ZTVs indicate that although there could be some visibility to the Proposed Development from the northern boundary, views to any built development or construction processes would only affect small areas of woodland that surround the park, and be seen within the context of a wider landscape containing multiple existing built elements which would be much more prominent.

No designed views would be affected.

It is considered likely that the magnitude of change to the park would be Negligible and the effect Negligible.

7.2.2 Knowsley Green Belt

Knowsley Green Belt spatial designation includes the 'host' landscape and therefore has the potential to be directly and indirectly affected by the Proposed Development. Effects are considered within the Site and the 1.5km study area.

7221 Sensitivity to the Development

The Green Belt is valued for its visual amenity qualities enjoyed by users of PRoW for example, and for its character of predominantly green, open countryside with some mid and longer distance views. It is valued for its un-built character within the urban context of Kirkby. The area has a medium susceptibility to change in terms of openness given the presence of groups of trees and the buildings, bund and hedges associated with the Site and its immediate context.

The physical sensitivity of the Site area of the Green Belt is considered to be Low-Medium.

The perceptual sensitivity of the Green Belt is considered to be Medium-High.

7222 Nature of Change

The Proposed Development would introduce a group of built structures comprising BESS units and associated infrastructure which together affect a physical area measuring approximately 0.5ha, and in addition, a cable connection measuring c. 1.2km. The group would comprise a series of built structures which are mostly oblong and measure up to 4m in height. Grouped together within a fenced compound the BESS structures would reduce the physical openness of the BESS site. In addition, hedges and trees would be planted and they would further reduce openness although they are characteristic of the study area. The cable would be underground and would not affect physical openness beyond construction.

In addition the Proposed Development would affect a number of views across the study area as indicated by the ZTVs and Viewpoints 1-5. Effects on the Green Belt at the viewpoints has been assessed as between Minor and Moderate/Minor and adverse at Construction;

between Minor and Moderate not notable and adverse at Year 5; and between Moderate/Minor adverse and Moderate/Minor beneficial at Year 10.

Seen from most directions, the Proposed Development would be either largely or totally screened. It would also tend to be seen within the wider context of a series of electricity pylons. It would be most visible in views from the north affecting a small part of Sandy Brow Lane and the southern-most point of PRow KB/18/4. Seen from here the Proposed Development would cause Moderate, not notable, effects becoming Moderate/Minor by Year 10 (all adverse) on path users and the openness of the Green Belt. (See Viewpoint 3). Seen from the east the Proposed Development would be screened and, although the proposed trees would reduce openness to a small degree, this is not considered out of character and is considered a beneficial effect. (See Viewpoint 5 on New Cut Lane). Seen from the south the upper portions of the BESS would be imperceptible seen within the wider landscape, affect occasional dwellings (high sensitivity) and users of the fast-moving A580 (low sensitivity). Again the growth of the proposed trees would have an imperceptible and neutral effect on openness. (See Viewpoint 4). Views from the west, including occasional residential receptors and users of Sandy Brow Lane, would be minimal given the presence of the existing bund located on the western boundary of the BESS site. Any changes caused by views to built structures including the top sides of the BESS units would be limited by the visual context of a series of electricity pylons. Viewpoint 2).

It is considered that the physical magnitude of change to the Green Belt would be Medium and that the physical effect would be Moderate/Minor.

It is considered that the magnitude of change to perceptions of openness would be Low and the impact would be Moderate/Minor. Perceptual impacts would be neutral at Year 10.

The effects on the visual amenity of recreational users of PRow is assessed in section 8. It is considered that the magnitude of change to the visual amenity of recreational users would be Minor/Minor.

Considered overall, although the proposed mitigation and enhancement planting would provide some benefits, effects on the Green Belt would be adverse. The levels of effect would tend to be limited, in part due to the existing influences of the edge of Kirkby and a series of electricity pylons.

7.3 CUMULATIVE LANDSCAPE EFFECTS

The cumulative effects of the existing electrical infrastructure within the study area is included in the assessment. No potential future in planning cumulative landscape effects have been identified.

Should the site at the parcel of land that is located between Molly's Lane and the B5202 and marked in Knowsley Local Plan Proposals Map for Sustainable Urban Expansion be developed, there would be cumulative effects on Simonswood Moss LCA and the Green Belt, reducing the area of countryside located between the Proposed Development and the eastern settlement edge of Kirkby.

The remaining areas are under agricultural use and protected by its Green Belt status and therefore unlikely to change unless they come under pressure from expansion of Kirkby. It is possible that Knowsley substation could attract more electrical infrastructure in the future. Otherwise it is not anticipated that the baseline conditions of much of the local landscape character and land use, described above, will differ significantly in the future without the Proposed Development, with the Proposed Development or after the 30-year operational phase.

8 VISUAL EFFECTS

The operational period of the Proposed Development would cause changes to the fabric of the Site which would be visible within and beyond the Site in places, with potential for visual effects on surrounding visual receptors.

This section addresses the changes in the composition of existing views of the landscape arising from the Proposed Development during its operational phase, and the effects this would have on the visual receptors (people) who experience those views.

As with landscape effects described in the previous section, judgments concerning levels of effect on views and visual amenity take into account the 'sensitivity' of each receptor and the 'magnitude' of change that arises from the Proposed Development during construction and operation. This process is described in more detail in Appendix 1. The duration and reversibility of all visual effects are assumed to be 'temporary' during construction, and 'long-term' but 'reversible' during operation unless otherwise stated. All effects are also assumed to be 'adverse' unless otherwise stated.

As also noted in the previous section (7), visual effects are appraised at construction, at the year of completion (taken to be Year 1) and at 10 years (Year 10) following completion of the construction process in order to assess changes over time including the effectiveness of mitigation planting at reducing levels of effects on views. In this case, established vegetation on and immediately adjacent to the boundaries of the Site already provides a degree of visual containment.

The appraisal has also taken seasonality into account when considering the effectiveness of existing and proposed vegetation at screening the Proposed Development. In most instances the screening vegetation tends to comprise the woodland and hedges located beyond the Site and the hedges within. These tend to create a dense visual barrier but during periods of foliage loss there are some heavily filtered views through them, and the hedges tend to be maintained at heights of less than 2m. They are also gappy in places. Where applicable, important differences between levels of effects in summer and winter are noted. Judgments about levels of effect recorded in the viewpoint assessment and the tables below are based on a worst-case winter visibility when screening by deciduous vegetation is least effective.

The following appraisal considers effects in relation to properties and settlements, recreational destinations and transport routes.

8.1 VISUAL EFFECTS ON VIEWS FROM RESIDENTIAL PROPERTIES

Whilst individual or specific observations are made below concerning views or potential views from properties in the direction of the Proposed Development, a 'summation' is offered based on an opinion 'in the round' i.e. taking all relevant factors into account. This could include potential views from the property itself as well as from the surrounding garden, the access/egress points and the immediately adjacent highway. Effects of views from ground floor windows and external areas are assessed. The appraisal is an informed estimate as the properties themselves have not been accessed. Each property considered in Table 7 below has been subject to a desktop appraisal in conjunction with a site visit to the closest public location in the vicinity of each property.

Occupants of residential properties are judged to be of High sensitivity as they are static receptors whose enjoyment of their property is likely to be affected by the quality of views and visual amenity experienced there.

Table 7: Visual Effects on Residential Properties

Property	Description of Effect
P1	The Stables located on Sandy Brow Lane 235 m north of the Site comprises a two storey brick built house within large gardens and primary views to the north away from the Site. Although Viewpoint 3 is located outside the property's southern boundary and shows some visibility, it is unlikely that there would be visibility from ground floors due to vegetation screening in the garden. There may be some views from first floor windows in which case the upper parts of the BESS units and other structures could be visible beyond the acoustic fence, semi-filtered by trees located in the intervening fields. There would not be any views from ground level apart from, perhaps, the entrance to the drive. Magnitude of change Construction and Year 1: Low-Negligible. Level of effect: Minor. Magnitude of change Year 10: Negligible. Level of effect: Minor at most.

P2	The Barn located on Sandy Brow Lane 220 m north of the Site comprises a two storey house within large gardens and primary views to the west away from the Site. Although Viewpoint 3 is located outside the property's southern boundary and shows some visibility, it is unlikely that there would be visibility from ground floors. There may be some views from first floor windows in which case the upper parts of the BESS units and other structures would be visible beyond the acoustic fence, semi-filtered by trees located in the intervening fields. There would not be any views from ground level apart from, perhaps, the entrance to the drive. Magnitude of change Construction and Year 1: Low-Negligible. Level of effect: Minor. Magnitude of change Year 10: Negligible. Level of effect: Minor at most.
P3	Cherry Tree Cottage located on Sandy Brow Lane 200 m north of the Site comprises a two storey house with primary views to the west away from the Site. Any visibility from the east side of the house is represented by Viewpoint 2 which is located outside the property's eastern boundary. The viewpoint shows there may be some views to the top sides of some of the BESS units in the northern part of the Site. Their colouring would make them recessive and they would be partly screened by the bund on the western boundary and the vegetation located on the northern boundary. Over time the proposed hedge and trees located in the north of the Site would fully screen the BESS and begin to soften views to the existing building on the Site. Visibility would be limited by Cherry Tree Bungalow located on the east side of the dwelling, and trees located in the intervening fields. Magnitude of change Construction and Year 1: Low-Negligible. Level of effect: Minor. Magnitude of change Year 10: Negligible. Level of effect: Minor at most.
P4	Cherry Tree Bungalow located on Sandy Brow Lane 180 m north of the Site comprises a single storey house with primary views to the east towards the Site although a hedge on the boundary limits views. Any visibility from the east side of the house are represented by Viewpoint 2 which is located beyond the property's eastern boundary. The viewpoint shows there may be some views to the top sides of some of the BESS units in the northern part of the Site. Their colouring would make them recessive and they would be partly screened by the bund on the western boundary and the vegetation located on the northern boundary. Over time the proposed hedge and trees located in the north of the Site would fully screen the BESS and begin to soften views to the existing building on the Site. Visibility would be limited by the hedge, and trees located in the intervening fields. Magnitude of change Construction and Year 1: Negligible. Level of effect: Minor at most. Magnitude of change Year 10: Negligible. Level of effect: Negligible.
P5	The two-storey detached dwelling Sandy Brow Cottage is c. 145 m north-west of the Site, on Sandy Brow Lane. Views are represented by Viewpoint 2 to an extent. Trees located on the east side of Sandy Brow Lane screen most views towards to the Site but, particularly in winter, there could be some heavily filtered views. Viewpoint 2 indicates that during construction the ground level of the Site would be screened by the bund but there would be some views to cranes and some lighting, should it be required. During operation it may be possible to see a small part of the top sides of the BESS between the existing building and the distant wind turbine, but the welfare building is likely to be screened by the bund located on the west boundary. Over time the trees proposed in the north part of the Site would screen any views to the tops of the BESS units and soften views to the main building. Magnitude of change Construction and Year 1: Negligible. Level of effect: Low to Negligible. Magnitude of Change Year 10: Negligible. Level of effect: Negligible, beneficial.
P6	Hawthorn Cottage is a detached single-storey property located 60 m south-west of the Site on Cut Lane. The evergreen leylandii hedge located on the south-west boundary of the Site screens views into the BESS site. It is possible that there could be some glimpse views to the construction compound located in the south-west part of the Site and some lighting during construction. However, these would be heavily screened by trees located on the site boundary and the existing building located within the Site would limit visibility further. The cable route would be constructed in front of the property causing short term effects. The new passing place that would be located to the east of the property would be

	screened by vegetation. The construction of the cable would be similar to that of other works that are typical of a tarmac public road. Magnitude of change Construction: Medium. Level of effect: <u>Major/Moderate, notable</u>. Magnitude of Change Year 1 and Year 10: Negligible. Level of effect: Negligible.
P7	The two story building located to the west side of Hawthorn Cottage is located 80 m south-west of the Site, on Cut Lane. It is not clear whether it is inhabited. The evergreen leylandii hedge located on the south-west boundary of the Site screens views into the Site. It is possible that there could be some glimpse views to the construction compound located in the south-west part of the Site and some lighting during construction. However, these would be heavily screened by trees located on the site boundary and the existing building located within the Site would limit visibility further. The cable route would be constructed in front of the property causing short term effects. The new passing place that would be located to the east of the property would be screened by vegetation. The construction of the cable would be similar to that of other works that are typical of a tarmac public road. Magnitude of change Construction: Medium. Level of effect: <u>Major/Moderate, notable</u>. Magnitude of Change Year 1 and Year 10: Negligible. Level of effect: Negligible.
P8	The Cottage is a two storey dwelling located 287 m south-west of BESS site and located adjacent to the cable route. Although there are some trees on the garden boundary, there are some filtered long views to the rear. It is unlikely that there would be any changes to the view due to screening closer to the Site however. During construction excavations and machinery would adversely impact views to the front of the property onto the road although this would be temporary. The cable route would be constructed in front of the property causing short term effects. The construction of the cable would be similar to that of other works that are typical of a tarmac public road. Magnitude of change Construction: Medium. Level of effect: <u>Major/Moderate, notable</u>. Magnitude of Change Year 1 and Year 10: Negligible. Level of effect: Negligible.
P9-10	Molly's Barn and Cooper's Cottage One are detached dwellings located 740 m to the west of the BESS site and 315m north of the grid connection on Molly's Lane. There would be no views to the Proposed Development due to screening by trees and farm buildings. Magnitude of Change Construction, Year 1 and Year 10: None. Level of effect: None.
P11	The two storey dwelling is located 460 m south-west of the BESS site and on the cable route on Hewitt's Lane. During construction excavations and machinery would adversely impact views to the front of the property onto the road although this would be temporary. Views to the main BESS site would be screened during construction and operation Magnitude of change Construction: Medium. Level of effect: <u>Major/Moderate, notable</u>. Magnitude of Change Year 1 and Year 10: None. Level of effect: None.
P12	The two storey dwelling Mosside Cottage is located 490 m south-west of the BESS site and on the cable route on Hewitt's Lane. During construction excavations and machinery would adversely impact views to the front of the property onto the road although this would be temporary. Views to the main BESS site would be screened during construction and operation. Magnitude of change Construction: Medium. Level of effect: <u>Major/Moderate, notable</u>. Magnitude of Change Year 1 and Year 10: None. Level of effect: None.
P13	The large, two storey dwelling is located 527m south-west of the BESS site and on the cable route on Hewitt's Lane. During construction excavations and machinery would adversely impact views to the front of the property onto the road, although this would be temporary and at a distance of over 30m from the house itself and garden vegetation would partly screen views. Views to the main BESS site would be screened during construction and operation Magnitude of change Construction: Low. Level of effect: Moderate not notable. Magnitude of Change Year 1 and Year 10: None. Level of effect: None.
P14	Moss Cottage is two storey and detached, located 470 m south of the BESS Site and 505m south-east of the cable route at its closest point, on the north side of A580. The

	property has some open and long views to the north towards the BESS site although the hedge on the garden boundary may screen some views. Views are represented by Viewpoint 4. During construction it is likely that most elements would be screened by intervening vegetation including the hedges on the south side of the Site. The tops of cranes and lighting would be clearly visible. During operation there may be visibility to the tallest elements including the top part of the ladder on the water tank, or the tops of some of the BESS. However it is likely that most elements will be fully screened. Over time the proposed hedges and trees would increase the level of vegetation visible within the Site to a small degree. The construction of the cable route would be visible in the distance but not prominent Magnitude of Change Construction and Year 10: Low. Level of effect: Moderate/Minor, and neutral at Year 10. Magnitude of Change Year 1: Negligible. Level of effect: Minor.
P15	Moss Cottage is two storey and detached, located 470 m south of the BESS Site and 505 m south-east of the cable route at its closest point, on the north side of the A580. The property has some open and long views to the north towards the BESS site although the hedge on the garden boundary may screen some views. All views to the BESS site are likely to be screened by the farm buildings located to the north of the dwelling. There would be some views to the construction of the cable route on Hewitt's Lane although it would not be prominent and would be temporary. Magnitude of change Construction: Negligible. Level of effect: Minor. Magnitude of Change Year 1 and Year 10: None. Level of effect: None.
P16	The Homestead is a two storey dwelling located on Knowsley Lane on the south side of the A580 830 m south-west of the BESS site and 150 m south of the cable route. There would be no views to the Proposed Development due to screening. Magnitude of Change Construction, Year 1 and Year 10: None. Level of effect: None.
P17	The Homestead is a two storey dwelling located on Knowsley Lane on the south side of the A580 780 m south-west of the BESS site and 180 m south of the cable route. There would be no views to the Development due to screening. Magnitude of Change Construction, Year 1 and Year 10: None. Level of effect: None.
P18	Strawberry Lodge is a two storey dwelling located on Knowsley Lane, 800 m south-west of the BESS site and 210 m south of the cable route. There would be no views to the Development due to screening. Magnitude of Change Construction, Year 1 and Year 10: None. Level of effect: None.
P19	The two storey dwelling located on Knowsley Lane 900 m south-west of the BESS site and 330 m south of the cable route. There would be no views to the Development due to screening. Magnitude of Change Construction, Year 1 and Year 10: None. Level of effect: None.
P20	Tinkle Peg Farm is a two storey dwelling located on Ormskirk Road 1 km south-west of the BESS site and 400 m south of the cable route. There would be no views to the Development due to screening. Magnitude of Change Construction, Year 1 and Year 10: None. Level of effect: None.

8.2 VISUAL EFFECTS ON VIEWS FROM SETTLEMENTS

The settlements identified in Section 5 of the baseline conditions as having potential visibility to the Development are considered in Table 8.

Occupiers of properties and their environs within settlements are judged to be of High sensitivity as they include static and regularly used receptor locations whose enjoyment of their property and environs is likely to be affected by the quality of views and visual amenity experienced there.

Table 8: Visual Effects on Settlements

Settlement	Description of Effect
Kirkby	Kirkby town is located c. 700m west of the Site. Much of the eastern side of Kirkby comprises industrial, infrastructure or business use and, in addition, pockets of woodland including Acorn Field Plantation and the trees located around the substation would screen most views. The screened ZTVs indicate that there could be some small areas of visibility to the BESS site from residential areas located in the Spinney Road and Perimeter Road area, north of Boundary Road and the A5208. There may be some glimpse views to the main BESS site from the upper windows of a few residential properties in this area. It may be possible to discern machinery including cranes during construction, but the bund on the west side of the Site is likely to screen all views to built development. In addition a number of hedge rows and the trees located on Sandy Brow Lane would provide intervening screening. All other parts of Kirkby including public open space and roads would be screened from view. The cable route would be fully screened. Magnitude of Change Construction, Year 1 and Year 15: Negligible. Level of effect: Negligible.
Knowsley	Knowsley village is located c. 1.5km south-west of the BESS site, and 975m south-west of the cable route. The settlement forms a compact area of residential streets, northern parts of which are designated Conservation Area (marked in Figure 7). Whilst there could be some theoretical visibility from properties located close to Mill Lane on the north boundary, all views to the BESS site and cable route would be screened by intervening structures (at New Road Farm) and trees and hedges. Magnitude of Change Construction, Year 1 and Year 15: None. Level of effect: None.

8.3 VISUAL EFFECTS ON VIEWS FROM RECREATIONAL ROUTES

Of those recreational routes identified in the baseline in Section 5, the Screened ZTV indicates some theoretical visibility of the Development from a small number of public footpaths and bridleways which pass within 1.5 km of the Site. These are considered in Table 9 below.

Effects on the routes are appraised statically and sequentially as a whole.

Table 9: Visual Effects on Recreational Routes

Route	Description of Effect
The bridleway which exits Sandy Brow Lane 220m to the north of the Site (KB/18/4, KB/18/2 and KB/18/1), with a section of footpath linking with Kirkby (KB/19/1).	The bridleway exits Sandy Brow Lane 220 m to the north of the BESS site (KB/18/4, KB/18/2 and KB/18/1), with a section of footpath linking with Kirkby (KB/19/1). The bridleway and footpaths show signs of recreational use. The route crosses the study area over a section measuring 1.5 km. The dense hedges and trees associated with the residential properties at The Stables and The Barn would limit visibility. The ZTVs indicate that no parts of bridleway and footpath sections KB/18/2, KB/18/1 and KB/19/1 would be affected by visibility, and that the southern-most part of KB/18/4, where it meets Sandy Brow Lane, would potentially have some views to the BESS site. This location is represented by Viewpoint 3. At this location during construction there would be some semi-filtered views to central and eastern parts of the Site, including use of vehicles, stock piling of materials, cranes and the installation of the BESS. Lighting during the construction period would also be prominent. The existing bund is likely to screen other elements. During operation it is likely that parts of the acoustic fence and the battery units (4.2m H) and welfare building (3m H) would be visible in the northern part of the Site, visible to the left side of the existing bund in the view. Their recessive colour would make them less prominent within the wider view. The hedge that is proposed on the northern boundary would begin to soften, and then largely screen the new built elements and it would be managed for dense growth to a height of 3m. In addition some of the trees that are proposed in the northern part of the Site, would provide additional softening and screening of the

	built elements over time. Eventually they would also screen much of the existing building. There may still be some glimpse views to built development through the hedge and trees in winter. There would not be views to the cable route. Views would affect a very small portion of the PRow sections considered as a whole, and would not be notable at any single location. Magnitude of Change Construction and Year 1: Low. Level of effect: Moderate/Minor. Magnitude of Change Year 10: Negligible. Level of effect: Minor.
The footpath which follows New Cut Lane and exits Cut Lane 475m to the east (KB/15/1, KB/16/1-2).	The footpath follows New Cut Lane and exits Cut Lane 475 m to the east (KB/15/1, KB/16/1-2). New Cut Lane is a rough surfaced track and shows some signs of recreational use. Views are represented by Viewpoint 5, Figure 5f. The routes crosses the study area over a section measuring 3.8km and link the A580 with the Mossborough Hall area in the north. The ZTVs indicate that most parts of the footpath sections could be affected by visibility with clearest visibility from KB/15/1 and KB/16/1 where open views to the west are less restricted by hedges and woodland. At Viewpoint 5 during construction there may views to the upper parts of cranes and some lighting but all other elements would be screened. During operation ground-based elements would also be screened. By Year 10 the canopies of some of the trees may be visible, contributing to the vegetated character of the horizon to a small degree. Whilst these changes would affect c. 1.1 km of the routes, they would be minimal, seen within the large scale built development located within the wider landscape. Views would affect a significant portion of the PRow sections considered as a whole, and but changes would be minimal at any single location. Magnitude of Change Construction: Negligible. Level of effect: Minor. Magnitude of Change Year 1: None. Level of effect: None. Year 10: Negligible. Level of effect: Minor, neutral.
The short sections of footpath located south of the A580 near Canrow Farm within 580m (KN/11/1, KN/11/3 and KN/12/1).	The short sections of footpath (KN/11/1, KN/11/3 and KN/12/1) are located south of the A580 near Canrow Farm within 580 m. The routes cross the study area over a total section measuring 900 m and show varying levels of use crossing arable fields. Sections KN/11/1 and KN/11/3 would not be affected by the ZTVs. It is possible that there could be some glimpse views from KN/12/1. It is unlikely that there would be views to the BESS site and the cable route is likely to be screened largely by trees located on the A580. Magnitude of Change Construction, Year 1 and Year 10: None. Level of effect: None.

8.4 VISUAL EFFECTS ON VIEWS FROM OUTDOOR SPORT AND RECREATION LOCATIONS

Of those outdoor sport and recreation locations identified in Section 5 of the baseline, the Screened ZTV indicates some theoretical visibility to the Development from the following location.

Table 10: Visual Effects on Outdoor Sport and Recreation Locations

Location	Description of Effect
Acorn Field Plantation nature reserve	Acorn Field Plantation nature reserve is located to the west side of Perimeter Road on the outskirts of Kirkby, 420 m to the north-west. There could be glimpse views to the tops sides of the BESS from the eastern boundary which includes a small car park and occasional footpaths. However the changes would be difficult to decipher, seen beyond intervening fields,

	hedges and trees, and mostly screened by the bund on the Site. The majority of the nature reserve would not experience any views at all. Users of the nature reserve have a recreational focus and have a Medium-High sensitivity to changes in the views. Magnitude of Change (Year 1): Negligible. Level of effect: Negligible. Magnitude of Change (Year 10): Negligible. Level of effect: Negligible.
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8.5 VISUAL EFFECTS ON VIEWS FROM TRANSPORT ROUTES

Of those key transport routes identified in Section 5 of the baseline conditions, the Screened ZTV indicates some theoretical visibility of the Development the routes considered in Table 11 below.

Users of main (A-class) roads are judged to be of Low sensitivity to the Development because they pass through the area at high speed with limited awareness of their surroundings. Users of local (B-class) and minor roads are judged to be of Medium sensitivity as users travel at slower speeds and generally have a greater appreciation of their surroundings.

Effects on the routes are appraised statically and sequentially as a whole.

Table 11: Visual Effects on Transport Routes

Receptor	Description of Effect
A580	The dualled A580 which is located 480 m south of the main Site and 115 m south of the cable route, crosses the study area over a distance of 3.6 km. The route is represented by Viewpoint 4 in Figure 5d. The Screened ZTV indicates that there could be visibility to the BESS Site from parts of the section located to the east of Hewitt's Lane. Actual visibility is limited by occasional sections of hedge and trees located on the north side of the road and within the intervening landscape particularly located between Knowsley Brook and Cut Lane. Viewpoint 4, which is located centrally within this section, illustrates that where there is visibility to the BESS site during construction, it is likely that most elements would be screened by intervening vegetation including the hedges on the south side of the Site. The tops of cranes and lighting would be clearly visible. During operation there may be visibility to the tallest elements including the top part of the ladder on the water tank, or the tops of some of the BESS. However it is likely that most elements will be fully screened. Over time the proposed hedges and trees would increase the level of vegetation visible within the Site to a small degree. There may be some views to the construction of the cable route although this would not be prominent. It is likely that changes to views would occur over c. 20% of the route and those changes would have minimal effects on road users who are travelling at speed. Users of the road have a Low sensitivity. Magnitude of Change Construction, Year 1 and Year 10: Negligible. Level of effect: Negligible, and neutral at Year 10.
A5208	The dualled A5208 is located 800 m west of the main Site and 450 m west of the cable route. The section of the route located in the study area is 1.8 km long. All views to changes would be fully screened by intervening buildings and vegetation including the woodland associated with the substation. Magnitude of Change Construction, Year 1 and Year 10: None. Level of effect: None.
Minor roads	
Cut Lane	Cut Lane is the minor road which accesses the Site from the south measuring 1.4 km within the study area.

	The ZTVs and site verification indicate that there could be some views to the BESS site from eastern sections and occasionally close to Sandy Brow Lane. In addition the cable route follows a section of the route located west of the BESS site over 370 m. Viewpoint 1 (Figure 5a) shows that close to the Site during construction it is likely that the upper sections of cranes would be visible above the intervening hedge. In addition lighting on the Site may also be visible during construction but would be minimal during operation. During operation there would be no change to the view other than the formation of a larger road entrance onto Cut Lane in the left hand side of the image. It is likely that all other elements of the Proposed Development would be hidden in summer and winter. There may be some views to the top sides of the BESS units from locations on Cut Lane to the east beyond the intervening hedges although they are not likely to be prominent. The cable route construction would be prominent and temporary, affecting 25% of the route. This would involve excavations and resurfacing which is typical of roads and would be temporary. During operation there would be no effects along the route. Further to the east, it is likely that there would be some views beyond hedges to the upper sections of a number of the eastern-most BESS units, seen in front of the existing building (measuring half its height). Users of the road have a Medium sensitivity. The greatest static level of effect is likely to be Major/Moderate and notable during construction of the cable route, and Moderate/Minor at Year 1 from locations to the east of the Site due to changes at the BESS site, before the proposed hedge and trees located on the eastern site boundary had matured. Magnitude of Change Construction: Medium. Level of effect: Moderate, not notable. Magnitude of Change Year 1 and Year 10: Low. Level of effect: Minor.
Molly's Lane	Molly's Lane is located 310 m west of the BESS site and adjacent to the cable route. The road measures 450 m. There would be little or no visibility to change within the main BESS site but the construction of the cable route would be clearly visible at the junction with Cut Lane. Much of the road would be affected during the construction of the cable route. This would involve excavations and resurfacing which is typical of roads and would be temporary. During operation there would be no effects along the route. The sensitivity of users of the route are Medium. The greatest static magnitude of change would be Medium-High during construction resulting in a Moderate notable effect due to the construction of the cable although there would not be effects on the route during operation. Magnitude of Change Construction: Low. Level of effect: Minor. Magnitude of Change Year 1 and Year 10: Negligible. Level of effect: Negligible.
Hewitt's Lane located	Hewitt's Lane is located 350 m west of the BESS site and includes a 370m section of the cable route. The road measures 470 m. There would be little or no visibility to change within the main BESS site but much of the road would be affected during the construction of the cable route. This would involve excavations and resurfacing which is typical of roads and would be temporary. No trees or hedges would be required to be removed other than some young regenerating trees located at the exit towards the substation. Users of the road have a Medium sensitivity. The greatest static level of effect is likely to be Moderate and notable during construction of the cable route. Magnitude of Change Construction: Medium. Level of effect: Moderate, not notable. Magnitude of Change Year 1 and Year 10: Negligible. Level of effect: Negligible.
Sandy Brow lane which continues onto Red Cut Lane	Sandy Brow Lane which continues onto Red Cut Lane to the north is located 130 m west of the BESS site The ZTVs and site verification indicate that there could be some views to the BESS site from sections along much of the route In addition the construction of the cable route would be visible at the southern junction of the road with Cut Lane. Viewpoints 2 located centrally, and 3 located in the north section (Figure 5b and 5c) represent visibility. Views to the BESS site are screened intermittently by gappy hedges, scrub and trees located on the east side. However there would be some views to the upper parts of the BESS units in the northern-most part of the Site from central areas. In northern

	parts there would be some views to BESS units where the bund located on the west side, does not screen views. Although there would be an increased level of built development, it would not be prominent. It would be partially screened by intervening trees, and would be seen within the context of large numbers of pylons and a wind turbine. At Year 10 the proposed trees located in the northern part of the Site would provide some screening of BESS elements, and also the existing green building, marking a neutral change. The cable route construction would be prominent, affecting the southern end of the road. This would involve excavations and resurfacing which is typical of roads and would be temporary. During operation there would be no effects along the route. Users of the road have a Medium sensitivity. The greatest static level of effect is likely to be Major/Moderate during construction of the cable route, and Moderate not notable at Year 1 before the proposed hedge and trees located on the eastern site boundary had matured. Magnitude of Change Construction: Low-Medium. Level of effect: Moderate, not notable. Magnitude of Change Year 1 and Year 10: Low. Level of effect: Minor.
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8.6 CUMULATIVE VISUAL EFFECTS

Cumulative effects of the existing electrical infrastructure within the study area is included in the visual assessment. No potential future cumulative visual effects have been identified.

Should the site at the parcel of land that is located between Molly's Lane and the B5202 and marked in Knowsley Local Plan Proposals Map for Sustainable Urban Expansion be developed, there could be sequential cumulative effects on the minor roads between the two developments.

Otherwise it is not anticipated that the baseline conditions of much of the land use, described above, will differ significantly in the future without the Proposed Development, with the Proposed Development or after the 30-year operational phase.

9 SUMMARY & CONCLUSION

9.1 THE LVA AND PROPOSED DEVELOPMENT

The LVA has recorded and analysed the baseline landscape resource and visual amenity of the Site and surrounding area; identified the landscape and visual receptors likely to be affected by the Proposed Development; and determined the nature and extent of potential effects.

The most important effects have been described as 'notable'. Whilst most effects would be adverse, some neutral or beneficial effects would occur as the result of the proposed tree planting.

As part of an iterative process the Proposed Development has been designed to minimise landscape and visual impacts through selective micro siting of the infrastructure to allow space for screen planting and to use existing screening from vegetation and the bund on the western site boundary; use of recessive material colour; and planting which is illustrated in the LMP (Figure 9) with detail set out in Appendix 2. Established vegetation on and immediately adjacent to the boundaries of the Site already provides a degree of visual containment.

The BESS site would be located in an area of previously excavated ground which would be reinstated as neutral grassland before works began. In addition, the cable route would be located within Cut Lane, Hewitt's Lane and regenerating woodland located near the

Knowsley substation. A number of trees would be removed to construct the cable route close to the substation and no sections of hedgerow would be removed. Trees would be replaced within the BESS site however, and there would be a net gain of hedgerows and a wetland area (see the BNG calculations).

The BESS site and the cable route are located within Green Belt and LCA Simonswood Moss. The Site and area within 1.5km incorporate the eastern boundary of Kirkby and an area of open countryside. The Site and study area are undesignated and negatively influenced by the A580 and existing built development on the edge of Kirkby. The countryside is also punctuated by a proliferation of electrical infrastructure relating to the Knowsley substation located 490 m to the south-west of the BESS site and at the western point of the cable route. However the area is also important in terms of providing 'openness' within the Green Belt and providing amenity value for local users including PRow users.

9.2 EFFECTS OF THE PROPOSED DEVELOPMENT

The construction of the cable route would cause some notable localised, temporary effects on Cut Lane, Hewitt's Lane and the woodland corridor close to the substation. The operational period of the cable route would not have any effect as it would be underground.

The proposed built development located in the BESS site would physically affect a relatively small area measuring c. 0.55 ha collectively, introducing a group of structures most of which would measure up to 4.2m in height. The visual amenity of users of the surrounding area would be affected to a small degree through views to the tops of the BESS units in views from the north and east particularly. Over time the proposed hedge would screen most or all views, and the proposed trees would reduce physical openness to a small degree. These changes are in character with that of the surrounding area and, in views from the north and west, would provide some screening and softening of the existing A-frame building located within the Site, which is considered a beneficial effect.

There would not be any notable cumulative effects nor effects with any known future developments.

9.2.1 Landscape Effects

There would not be any notable level effects on the landscape resource within 1.5km:

- Effects within LCA Simonswood Moss within the BESS site would be Moderate and adverse, but not notable at Construction and Year 1, reducing to Minor and neutral at Year 10 with the growth of hedges, trees, wetland area and neutral grassland (enhanced and moderate), improving the value of the LCA.
- Effects within LCA Simonswood Moss within 1.5km would be Negligible and adverse, becoming neutral by Year 10 due to the vegetation growth.
- LCA Knowsley Estate would not be directly affected and perceptual effects would be Negligible and adverse; and
- Physical effects on Knowsley Green Belt would be Moderate/Minor, change to perceptions of openness would be Moderate/Minor and effects on the visual amenity of recreational users would also be Moderate/Minor. All effects would be adverse. Whilst the changes to the openness and visual amenity of the Green Belt would be adverse, they would be small.
- Effects on Knowsley Park Registered Park and Garden would be Negligible.

9.2.2 Visual Effects

The construction period would cause the greatest level of visual effects due to the visibility of structures, plant, materials, and lights although it would be temporary. It would have greatest effect at Cut Lane and Hewitt's Lane due to the construction of the cable route although considered as whole routes within 1.5 km, sequential effects would not be notable. There are 20 individual or groups of residential properties within 500 m and notable adverse effects have been found at P6 Hawthorn Cottage, P7 located to the west side of Hawthorn Cottage, P8 The Cottage, P11 and P12 Mossie Cottage due to their locations on the cable

route and effects during the construction of the cable route. None of the operational effects of the cable route, or during any phase of the BESS site would be notable.

A number of visual receptors were scoped out of the visual assessment as they would not be affected by the ZTVs. In addition there would not be any notable level effects within 1.5km located at:

- The remaining residential properties;
- Settlements including Kirkby or Knowsley;
- PRow including the bridleway which exits Sandy Brow Lane 220 m to the north of the Site (KB/18/4, KB/18/2 and KB/18/1), with a section of footpath linking with Kirkby (KB/19/1), the footpath which follows New Cut Lane and exits Cut Lane 475m to the east (KB/15/1 and KB/16/1-2), or the short sections of footpath located south of the A580 near Canrow Farm within 580 m (KN/11/1, KN/11/3 and KN/12/1);
- Sport or recreation locations including Acorn Field Plantation nature reserve; and
- Transport routes A580, A5208, Cut Lane, Molly's Lane, Hewitt's Lane or Sandy Brow Lane or Red Cut Lane.

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APPENDIX 1 LVA METHODOLOGY

GUIDANCE

The assessment methodology follows the 'Guidelines for Landscape and Visual Impact Assessment' Third Edition (GLVA3)¹ and the and Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3) (2024)². As recommended by GLVA3, this is not a generic LVA methodology, but has been tailored to be proportionate to the nature and location of the Development. The methodology also considers the following guidance:

- Landscape Institute (2019), 'Visual Representation of Development Proposals', Technical Guidance Note³;
- Landscape Institute (2019), Residential Visual Amenity Assessment TGN 2/19¹⁴
- Natural England (2014), 'An Approach to Landscape Character Assessment'⁴; and
- Natural England (2019), An approach to Landscape Sensitivity Assessment¹⁵.

LANDSCAPE EFFECTS

Generally the methodology of the LVA was guided by Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3), Institute of Environmental Management and Appraisal and the Landscape Institute, 2013, and Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3) (2024).

The starting point for the assessment of landscape effects was a desk based review of published landscape assessments.

The sensitivity of the landscape to change resulting from a Proposed Development is not absolute and varies according to the existing landscape, the nature of the Proposed Development and the type of change being proposed. Good practice guidance differentiates between baseline sensitivity of the landscape and the sensitivity of a landscape to a specific development proposal (Landscape Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity, 2004, SNH & Countryside Agency). Accordingly, the concept of 'sensitivity to change' to new development, as described within the baseline published landscape character assessments, is distinct from the consideration of landscape sensitivity to the specific development proposal.

The baseline for consideration of landscape effects is the established landscape character. The landscape effects of a Proposed Development are considered against the key characteristics of the receiving landscape. The degree to which the Proposed Development may change 'the distinct and recognisable pattern that makes one landscape different from another, rather than better or worse' (Countryside Agency and SNH, 2002), enables a judgement to be made as to the significance of the effect in landscape character terms. This involves consideration of where the Proposed Development may give rise to a different landscape character type or sub-type.

In general terms, a distinctive landscape of acknowledged value (e.g. covered by a designation) and in good condition is likely to be more sensitive to change than a landscape in poor condition and with no designations or acknowledged value. General guidance on the evaluation of sensitivity is provided below; however, the actual sensitivity would depend on the attributes of the landscape receiving the proposals and the nature of those proposals.

In order to reach an understanding of the effects of development upon the landscape it is necessary to consider different aspects of the landscape as follows:

¹⁴ Landscape Institute, *Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 02/19* 15th March 2019. Available online at: <https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf>

¹⁵ Natural England (2019), An approach to landscape sensitivity assessment. Available on line at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817928/landscape-sensitivity-assessment-2019.pdf

Landscape Fabric / Elements: The individual features of the landscape, such as hills, valleys, woods, hedges, tree cover, vegetation, buildings and roads for example which can usually be described and quantified;

Landscape Quality: The state of repair or condition of elements of a particular landscape, its integrity and intactness and the extent to which its distinctive character is apparent;

Landscape Value: The importance attached to a landscape, often used as a basis for designation or recognition which expresses national or regional consensus, because of its special qualities/attributes including aesthetic or perceptual aspects such as scenic beauty, tranquillity or wildness, cultural associations or nature conservation interest; and

Landscape Key Characteristics: The particularly important elements or combinations of elements which makes a particular contribution to defining or describing the character of an area, which may include experiential characteristics such as wildness and tranquillity.

The sensitivity of the landscape to a particular development considers the susceptibility of the landscape and its value. The overall sensitivity is described as high, medium or low. This is assessed by taking into account the existing landscape quality, landscape value, and landscape capacity or susceptibility to change, which often vary depending on the type of development proposed and the particular site location, such that sensitivity needs to be considered on a case by case basis. This should not be confused with 'inherent sensitivity' where areas of the landscape may be referred to as inherently of 'high' or 'low sensitivity'.

For example, a National Park may be described as inherently of high sensitivity on account of its designation, but it may prove to be less sensitive to particular development and/or the design of that development.

Alternatively, an undesignated landscape may be of high sensitivity to a particular development and/or the design of that development regardless of the lack of local or national designation. The main factors to consider are discussed as follows:

Landscape susceptibility according to GLVIA3 means "the ability of the landscape to accommodate the Proposed Development without undue consequences for maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies". Judgements on landscape susceptibility include references to both the physical and aesthetic characteristics and the potential scope for mitigation that would be in character with the landscape.

The judgements regarding susceptibility and value of the landscape character are identified within the sensitivity table included within this appendix. These relationships can be complex and value alone does not automatically or by definition have high susceptibility to all types of change. Examples and on the evaluation of landscape sensitivity are provided below:

Table A1.1: Landscape sensitivity criteria

Sensitivity	Description
High Sensitivity	Landscape character, characteristics and elements which would generally be of lower landscape capacity or scope for landscape change, and of notable landscape value and quality. These are landscapes that may be considered to be of particular importance to conserve and which may be particularly sensitive to change if inappropriately dealt with.
Medium Sensitivity	Landscape character, characteristics and elements where there would be a moderate landscape capacity or some scope for landscape change. Often include landscapes of moderate landscape value and quality which may be locally designated.
Low Sensitivity	Landscape Character, characteristics and elements where there would be higher landscape capacity or scope for landscape change to accommodate the proposed type of development. Usually applies to landscapes with of lesser landscape susceptibility or higher landscape capacity for the Proposed Development.

The level of landscape effects is not absolute and can only be defined in relation to each development and its location. It is for each assessment to determine the assessment criteria and thresholds using well informed and reasoned judgements.

The magnitude of landscape effect arising from the Proposed Development at any particular location is described as High, Medium, Low or Negligible based on the interpretation of a combination of largely quantifiable parameters, as follows:

- degree of loss or alteration to key landscape features/elements or characteristics;
- distance from the development;
- duration of effect;
- landscape backdrop to the development; and
- landscape context of other built development, particularly vertical elements.

In order to differentiate between different levels of magnitude the following definitions are provided:

Table A1.2: Landscape magnitude of change definitions

Magnitude of Change	Description
High	Total loss or extensive alteration to key landscape elements/features/ characteristics of the baseline, or introduction of uncharacteristic elements which would give rise to a fresh characterising effect.
Medium	Partial loss or alteration to one or more key landscape elements/features/ characteristics of the baseline and/or introduction of elements that may be prominent, but not necessarily substantially uncharacteristic with the attributes of the receiving landscape (which could co-characterise parts of the landscape).
Low	Minor loss or alteration to one or more key landscape elements/features/ characteristics of the baseline and/or introduction of elements that may not be uncharacteristic with the surrounding landscape or may not lead to a characterising or co-characterising effect.
Negligible	Very minor loss or alteration to one or more key landscape elements/features/ characteristics of the baseline and/or the introduction of elements that are not uncharacteristic of the surrounding landscape. Change would be barely distinguishable approximating to no change.
None	No change.

Having established where the observation of varying levels of change to the landscape baseline may occur, the geographical extent of the change can be identified and a judgement made as to the level of effect in landscape character terms at varying scales.

The importance of the effect on the landscape resource may be determined by correlating the magnitude of the landscape effect (High, Medium, Low or Negligible) with the sensitivity of the landscape resource (High, Medium or Low). The following table sets out the main correlations between magnitude and sensitivity.

Table A1.3: Landscape effects matrix

Magnitude: Sensitivity:	High	Medium-High	Medium	Medium-Low	Low	Negligible/ None
High	Major	Major	Major/ Moderate	Moderate	Moderate/ Minor	Minor
Medium-High	Major	Major/ Moderate	Moderate	Moderate	Moderate/ Minor	Minor
Medium	Major/ Moderate	Moderate	Moderate	Moderate/ Minor	Minor	Minor
Medium-Low	Moderate	Moderate	Moderate/ Minor	Minor	Minor	Negligible

Low	Moderate	Moderate/ Minor	Minor	Minor	Negligible	Negligible
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Level of Landscape Effects

The level of any identified landscape effect has been assessed in terms of major, moderate, minor or negligible. These categories are based on the juxtaposition of landscape sensitivity with the predicted magnitude of change. This matrix should not be used as a prescriptive tool but must allow for the exercise of professional judgement. Thus in some instances a particular parameter may be considered as having a determining effect on the analysis.

The approach to assessing effects on landscape character is to consider the key characteristics for the Landscape Character Type (LCT) or Landscape Character Area (LCA) within which the proposed development is located (host) or the adjacent LCT's (non-host) and identify which of these the proposed development would affect. For the host LCTs, where the Proposed Development is located, a notable change in landscape character is likely to occur where valued elements or key characteristics would be lost, superseded or substantially changed. Where particular views are an essential characteristic of a landscape type, notable landscape character effects may occur where the proposed development becomes a defining characteristic of those views. This will depend on the key characteristics of the landscape and nature, extent and duration of the effects that would be brought about by the proposed development.

At greater distances, the Proposed Development may still be a clearly noticeable element in the landscape; however, the characterising influence would be of a decreasing intensity. The baseline landscape character would remain intact and the Proposed Development would be perceived as a new element in the landscape alongside the pre-existing characteristics without altering them.

Where the landscape effect has been classified as Major or Major/Moderate this is considered to be notable. In some circumstances where 'Moderate' effects are predicted, professional judgement will be applied to ensure that the potential for notable effects arising has been thoroughly considered.

In this way, the assessment is carried out transparently and systematically. It establishes at what level in the assessor's opinion notable effects arise. It also permits the reader to follow the approach and determine whether or not there is agreement with the judgements made.

VISUAL EFFECTS

The sensitivity of potential visual receptors will vary depending on the location and context of the viewpoint, the activity of the receptor and importance of the view. Visual receptor sensitivity is defined as High, Medium, or Low in accordance with the criteria in the following table.

Table A1.4: Visual sensitivity criteria

Sensitivity	Description
High Sensitivity	Residents within the curtilage of their homes; users of outdoor recreational facilities including footpaths, cycle ways and recreational road users; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas.
Medium Sensitivity	Road users and travellers on trains experiencing views from transport routes. People engaged in outdoor sport other than appreciation of the landscape, e.g. nature conservation, golf and water based recreation.
Low Sensitivity	Workers, users of facilities and commercial buildings (indoors) experiencing views from buildings.

The magnitude of landscape effect arising from the Proposed Development at any particular location is described as substantial, moderate, slight or negligible based on the interpretation of a combination of largely quantifiable parameters, as follows:

- distance of the viewpoint/receptor from the development;
- duration of effect;

- extent of the development in the view;
- angle of view in relation to main receptor activity;
- proportion of the field of view occupied by the development;
- background to the development; and
- extent of other built development visible, particularly vertical elements.

It is assumed that the change would be seen in clear visibility and the assessment is carried out on that basis. Where appropriate, comment may be made on lighting and weather conditions. In order to differentiate between different levels of magnitude the following definitions are provided in the following table.

Table A1.5: Visual magnitude of change definitions

Magnitude of Change	Description
High	Substantial change, where the proposals would have a defining influence on the view. Change very prominent leading to substantial obstruction or complete change in character and composition of the baseline existing view.
Medium	Moderate change in the view would occur where the proposals would be clearly noticeable and an notable new element in the view. It may involve partial obstruction of existing view or partial change in character and composition of the baseline existing view.
Low	The proposals would be partially visible or visible at sufficient distance to be perceptible and result in limited or minor changes to the view. The character and composition, although altered will be similar to the baseline existing situation.
Negligible	Change would be barely perceptible. The composition and character of the view would be substantially unaltered, approximating to little or no change.

The threshold for different levels of visual effects relies to a great extent on professional judgement. Criteria and local circumstances require close study and careful judgement.

Beneficial effects upon receptors may result from a change to a view by the removal of eyesores or through the addition of well-designed elements which add to the sense of place in a beneficial manner.

The following table sets out the main correlations between magnitude and sensitivity.

Table A.1.6: Visual effects matrix

Magnitude: Sensitivity:	High	Medium-High	Medium	Medium-Low	Low	Negligible/ None
High	Major	Major	Major/ Moderate	Moderate	Moderate/ Minor	Minor
Medium-High	Major	Major/ Moderate	Moderate	Moderate	Moderate/ Minor	Minor
Medium	Major/ Moderate	Moderate	Moderate	Moderate/ Minor	Minor	Minor
Medium-Low	Moderate	Moderate	Moderate/ Minor	Minor	Minor	Negligible
Low	Moderate	Moderate/ Minor	Minor	Minor	Negligible	Negligible

Level of Visual Effects

The level of any identified visual effect has been assessed in terms of Major, Moderate, Minor or Negligible. These categories are based on the juxtaposition of viewpoint or

landscape sensitivity with the predicted magnitude of change. This matrix should not be used as a prescriptive tool but must allow for the exercise of professional judgement. Thus in some instances a particular parameter may be considered as having a determining effect on the analysis.

Where the visual effect has been classified as Major or Major/Moderate this is considered to be notable. In some circumstances where 'Moderate' effects are predicted professional judgement will be applied to ensure that the potential for notable effects arising has been thoroughly considered.

In this way, the assessment is carried out transparently and systematically. It establishes at what level in the assessor's opinion notable effects arise. It also permits the reader to follow the approach and determine whether or not there is agreement with the judgements made.

The conclusion that some effects are notable must not be taken to imply that they should warrant refusal in any decision making process which relies on the ES.

TYPE OF EFFECT

Landscape and visual effects are described with reference to type (direct, indirect, secondary or cumulative), timeframe (short, medium, long term, permanent, and temporary) and whether they are beneficial or adverse (beneficial or adverse). The various types of effect are described as follows:

Temporary / Residual Effects

If a proposal would result in an alteration to an environment whose attributes can be quickly recovered then judgements concerning the level of effects should be tempered in that light. Commercial development applications typically include permanent, long term elements as well as minor alternations to landform resulting in residual landscape and visual effects.

Direct / Indirect

Direct and indirect landscape and visual effects are defined in Guidelines for Landscape and Visual Impact Assessment (GLVIA3). Direct effects may be defined "result directly from the development itself" (para 3.22). An indirect (or secondary) effect is one that results "from consequential change resulting from the development" (para 3.22) and is often produced away from the site of the Proposed Development or as a result of a complex pathway or secondary association. The direct or physical landscape effects of the Proposed Development would generally be limited to an area around the development itself. Any indirect landscape effects are concerned with the view of the changes from outside the local landscape.

Beneficial / Adverse

Landscape and visual effects can be beneficial or adverse and in some instances may be considered neutral. Beneficial effects upon landscape receptors may result from changes to the landscape involving beneficial enhancement measures or through the addition of well-designed elements, which add to the landscape experience or sense of place in a complementary manner.

The landscape impacts of the Proposed Development have been considered against the landscape baseline, taking account of the landscape characteristics. Taking a precautionary approach, changes to rural landscapes involving construction of man-made objects of a large scale are generally considered to be adverse, as they are not usually actively promoted as part of a district wide landscape strategy and therefore in the assessment of landscape effects they are assumed to be adverse, unless specified otherwise in the text.

It is important to recognise that for the same development, some may consider the visual effects for a development of this nature as adverse or beneficial. This depends to some extent on the viewer's predisposition towards landscape change but also the principle of commercial building features in the landscape. Taking a precautionary approach in making an assessment of the 'worst case scenario', the assessment considers that all effects on views which would result from the construction and operation of the Proposed Development (in particular the mast and associated buildings) to be adverse, unless specified otherwise in the text. It is noted, however, that not all people would consider the effects to be adverse.

VISUALISATION METHODOLOGY

Zone of Theoretical Visibility Maps

The Visibility Map has been prepared at 1:30,000 scale to indicate the extent of potential visibility on the basis of bare ground and does not include the screening effects of intervening established tree cover. The Visibility Map indicates areas from which it might be possible to secure views of part, or parts, of the Proposed Development (in particular the mast). However, use of the Visibility Maps needs to be qualified on the following basis:

- There are a number of areas within the Visibility Maps from which there is potential to view parts of the proposal, but which comprise open farmland, or other land where the general public do not appear to exercise regular access;
- The large scale Visibility Map does not account for the screening effects and filtering of views as a result of intervening features, such as buildings, trees and forestry;
- The Visibility Maps do not account for the likely orientation of a viewer – for example when travelling in a vehicle.

In addition, the accuracy of the Visibility Maps has to be considered. In particular, the Visibility Map will be generated from Ordnance Survey (OS) Landform Panorama digital data based on a gridded terrain model with 5 m cell sizes. The resolution of this model cannot accurately represent small-scale terrain features, which can therefore give rise to inaccuracy in the predicted visibility. This can lead to underestimation of visibility – e.g. a raised area of ground permitting views over an intervening obstruction or can lead to overestimation of visibility – such as where a roadside bund obscures a view.

Viewpoint Visualisation Presentation

All photography, visualisations and graphics were undertaken in accordance with the Landscape Institute Guidance Note 01/11 Photography and photomontage. The photographs were taken using a digital full frame sensor DSLR camera with a fixed focal length equivalent of 50 mm lens, on a stable and levelled tripod pan head with a camera height of 1.5 m above ground level. Single shot frames were taken and spliced together using Adobe Photoshop to form a panorama and a GPS location was recorded at each Viewpoint.

APPENDIX 2 LANDSCAPE ENHANCEMENT AND MITIGATION PLAN

The Landscape Management Plan (LMP) comprises Figure 9 located in Appendix 3 which illustrates existing and proposed areas of native species hedging, trees, a wetland area associated with the attenuation basin and grassland areas. The species composition, planting and management of the native species is set out below.

HEDGEROWS

The role of hedges would be to enhance the landscape character and biodiversity of the Site, and to provide visual screening of the Development.

Choosing Species

Tree and hedgerow planting should be composed of species characteristic of the locality and comprise some fast-establishing species such as Hawthorn and Blackthorn. Climate, altitude and geology should always be considered when choosing plant species for planting.

Buying Hedgerow Stock

Buy plants grown from indigenous, preferably local seeds or root stocks, in order to prevent erosion of the genetic integrity of our native species. Also, indigenous species are more likely to establish successfully.

Bare root whips (plants up to 80cm tall) will establish better than large plants. It is important that the roots of the whips are protected at all times; to ensure this, keep them in plastic bags until the moment of planting. If the whips cannot be planted immediately, temporarily heel them in as quickly as possible (see picture below).



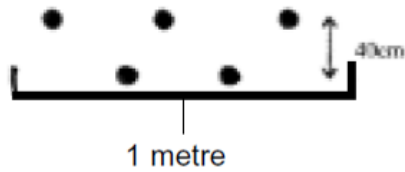
Preparing the site

Dig over your selected site, removing weeds and roots, where possible, and mix in well-rotted manure or other organic matter. If the soil is heavy clay, add some grit and sand to improve drainage further.

Planting the hedgerow

Plant between end of October to end of March when the weather is not freezing and ground is not waterlogged (preferably before January). If the soil is heavy clay it may be best to wait until beginning of March as heavy frost can cause frost heave and expose roots.

Plant a double staggered row hedge, at a width of at least 40cm between each row, with 4-6 plants to be planted per metre (see diagram below).



Randomly plant the less numerous species first and fill in the gaps with the main species. Optimally, plant the hedgerow tree species, at whips of 0.8 to 1.5 metres tall, at the same time as the hedgerow plants. It is advised that the hedgerow trees are brightly labelled to reduce the likelihood of them being cut during flailing. Apply mulch immediately after planting. All plants to be supplied bare root and will be protected with 0.6 m high plastic spiral guards supported by bamboo canes.

If rabbits or hares are a problem, erect rabbit guards. Protection from any deer damage is to be introduced if required. Any protection should allow hedgerows to grow at least 1.5 m wide.

New Hedgerow Management

During the first two to three years of a hedgerow being planted, it should be cut annually to ensure the development of bushy growth low down in the hedge. Dead plants should also be replaced in autumn, over the first few years.

After the first two to three years it is optimal to cut on a two or (preferably) a three year cycle, as most tree or shrub flowers are produced on year old twigs, which annual cutting removes, resulting in no flowers, berries or nuts being produced.

It is advised that to ensure losses are minimised hedgerows are watered where required in the first summer and weeds controlled by spreading a layer of mulch.

It is best to cut in January or February and if this is not feasible, cut as late as possible in autumn. The bird breeding season from 1st March to 31st July should always be avoided.

Wildlife favours large, dense, infrequently cut hedges.

When cutting a hedgerow in rotation, allow the height of the trim to increase a little each time (e.g. 10 cm). If a hedgerow is cut back at the same height repeatedly, after some years a hard knuckle would start to form.

It is important to note that cutting on a 2-3 year cycle can result in faster growing species to consist of thicker shoots than is recommended for an average flail. Therefore, more powerful cutting heads may be required e.g. a shaping saw or flails suitable for cutting greater than 38mm thick shoots.

At Year 5 of operation, it is anticipated that the hedgerows would have reached a height of 3m. Thereafter, they would be maintained at a height of approximately 3m.

Existing Hedgerow Management

In addition to new hedge planting, existing hedgerows within and on the Site boundaries will be managed to a minimum height of approximately 3m in order to provide some screening of views from the immediate surrounding area. Any gaps within existing hedgerows will also be planted using species selected from the mix identified in the following table.

Hedgerow Species Mix

The following table outlines the species mix and proposed planting percentage for new hedgerow:

Table A2.1: New Hedgerow Proposed Species Mix

Common name	Latin name	% mix	Size of plants when planted
Field maple	Acer campestre	15	40-60
Hawthorn	Crataegus monogyna	15	40-60
Blackthorn	Prunus spinosa	30	40-60
Hazel	Corylus avellana	10	40-60
Gorse	Ulex europaeus	5	40-60
English Oak	Quercus robur	5	40-60
Elder	Sambucus nigra	5	40-60
Elm	Ulmus procera	5	40-60
Ash	Fraxinus excelsior	5	40-60
Dog Rose	Rosa canina	5	40-60

Hedgerow Margins (Countryside Hedgerows)

Ideally hedgerow margins should be at least 2m in length and no less than 1m wide. Optimally the management of a margin should be cut in two halves; whereby the closest half to the hedgerow is allowed to grow tussocky, by cutting once every few years, and the other half should be cut annually, after mid-July. This will provide a soft ecotone between the hedgerow and the grassland habitats, and provide cover for wildlife.

Prevent weed growth of the ground flora margin by excluding fertilisers and sowing an appropriate seed mix, which is suited to the site's climate, altitude and geology.

Optimally, create an arable field margin which meets the NERC Act, 2006 Priority Habitat criteria.

TREES

The role of trees would be to enhance the landscape character and biodiversity of the Site, and to provide visual screening of the Development.

Trees should be planted at 2.0m centres as informal groups, with each group containing 5-50 plants of the same species. The proposed species mix is shown in the following table. All plants would be supplied bare root and would be protected with 0.6m high plastic spiral guards supported by bamboo canes.

At Year 5 of operation, it is anticipated that woodland planting should reach heights of between 1-5m. At Year 10, it is anticipated that woodland planting would have reached heights of at least 5m.

Table A2.2: Broadleaved Woodland/Native Species Trees

Common name	Latin name	% mix	Size of plants when planted (cm)
English oak	Quercus robur	20	2.5-3m
Field Maple	Acer campestre	20	2.5-3m
Sycamore	Acer pseudoplatanus	10	2.5-3m
Pinus sylvestica		10	2.5-3m
Birch	Betula pendula	20	2.5-3m
Mountain ash	Sorbus aucuparia	20	2.5-3m

New Tree Management

To ensure a reasonable level of establishment, newly planted areas of the site should be monitored and maintained for a period of five years following completion of planting works associated with each stage of work.

Trees should be monitored for any deadwood and crossing branches, and should be pruned accordingly to encourage healthy, strong growth.

Trees with clear stems should be maintained as such with any lower branches removed as required.

Tree stakes and guards should be inspected twice yearly to ensure they are secure and in place and ties should be adjusted as required to allow for growth. The contractor should ensure that the protective guards do not impede the natural growth of the plant. Plant guards and stakes should be removed and responsibly disposed of away from site once the plant has fully established or at the end of the fifth growing season, whichever is sooner.

A depth of 75 mm of coarse bark mulch should be maintained at the base of each newly planted tree or shrub. This should be topped up on an annual basis or as required.

Should any trees or shrubs planted as part of the landscape scheme, within a period of five years after planting, be removed, die or become seriously damaged or diseased, they are to be replaced in the first available planting season with specimens of the same species and size as those originally planted. All proposed tree planting works should be implemented in the first available planting season (October-March) following the completion of the works.

GRASSLAND

Neutral grassland areas would be established and managed for good biodiversity. It would include neutral grassland types enhanced and moderate.

Ground Preparation

Ground preparation should be based on the soil nutrients identified through soil testing. Where nutrient levels are too high to sustain neutral grassland a number of management techniques can be employed including the following:

- Soil inversion by deep ploughing to bring lower nutrient substrate to the surface;
- Use of nursery crops which rapidly remove soil nutrients; and
- Removal of the summer cuttings in July to August.

Soil testing may be undertaken, at the discretion of the appointed contractor/ecologist, following ground preparation to determine other preparatory and management requirements.

Construction

Grassland would be established by directly sowing the appropriate seed mixes into the prepared ground. The following measures would take place as part of, or immediately after, construction.

Construction activities have the potential to disturb the seed bed and so it may be necessary to repeat the pre-construction ground preparation to establish a suitable seed bed. Similarly, if the seedbed lies dormant following construction but before autumn sowing, then further ground preparation may be required.

Timing

Autumn (August to mid-September) sowing is preferred because this favours species that germinate in autumn and species that require a period of cold to break their dormancy before they germinate in spring. Sowing must take place when conditions are warm and moist, and so winter and drought periods must be avoided.

Seed mixes

The seed mixes used should be specified after reinstatement of the site and assessment of ground conditions.

A seed mix equivalent or similar to that set out in Table A2.3 would be used for the Modified Grassland. Growth of the seed mix would need to be encouraged by the microclimate caused by the panels and suitable for sheep to graze.

Table A2.3: Neutral Grassland, Modified Grassland Mix

Common name	Latin Name	% mix
Cavendish late diploid perennial ryegrass	Lolium perenne	18%
Boyne int diploid perennial ryegrass	Lolium perenne	18%
Maxima 1 Strong creeping red fescue	Festuca Rubra	20%
Pinafore Slender creeping red fescue	Festuca rubra litoralis	10%
Toddington late dip perennial ryegrass	Lolium perenne	14%
Boganis Rough stalk meadow grass	Poa trivialis	10%
Bornito Hard fescue	Festuca Trachyphylla	10%

Emorsgate EM3 Special General Purpose Meadow Mixture or similar seed mixes should be used for Other Neutral Grassland areas including 20% wild flowers or similar to that set out in Table A2.4.

Table A2.4: Neutral Grassland, Enhanced EM3 Special General Purpose Meadow Mixture

Common name	Latin Name	% mix
20% wild flowers		
Yarrow	Achillea millefolium	0.50%
Agrimony	Agrimonia eupatoria	1%
Betony	Betonica officinalis	0.50%
Common Knapweed	Centaurea nigra	2%
Wild Carrot	Daucus carota	1%
Viper's-bugloss	Echium vulgare	1.40%
Meadowsweet	Filipendula ulmaria	0.20%
Hedge Bedstraw	Galium album	0.40%
Lady's Bedstraw	Galium verum	0.40%
Meadow Crane's-bill	Geranium pratense	0.50%
Meadow Vetchling	Lathyrus pratensis	0.40%
Oxeye Daisy	Leucanthemum vulgare	1.40%
Birdsfoot Trefoil	Lotus corniculatus	0.40%
Musk Mallow	Malva moschata	1.00%
Black Medick	Medicago lupulina	0.40%
Sainfoin	Onobrychis viciifolia	0.20%
Wild Parsnip	Pastinaca sativa	0.20%
Ribwort Plantain	Plantago lanceolata	1.40%
Salad Burnet	Poterium sanguisorba ssp sanguisorba	0.60%
Cowslip	Primula veris	1.00%
Selfheal	Prunella vulgaris	1.50%

Meadow Buttercup	Ranunculus acris	1.50%
Bulbous Buttercup	Ranunculus bulbosus	0.20%
Common Sorrel	Rumex acetosa	0.30%
Small Scabious	Scabiosa columbaria	0.40%
Red Campion	Silene dioica	0.40%
Bladder Campion	Silene vulgaris	0.40%
Dandelion	Taraxacum officinale	0.20%
Tufted Vetch	Vicia cracca	0.20%
80% grasses		
Common Bent	Agrostis capillaris	8%
Crested Dogstail	Cynosurus cristatus	28%
Red Fescue	Festuca rubra	24%
Smaller Cat's-tail	Phleum bertolonii	4%
Smooth-stalked Meadow-grass	Poa pratensis	16%

Sowing

The seed mix would be sown at a rate of 15 kg/ha (1.5 g/m²). The seed must be surface sown and can be applied by machine or by hand. Once sown, the seed should be lightly pressed into the seedbed by rolling or treading.

After Care

Neutral grassland should be mown in August and trimmings removed. Patches of pernicious weeds should be mechanically controlled through spot maintenance.

Monitoring

An ecologist would visit the site in spring (May) and summer (July/August) Y1 to check the establishment of seed mix and weeds. Remedial actions would be communicated to the Operator at the earliest opportunity.

Management Once Established

Assuming that the seed mixes have established successfully after Y1, an ecologist would visit the site in late-spring (May) in years 2, 3 and 5 – a critical period for grassland establishment – to assess the success of management.

After 5 years, the proposed grassland would continue to be maintained as per requirements described above.

WETLAND AREA

The sides of the SUDS pool would form a wetland area.

Plant between six and 10 species, with two to three clumps per square metre. Ideally include a couple of year-old plants that have developed root systems.

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The swale may require some light watering and weeding until the plants are fully established..

Table A2.5: Wetland Mix

Common name	Latin name	% mix
Cavendish late diploid perennial ryegrass	Lolium perenne	10

Boyne int diploid perennial ryegrass	Lolium perenne	5
Maxima 1 Strong creeping red fescue	Festuca rubra	5
Slender creeping red fescue	Festuca rubra litoralis	5
Toddington late dip perennial ryegrass	Lolium perenne	5
Boganis Rough stalk meadow grass	Poa trivialis	5
Bornito Hard fescue	Festuca trachyphylla	5
Bog sage	Lobelia cardinalis	10
Yellow flag iris	Iris pseudocorus	10
Soft rush	Juncus effusus	10
Pendulous sedge	Carex pendula	10
Bugle	Ajuga reptans	10
Meadowsweet	Filipendula	10

APPENDIX 3 FIGURES

Figure 1: Site Location and Context

Figure 2: Aerial Mapping

Figure 3: Bare Earth ZTV

Figure 4: Screened ZTV

Figure 5a Viewpoint 1

Figure 5b Viewpoint 2

Figure 5c Viewpoint 3

Figure 5d Viewpoint 4

Figure 5e Viewpoint 5

Figure 6: Landscape Character

Figure 7: Landscape and Visual Receptors

Figure 8: Residential Properties

Figure 9: Landscape Mitigation Plan